

## **Curriculum Vitae**

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# 1 Brief Resume

## 1.1 Education

- Ph.D. in Computer Sciences; University of Texas, Austin: 1993. *Dissertation Title*: “A Theory of Actions, Intentions, and Communications for Multiagent Systems.”  
*Doctoral Supervisors*: Professors E. Allen Emerson (coadvisor) and Nicholas M. Asher (coadvisor).
- M.S.C.S., with a minor in Philosophy (logic); University of Texas, Austin: 1988.
- B.Tech. in Computer Science & Engineering; Indian Institute of Technology, Delhi, India: 1986.

## 1.2 Professional Experience

- April 2023–present: SAS Institute Distinguished Professor of Computer Science, NCSU, Raleigh, NC.
- March 2016–present: Alumni Distinguished Graduate Professor, NCSU, Raleigh, NC.
- February 2014–present: Co-Director, Science of Security Lablet, NCSU.
- August 2003–present: Full Professor, Computer Science, North Carolina State University, Raleigh.
- August 2000–July 2003: Associate Professor with tenure, Computer Science, North Carolina State University, Raleigh.
- August 1995–July 2000: Assistant Professor, Computer Science, North Carolina State University, Raleigh.
- December 1992–July 1995: Member of the Technical Staff, MCC, Austin.
- January 1992–November 1992: Associate Member of the Technical Staff, MCC, Austin.
- June 1989–August 1990 and September 1991–December 1991: Graduate Research Assistant, MCC, Austin.
- September 1990–May 1991: Graduate Research Assistant, Center for Cognitive Science, University of Texas.
- Visiting Summer Appointments: SRI International, Menlo Park, CA: Summer 1986 and 1987; DFKI (German Research Center for Artificial Intelligence), Kaiserslautern, Germany: Summer 1991.

## 1.3 Membership in Professional Organizations

- Association for the Advancement of Artificial Intelligence (AAAI): Fellow.
- American Association for the Advancement of Science (AAAS): Fellow.
- Association for Computing Machinery (ACM): Fellow.
- Academia Europaea: The Academy of Europe (AE): Foreign Member (honoris causa).
- Institute of Electrical and Electronics Engineers (IEEE) and its Computer Society: Fellow.

## 1.4 Scholarly and Professional Honors

- Outstanding Senior Program Committee Member, *Tenth International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*: 2023.
- NCSU Thank a Teacher Recognition Letter (two students): Spring 2022.
- Fellow, Association for Computing Machinery (ACM): 2021.
- Carla Savage Awesome Award: Fall 2021.
- Foreign Member (honoris causa), Academia Europaea: The Academy of Europe (AE): 2021.
- Member, NCSU Academy of Outstanding Mentors: 2021.
- Outstanding Graduate Faculty Mentor Award (awarded by NCSU's Graduate School): 2021.
- Fellow, American Association for the Advancement of Science (AAAS): 2020.
- IEEE TCSVC Research Innovation Award: 2020.
- Facebook Research Award: 2020.
- Blue Sky Paper Award for paper [135]; this award is sponsored by the Computing Research Association's Computing Community Consortium: 2020.
- ACM/SIGAI Autonomous Agents Research Award: 2020.
- NCSU Thank a Teacher Recognition Letter (two students): Spring 2018.
- IBM Shared University Research Award: 2018.
- Member, NCSU Research Leadership Academy: 2017.
- NCSU Alumni Association Outstanding Research Award: 2017.
- Fellow, Association for the Advancement of Artificial Intelligence (AAAI): 2017.
- IBM Partnership Award: 2016.
- IFAAMAS Influential Paper Award: 2016. This award recognizes Paper [105]. IFAAMAS is the International Foundation for Autonomous Agents and MultiAgent Systems.
- NCSU Alumni Association Distinguished Graduate Professorship Award: 2016.
- NCSU Thank a Teacher Recognition Letter: Fall 2015.
- Best Paper Award at the *Thirteenth International Conference on Service-Oriented Computing (ICSOC)* for Paper [161]: 2015.
- NCSU Alumni Association Outstanding Research Award: 2015.
- Selection among the top 10% of the papers accepted at the *Thirteenth International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)* of Paper [176]: 2014.

- Finalist for Best Senior Program Committee Member Award at the *Tenth International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*: 2011. Three out of 78 SPC members were named finalists.
- Fellow, Institute of Electrical and Electronics Engineers: 2009.
- Intel Research Council Faculty Award: 2007.
- IBM Partnership Award: 2007.
- Charter Member, Board of Directors, International Foundation for Autonomous Agents and Multiagent Systems (IFAAMAS): 2007–2012.
- Best Student Paper Award at the *Third IEEE International Conference on Services Computing (SCC)* for Paper [211]: 2006.
- Williams Evans Visiting Fellowship, University of Otago, Dunedin, New Zealand: June 2006.
- Selection as finalist for the Best Innovative System or Application Paper Award at the *Second International Joint Conference on Autonomous Agents and MultiAgent Systems* of Paper [231]: 2003.
- Cisco University Research Grant: 2000.
- IBM Partnership Award: 2000.
- Selection as one of the best papers at the *Third International Conference on Multiagent Systems (ICMAS)* of Paper [239]: July 1998.
- IBM Partnership Award: 1998.
- Nominated for a Packard Fellowship as one of two candidates from NCSU: 1998.
- IEEE Computer Society Distinguished Visitor: 1997–2000.
- Outstanding Reviewer, International Joint Conference on Artificial Intelligence (IJCAI): 1997. Fewer than 10% of the reviewers were considered outstanding.
- IBM Partnership Award: 1997.
- National Science Foundation CAREER Award: 1996–2000.
- IBM Partnership Award: 1996.
- Selection as one of the best papers at *Tenth IEEE Conference on Artificial Intelligence for Applications (CAIA)* of Paper [242]: 1994.
- Nomination to the Harvard Society of Fellows: 1992. I did not pursue this nomination.
- Microelectronics and Computer Development Fellowship from the University of Texas at Austin: 1986–1988. This is the highest award offered by this University at the graduate level.
- Merit Prizes for the First Position in three of four semesters in Junior and Senior years at the Indian Institute of Technology.
- National Talent Search Scholarship of India: 1980–1986.
- Junior Science Talent Scholarship of Delhi Administration, Delhi, India: 1978–1980.
- Merit prize in the National Mathematics Olympiad of India: 1980.

## 2 Mentoring Activities

**Faculty Colleagues Mentored: Current** Computer Science began a formal mentoring process in Fall 2000. I attended a workshop given by Rich Felder and Rebecca Brent, *Effective Mentoring*, NCSU College of Engineering, 7 September 2000.

1. Wesley Klewerton Guez Assunção, Fall 2023–present.
2. Bitu Akram, Spring 2023–present.
3. Dr. Xiaorui Liu, Fall 2022–present.
4. Dr. Sandeep Kuttal, Fall 2022–present.
5. Dr. Sharma Thankachan, Fall 2022–present.
6. Dr. Collin Lynch, Spring 2016–present; reappointed.
7. Dr. Mohammed Shahzad, Fall 2015–present; promoted to Associate Professor and tenured.
8. Dr. Kemafor Anyanwu, Fall 2008–present; promoted to Associate Professor and tenured.

### **Faculty Colleagues Mentored: Former**

9. Dr. Ranga Raju Vatsavai, Fall 2015–Spring 2020; tenured; subsequently promoted to Professor.
10. Dr. Rada Y. Chirkova, Fall 2015–Spring 2018; promoted to Professor.
11. Dr. Robert A. St. Amant, Spring 2007–Spring 2017; promoted to Professor.
12. Dr. Ben Watson, Spring 2006–Spring 2015; promoted to Associate Professor and tenured.
13. Dr. Ting Yu, Spring 2006–Spring 2013; promoted to Associate Professor and tenured.
14. Dr. James C. Lester, Spring 2006–Spring 2009; promoted to Professor.
15. Dr. Jaewoo Kang, Fall 2005–Spring 2007.
16. Dr. Jun Xu, Spring 2004–Spring 2007.
17. Dr. Peter R. Wurman, Summer 2000–Spring 2006; promoted to Associate Professor and tenured.

**Current Doctoral Advisees** The list below includes current Ph.D. students who have passed at least one research examination under my supervision. Additional students are in progress.

1. Amanul Haque (proposed; expected graduation: December 2024).
2. Ruijie Xi (proposed; expected graduation: December 2024).
3. Seoyeong Park (qualified; expected graduation: December 2025).

**Graduated Doctoral Advisees**

1. Jiaqing Yuan, defended June 2024, graduated Summer 2024.
2. Vaibhav Garg, defended March 2024, graduated Spring 2024.
3. Mu Zhu, defended December 2023, graduated Spring 2024.
4. Sz-Ting Tzeng, graduated Summer 2023.
5. Samuel H. Christie V, graduated Fall 2022.
6. Hui Guo, graduated Spring 2021.
7. Zhen Guo, graduated Spring 2021.
8. Karthik Sheshadri, graduated Summer 2019.
9. Nirav S. Ajmeri, graduated Fall 2018.
10. Mehdi Mashayekhi (coadvised with Dr. George List, Civil, Construction, and Environmental Engineering), graduated Fall 2016.
11. Adel Magdi El Messiry, graduated Fall 2016.
12. Anup K. Kalia, graduated Summer 2016.
13. Pradeep K. Murukannaiah, graduated Spring 2016.
14. Guangchao Yuan, graduated Spring 2016.
15. Zhe Zhang, graduated Fall 2014.
16. Pankaj R. Telang, graduated Spring 2013.
17. Scott N. Gerard, graduated Spring 2013.
18. Xibin Gao, graduated Summer 2012.
19. Chung-Wei Hang, graduated Summer 2011.
20. Derek J. Sollenberger, graduated Fall 2010.
21. Christopher J. Hazard, graduated Spring 2010.
22. Yonghong Wang, graduated Spring 2009.
23. Amit K. Chopra, graduated Fall 2008.
24. Yathiraj B. Udipi, graduated Spring 2008.
25. Qing Zhang (coadvised with Dr. Ting Yu), graduated Spring 2008.
26. Nirmitt V. Desai, graduated Fall 2007.
27. A. Soydan Bilgin (coadvised with Dr. Rada Y. Chirkova), graduated Fall 2007.
28. Zhengang Cheng (coadvised with Dr. Mladen A. Vouk), graduated Summer 2006.

29. Ashok U. Mallya, graduated Fall 2005.
30. E. Michael Maximilien, graduated Fall 2004.
31. Feng Wan, graduated Fall 2004.
32. Pınar Yolum, graduated Summer 2003.
33. Bin Yu, graduated Fall 2001.
34. Jie Xing, graduated Summer 2001.

**Graduated Masters Advisees** I have graduated forty-one research Masters students. Of these, thirty-one students wrote theses under my direction; the remaining MS graduates obtained their degrees based on their Ph.D. written prelims (identified below).

1. Divya Sundaresan, graduated June 2023.
2. Gurkirat Kang, graduated November 2022.
3. Rishabh Agrawal, graduated August 2021.
4. Suma Kasa, graduated May 2021.
5. Arvind Sastha Kumar, graduated May 2021.
6. Bhavana Balraj, graduated May 2021.
7. Aditya Parkhi, graduated May 2021.
8. Vinayak Dubey (coadvised with Dr. Tianfu Wu), graduated May 2021.
9. Shrey Anand, graduated Summer 2019.
10. Zhen Guo, graduated Fall 2018 based on Ph.D. written prelim.
11. Nirav Ajmeri, graduated Fall 2018 based on Ph.D. written prelim.
12. Shubham Goyal, graduated Spring 2018.
13. Samuel H. Christie V, graduated Spring 2017 based on Ph.D. written prelim.
14. Anup K. Kalia, graduated Fall 2013.
15. Guangchao Yuan, graduated Fall 2013 based on Ph.D. written prelim.
16. Zhe Zhang, graduated Spring 2012 based on Ph.D. written prelim.
17. Pradeep K. Murukannaiah, graduated Spring 2011 based on Ph.D. written prelim.
18. Pankaj R. Telang, graduated Fall 2010 based on Ph.D. written prelim.
19. Koushik N. Rajagopalan, graduated Spring 2010.
20. Derek J. Sollenberger, graduated Fall 2009 based on Ph.D. written prelim.
21. Narendran Ranjit, graduated Spring 2007.

22. Arvind Batalagundu Viswanathan, graduated Spring 2007.
23. Payal Chakravarty, graduated Spring 2007.
24. Yathiraj B. Udipi, graduated Fall 2005 based on Ph.D. written prelim.
25. Leena V. Wagle, graduated Summer 2005.
26. Amit K. Chopra, graduated Fall 2003.
27. A. Soydan Bilgin, graduated Summer 2003.
28. Srivatsa V. Chivukula, graduated Spring 2003.
29. E. Michael Maximilien, graduated Spring 2003 based on Ph.D. written prelim.
30. Ashok U. Mallya, graduated Fall 2002.
31. Raghuram M. Sreenath, graduated Fall 2002.
32. Subhayu S. Chatterjee, graduated Fall 2002.
33. Paul J. Palathingal, graduated Summer 2002.
34. Wentao Mo, graduated Summer 2001.
35. Mahmoud S. Elhaddad, graduated Summer 2001.
36. Pinar Yolum, graduated Summer 2000.
37. Mahadevan Venkatraman, graduated Summer 1999.
38. Sudhir K. Rustogi, graduated Summer 1999.
39. Anuj K. Jain, graduated Fall 1998.
40. Jiejun Kong, graduated Summer 1998.
41. Chubin Lin, graduated Spring 1998.

#### **Postdoctoral Research Associates**

1. Saikath Bhattacharya, April 2021–August 2022. Coadvised with Laurie Williams. Now at the Milwaukee School of Engineering.
2. Nirav Ajmeri, January 2019–October 2020. Coadvised with Laurie Williams. Now at the University of Bristol, UK.
3. Özgür Kafalı, May 2015–December 2017. Coadvised with Laurie Williams. Now at the University of Kent, UK.
4. Rahul Pandita, November 2015–August 2016. Coadvised with Laurie Williams. Now at Microsoft Research.
5. Hongying Du, October 2014–May 2016. Coadvised with Jon Doyle. Now at Microsoft.

6. Adrián Fernández Martínez, December 2012–June 2013.
7. Chung-Wei Hang, July 2011–June 2013. Now at Amazon.
8. Christopher J. Hazard, July 2010–February 2011. Founder of Diveplane Inc.
9. Nirmitt V. Desai, January 2008–June 2008. Now at IBM Research.
10. Bin Yu, January 2002–June 2003. Now at Macy's.

**Research Assistants** Unlike graduate research assistants, research assistants are full-time employees not concurrently pursuing a degree.

1. Michael J. Suralik, September 2001–December 2001.
2. Kevin Vaughan, November 1999–March 2000.
3. Mahadevan Venkatraman, August 1999–May 2000.
4. Sudhir K. Rustogi, August 1999–September 1999.

#### **Current Graduate Research Assistants**

1. Sanjana Cheerla, August 2024–present.
2. Seoyeong Park, August 2023–present.
3. Divya Sundaresan, January 2022–May 2023.
4. Ruijie Xi, May 2020–August 2020 and January 2021–present.

**Past Graduate Research Assistants** I have directed fifty-eight graduate research assistants.

1. Jiaqing Yuan, January 2024–May 2024.
2. Amanul Haque, January 2021–May 2024.
3. Sz-Ting Tzeng, August 2021–May 2023.
4. Vaibhav Garg, January 2020–December 2020 and June 2021–May 2024.
5. Mu Zhu, August 2017–December 2023.
6. Gurkirat S. Kang, January 2021–December 2021.
7. Zhen Guo, January 2017–May 2021.
8. Hui Guo, January 2017–May 2018 and May 2019–May 2021.
9. Aditya Parkhi, January 2020–December 2020.
10. Bhavana Balraj, January 2020–December 2020.
11. Arvind Kumar Sastha, January 2020–May 2020.

12. Vinayak Dubey, September 2019–December 2019.
13. Griffin C. Page, January 2019–December 2019.
14. Samuel Christie V, August 2014–December 2016 and October 2019–December 2019.
15. Iffat Anjum, August 2018–May 2019.
16. Shrey Anand, August 2018–December 2018.
17. Nirav Ajmeri, August 2012–August 2017 and January 2018–December 2018.
18. Shubham Goyal, August 2017–December 2017.
19. Pradeep Kumar Murukannaiah, November 2009–May 2016.
20. Guangchao Yuan, January 2013–May 2016.
21. Anup Kumar Kalia, January 2011–May 2015 and January 2016–May 2016.
22. Bennett Yates Narron, June 2014–December 2015.
23. Zhe Zhang, January 2010–May 2013.
24. Dhanwant Singh Kang, January 2011–May 2012.
25. Moin Ayazifar, August 2012–December 2012.
26. Prashant C. Kediya, September 2007–May 2009; January 2011–August 2012.
27. Chung-Wei Hang, August 2008–May 2011.
28. Kartik Tadanki, January 2009–December 2010.
29. Christopher J. Hazard, February 2010–July 2010.
30. Amit K. Chopra, August 2002–May 2008.
31. Yathiraj B. Udupi, August 2002–December 2003; January 2005–May 2007.
32. Nirmitt V. Desai, August 2003–December 2003; May 2004–December 2007.
33. Ashok U. Mallya, May 2002–December 2005.
34. Yonghong Wang, August 2004–May 2005.
35. Leena V. Wagle, January 2004–June 2004.
36. Pınar Yolum, January 2000–June 2003.
37. A. Soydan Bilgin, May 2003–June 2003.
38. Raghuram M. Sreenath, January 2002–December 2002.
39. Paul J. Palathingal, January 2002–May 2002.
40. Bin Yu, August 1998–December 2001.

41. Jie Xing, January 1998–May 2001.
42. Wentao Mo, August 2000–May 2001.
43. Zhengang Cheng, January 2000–May 2000; January 2001–May 2001.
44. Mayank S. Ajmera, October 1999–May 2000.
45. Swati Kher, October 1999–May 2000.
46. Hong Ji, October 1999–May 2000.
47. Harish Kammanahalli, October 1999–May 2000.
48. Feng Wan, August 1997–December 1999.
49. Sudhir K. Rustogi, May 1998–August 1999.
50. Xiaokang Sang, January 1998–May 1998.
51. Mahadevan Venkatraman, August 1997–August 1999.
52. Jiejun Kong, January 1997–August 1998.
53. Yu Lei, January 1997–February 1998.
54. Chris L. Grove, January 1997–May 1998.
55. Anuj K. Jain, May 1996–May 1998.
56. Chubin Lin, May 1996–April 1997.
57. Neerja Bhatt, May 1996–July 1996.
58. Hong Han, January 1996–April 1996.

### **Graduate Fellows Supervised**

1. Divya Sundaresan, Goodnight Fellowship and Provost's Fellowship, August 2023–May 2024.
2. Anup Kumar Kalia, ORISE Fellowship, May 2015–December 2015.
3. Zhe Zhang, IBM Ph.D. Fellowship, August 2013–December 2014.
4. Ricard López Fogués, TEE Fellowship, December 2012–December 2014.
5. Qanita Ahmad, Fulbright Fellowship, August 2012–December 2014.

**Undergraduate Research Assistants**

1. Joshua Myers, January 2020–May 2020.
2. Maya Umehara, January 2020–May 2020.
3. Samuel A. Ebert, January 2019–December 2019.
4. Luke M. Cunningham, January 2019–May 2019.
5. Gabriel K. Gloss, January 2019–May 2019.
6. Jonathan D. Schertz, January 2019–May 2019.
7. Samuel Rappl, January 2017–May 2018.
8. Priya Paul, May 2007–June 2007.
9. Naveen Z. Malik, September 1999–December 1999.
10. Chris L. Grove, May 1996–December 1996.

**Doctoral Dissertations Directed** I have graduated thirty-four Ph.D. students.

1. Jiaqing Yuan, *Uncovering Rationales for Stance Comprehension with Language Models*, Summer 2024.  
Jiaqing Yuan is with Amazon's Alexa AI group in New York.
2. Vaibhav Garg, *Unveiling Harassment through Natural Language Processing*, Spring 2024.  
Vaibhav Garg is a Collegiate Assistant Professor at Virginia Tech.
3. Mu Zhu, *Defensive Deception in Enterprise Networks: Adaptive Honeyfiles, Decoy Network Flows, and Honey Pots*, Spring 2024.
4. Sz-Ting Tzeng, *Understanding the Interplay of Social Signals and Values in Norm Emergence*, Summer 2023.  
Sz-Ting is a postdoc at Umea University in Sweden.
5. Samuel H. Christie V, *Information-Based Decentralized Systems*, Fall 2022.  
Samuel is working on a startup.
6. Hui Guo, *Extraction and Analysis of Stories: Natural Language Processing for Software Engineering*, Spring 2021.  
Hui joined Quora.
7. Zhen Guo, *Understanding Interaction and Persuasion in Online Argumentative Discussions*, Spring 2021.  
Zhen joined eBay Research.
8. Karthik Sheshadri, *Toward a Unified Model of News Influence on Public Interest and Legislation*, Summer 2019.  
Karthik works at Cisco Systems in California.

9. Nirav S. Ajmeri, *Engineering Multiagent Systems for Ethics and Privacy-Aware Social Computing*, Fall 2018.  
Nirav Ajmeri is a senior lecturer in AI at the University of Bristol in UK.
10. Mehdi Mashayekhi, *Regulation of Open Normative Multiagent Systems*, Fall 2016.  
Mehdi Mashayekhi works for Meta in California.
11. Adel Elmessiry, *Natural Language Techniques for Decision Support Based on Patient Complaints*, Fall 2016.  
Adel Elmessiry is CTO of Legal Alignment in Nashville.
12. Anup K. Kalia, *Understanding Human Communication to Estimate Trust, Hierarchy, and Performance*, Summer 2016.  
Anup Kalia joined IBM Research in Yorktown Heights.
13. Pradeep K. Murukannaiah, *Engineering Personal Agents Toward Personalized, Context-Aware, and Privacy-Preserving Applications*, Spring 2016.  
Pradeep Murukannaiah is a tenured assistant professor at the Technical University of Delft in the Netherlands.
14. Guangchao Yuan, *Exploiting Content, Homophily, and Location for Understanding User Interactions in Social Media*, Spring 2016.  
Guangchao Yuan joined Microsoft's Bing Local Search group in California.
15. Zhe Zhang, *Text Mining for Sentiment Analysis*, Fall 2014.  
Zhe Zhang is a research scientist at Facebook in California.
16. Pankaj R. Telang, *Multiagent Business Modeling*, Summer 2013.  
Pankaj Telang is with SAS Institute in Cary.
17. Scott N. Gerard, *Designing, Verifying, and Evolving Commitment-Based Business Protocols*, Summer 2013.  
Scott Gerard is a senior technical staff member at IBM Research.
18. Xibin Gao, *Knowledge Discovery from Business Contracts*, Summer 2012.  
Xibin Gao works at Morgan Stanley in New York.
19. Chung-Wei Hang, *Probabilistic Trust Models for Social and Service Networks*, Summer 2011.  
Chung-Wei Hang is with Amazon's Alexa AI group in New York.
20. Derek J. Sollenberger, *Engineering Personal and Social Affective Applications*, Fall 2010.  
Derek Sollenberger is a senior software engineer with Google in Chapel Hill.
21. Christopher J. Hazard, *Trust and Reputation in Multiagent Systems: Strategies and Dynamics with Reference to Electronic Commerce*, Spring 2010.  
Christopher Hazard has founded a gaming startup based in the Triangle.

22. Yonghong Wang, *Evidence-Based Trust in Distributed Agent Systems*, Spring 2009.  
Yonghong Wang took up a postdoctoral fellowship at Carnegie Mellon University and now works for Apple in Cupertino.
23. Amit K. Chopra, *Commitment Alignment: Semantics, Patterns, and Decision Procedures for Distributed Computing*, Fall 2008.  
Amit Chopra is a senior lecturer at Lancaster University in UK.
24. Yathiraj B. Udupi, *Modeling Service Engagements in Dynamic Organizations: Multiagent Model and Architecture for Policy-Based Governance*, Spring 2008.  
Yathi Udupi is with the Cisco Systems CTO Office in San Jose.
25. Qing Zhang, *Microdata Privacy Protection Through Permutation-Based Approaches*, coadvised with Dr. Ting Yu, Spring 2008.  
Qing Zhang is with Teradata in San Diego.
26. Nirmitt V. Desai, *Interorganizational Business Interactions: Contracts, Processes, Evolution*, Fall 2007.  
Nirmitt Desai joined the IBM India Research Lab as a research staff member and moved to IBM Research in New York in 2014.
27. A. Soydan Bilgin, *Deriving Efficient SQL Sequences Via Prefetching*, coadvised with Dr. Rada Y. Chirkova, Fall 2007.  
Soydan Bilgin is with Amazon in Seattle.
28. Zhengang Cheng, *Verifying Commitment-Based Business Protocols and their Compositions: Model Checking using Promela and Spin*, coadvised with Dr. Mladen A. Vouk, Summer 2006.  
Zhangang Cheng is with SimpliCTI Technologies.
29. Ashok U. Mallya, *Modeling and Enacting Business Processes via Commitment Protocols Among Agents*, Fall 2005.  
Ashok Mallya is with Apple in Cupertino.
30. E. Michael Maximilien, *Toward Autonomic Web Services Trust and Selection*, Fall 2004.  
Michael Maximilien moved to IBM Almaden Research Center and is now a Distinguished Engineer.
31. Feng Wan, *Commitment-Based Business Process Modelling and Enactment*, Fall 2004.  
Feng Wan is Principal Architect with SimpliCTI Technologies.
32. Pinar Yolum, *Emergent Properties of Referral Networks*, Summer 2003.  
Pinar Yolum is a tenured full professor at Boğaziçi University in Istanbul but has taken indefinite leave to be an associate professor at Utrecht University in Netherlands.
33. Bin Yu, *Emergence and Evolution of Agent-Based Referral Networks*, Fall 2001.  
Bin Yu is Director of Data Science at Macy's.
34. Jie Xing, *Commitment-Based Interoperation for E-Commerce*, Summer 2001.  
Jie Xing works for SAS Institute.

**Masters Theses Directed** I have graduated forty-one research Masters students, of whom thirty-one wrote MS theses under my direction.

1. Divya Sundaresan, *User Modeling for Prosocial Nudging with Reinforcement Learning*, Summer 2023.  
Divya is continuing for a doctorate with me.
2. Gurkirat Kang, *Adaptive Defensive Deception in IT/OT Networks*, Fall 2022.  
Gurkirat works for Nutanix.
3. Rishabh Agrawal, *Using Explanations for Norm Emergence in Normative Multiagent Systems*, Fall 2021.  
Rishabh Agrawal joined Google.
4. Suma Kasa, *Adaptor Grammar for Unsupervised and Semi-Supervised Entity Extraction*, Summer 2021.  
Suma Kasa joined Amazon.
5. Arvind Sashta Kumar, *Federated Inverse Averaging: Toward Pareto-Optimal Minima in Human Activity Recognition*, Summer 2021.  
Arvind Sashta Kumar joined Facebook.
6. Bhavana Balraj, *Multilabel Active Learning for User Context Recognition In-the-Wild*, Summer 2021.  
Bhavana Balraj joined Cisco.
7. Aditya Parkhi, *Novelty Detection in Textual Data using Document Encoders and Self Attention*, Summer 2021.  
Aditya Parkhi joined Qualcomm.
8. Vinayak Dubey (coadvised with Dr. Tianfu Wu), *A Preliminary Study in Learning Attention to Prune Convolutional Neural Networks* Spring 2021.  
Vinayak Dubey joined Amazon.
9. Shrey Anand, *Content-Based Creative Suggestions for User Queries*, Summer 2019.  
Shrey Anand joined Red Hat in Raleigh.
10. Shubham Goyal, *Exploring Sanctions in CyberSecurity Compliance*, Spring 2018.  
Shubham Goyal joined Amazon.
11. Anup Kumar Kalia, *Muon: Designing Multiagent Communication Protocols from Interaction Scenarios*, Fall 2013.  
Anup Kalia continued on for a Ph.D. at NCSU.
12. Koushik Narayanan Rajagopalan, *Tools for Business Protocols*, Spring 2010.  
Koushik Rajagopalan joined Epic Systems in Madison, Wisconsin.
13. Narendran Ranjit, *Multiagent Referral Systems through Social Networks*, Spring 2007.  
Narendran Ranjit works for Symantec, Durham.

14. Arvind Batalagundu Viswanathan, *Modeling Social Networks as Multiagent Systems*, Spring 2007.  
Arvind Viswanathan works for Cisco Systems in San Jose.
15. Payal Chakravarty, *An Event-Driven Approach to Agent-Based Business Process Enactment*, Spring 2007.  
Payal Chakravarty joined IBM's Tivoli division.
16. Leena V. Wagle, *Incorporating Business Policies in Business Protocols*, Summer 2005.  
Leena Wagle joined FedEx in Memphis.
17. Amit K. Chopra, *Nonmonotonic Commitment Machines*, Fall 2003.  
Amit Chopra continued on for a Ph.D. at NCSU.
18. A. Soydan Bilgin, *Semantic Web Services Query and Manipulation Language*, Summer 2003.  
Soydan Bilgin continued on for a Ph.D. at NCSU.
19. Srivatsa V. Chivukula, *Evolution of Trust in Anonymous Interactions*, Spring 2003.  
Srivatsa Chivukula works for Qualcomm.
20. Ashok U. Mallya, *Specifying and Resolving Temporal Commitments*, Fall 2002.  
Ashok Mallya continued on for a Ph.D. at NCSU.
21. Raghuram M. Sreenath, *A Community-Based Rating System for Selecting among Web Services*, Fall 2002.  
Raghuram Sreenath is with IBM, Bengaluru in India.
22. Subhayu S. Chatterjee, *Instant Messaging Interface and Transport for the Multiagent Referral System*, Fall 2002.  
Subhayu Chatterjee is with GreyOrange Inc. in Texas.
23. Paul J. Palathingal, *Integrating Information Retrieval in a Referral System for Knowledge Management*, Summer 2002.  
Paul Palathingal works for Oak Ridge National Laboratory.
24. Wentao Mo, *A Referral-Based Recommender System for E-Commerce*, Summer 2001.
25. Mahmoud S. Elhaddad, *Adaptive Multipath Traffic Allocation in TCP/IP Networks*, Summer 2001.  
Mahmoud Elhaddad took up graduate studies in Pittsburgh to be closer to his wife.
26. Pinar Yolum, *Flexible Execution of E-Commerce Protocols: A Commitment-Based Approach*, Summer 2000.  
Pinar Yolum continued on for a Ph.D. at NCSU.
27. Mahadevan Venkatraman, *Specifying and Verifying Compliance with Commitment Protocols Among Autonomous Agents*, Summer 1999.  
Mahadevan Venkatraman works for Facebook.

28. Sudhir K. Rustogi, *Empirical Studies of Coordination in Decentralized Multiagent Systems*, Summer 1999.  
Sudhir Rustogi works for Cisco Systems in RTP.
29. Anuj K. Jain, *Maintaining Process Coherence in Heterogeneous Information Environments*, Fall 1998.  
Anuj Jain works for CitiBank.
30. Jiejun Kong, *Constructing Multiagent Systems: The MEP Project*, Summer 1998.  
Jiejun Kong moved to Los Angeles for graduate studies.
31. Chubin Lin, *Design and Implementation of a Distributed Workflow Scheduler*, Spring 1998.  
Chubin Lin works for Unisys in Virginia.

**Publications with Advisees** The following publications are coauthored with graduate and postdoctoral advisees and, on occasion, with undergraduates and visiting students.

- *Journals*: A total of sixty-three articles.  
[19], [20], [21], [24], [25], [26], [30], [33], [32], [37], [38], [40], [41], [42], [43], [44], [45], [46], [48], [49], [51], [53], [54], [55], [56], [58], [59], [60], [61], [62], [63], [64], [66], [67], [68], [70], [71], [73], [74], [75], [76], [77], [79], [80], [81], [82], [83], [84], [85], [86], [87], [88], [90], [91], [92], [93], [94], [95], [96], [97], [98], [100], and [102].
- *Major conferences and symposia*: A total of ninety-four articles.  
[115], [117], [118], [119], [122], [123], [124], [125], [126], [127], [128], [129], [130], [131], [133], [134], [135], [136], [137], [140], [143], [144], [147], [148], [149], [150], [151], [152], [153], [154], [155], [156], [157], [158], [161], [162], [163], [164], [170], [171], [173], [175], [176], [177], [178], [179], [180], [181], [184], [186], [188], [192], [193], [194], [195], [196], [197], [198], [199], [201], [202], [203], [204], [205], [206], [209], [210], [211], [212], [213], [214], [215], [216], [217], [218], [219], [220], [221], [222], [223], [225], [226], [227], [229], [230], [231], [232], [233], [234], [235], [237], [251], [252], and [253].
- *Other refereed conferences and symposia*: A total of sixty-nine articles.  
[257], [258], [260], [261], [262], [264], [265], [270], [268], [269], [271], [272], [274], [275], [277], [280], [281], [282], [284], [286], [287], [288], [289], [291], [292], [293], [294], [297], [298], [304], [305], [306], [308], [309], [310], [311], [312], [313], [314], [315], [316], [317], [318], [319], [320], [322], [323], [324], [325], [328], [329], [330], [331], [332], [333], [334], [335], [337], [338], [339], [341], [342], [343], [344], [346], [347], [351], [355], and [358].
- *Book chapters*: A total of six articles.  
[381], [382], [383], [384], [388], and [393].
- *Bulletin and magazine articles*: A total of four articles.  
[458], [459], [460], and [461].
- *Technical columns*: A total of four articles.  
[413], [417], [420], and [421].

- *Short Papers and Demonstration Abstracts:* A total of twenty-seven articles.  
[463], [464], [465], [466], [467], [468], [469], [470], [471], [473], [474], [475], [478], [479], [485], [486], [487], [488], [489], [490], [491], [492], [493], [494], [495], [496], and [497].
- *Miscellaneous external publications:* A total of four articles.  
[524], [525], [527], and [528].

### 3 Publications

I have included acceptance ratios where such were available; for a special issue, generally the ratio is for the issue. Final versions of all “in press” papers have been delivered.

#### 3.1 Books

- [1] Munindar P. Singh and Michael N. Huhns. *Service-Oriented Computing: Semantics, Processes, Agents*. Chichester, United Kingdom: John Wiley & Sons, 2005. DOI: 10.1002/0470091509.

This book was adopted in courses at universities in several countries, including Australia, Canada, China, France, India, Japan, New Zealand, Portugal, Tunisia, Turkey, and UK.

A Chinese translation of this book was published by Tsinghua University Press in December 2012.

- Lu Chang Hui (translator). 面向服务的计算：语义、流程和代理. Beijing: Tsinghua University Press, 2012. Chinese ISBN: 978-7-302-27468-1.

- [2] Munindar P. Singh, editor. *The Practical Handbook of Internet Computing*. Baton Rouge: Chapman Hall & CRC Press, 2005. DOI: 10.1201/9780203507223.

This handbook, which includes 56 contributed chapters, appears in the *Computer and Information Science Series* edited by Professor Sartaj Sahni. Professor Sahni invited me to edit this handbook.

- [3] Michael N. Huhns and Munindar P. Singh, editors. *Readings in Agents*. San Francisco: Morgan Kaufmann, 1998. ISBN: 9780080515809.

- [4] Munindar P. Singh. *Multiagent Systems: A Theoretical Framework for Intentions, Know-How, and Communications*. Lecture Notes in Computer Science 799. Heidelberg: Springer, 1994. DOI: 10.1007/BFb0030531. URL: <http://www.csc.ncsu.edu/faculty/mpsingh/books/MAS/>.

#### 3.2 Edited Proceedings

- [5] Claudio Agostino Ardagna, Hongyi Bian, Carl K. Chang, Rong N. Chang, Ernesto Damiani, Schahram Dustdar, Jordi Marco, Munindar P. Singh, Ernest Teniente, Robert Ward, Zhongjie Wang, Fatos Xhafa, and Jia Zhang, editors. *Proceedings of the IEEE International Conference on Services Computing (SCC)*. Barcelona: IEEE, July 2022. ISBN: 978-1-6654-8146-5. DOI: 10.1109/SCC55611.2022.

- [6] Munindar P. Singh, Laurie Williams, Rick Kuhn, and Tao Xie, editors. *Proceedings of the 5th Annual Symposium and Bootcamp on Hot Topics in the Science of Security (HoTSoS)*. Raleigh, North Carolina: ACM, April 2018. DOI: 10.1145/3190619.

- [7] David M. Nicol and Munindar P. Singh, editors. *Proceedings of the International Symposium and Bootcamp on the Science of Security (HotSoS)*. Raleigh, North Carolina: ACM, April 2014. DOI: 10.1145/2600176.

- [8] Longbing Cao, Yifeng Zeng, Andreas L. Symeonidis, Vladimir Gorodetsky, Philip S. Yu, and Munindar P. Singh, editors. *Proceedings of the 8th International Workshop on Agents and Data Mining Interaction*. Lecture Notes in Computer Science 7607. Heidelberg: Springer, 2013. DOI: 10.1007/978-3-642-36288-0.

- [9] Guido Boella, Gabriella Pigozzi, Munindar P. Singh, and Harko Verhagen, editors. *Proceedings of the 3rd International Workshop on Normative Multiagent Systems (NorMAS)*. Luxembourg, July 2008.

- [10] Rino Falcone, Suzanne Barber, Jordi Sabater-Mir, and Munindar P. Singh, editors. *Proceedings of the 11th International TRUST Workshop*. Lecture Notes in Computer Science 5396. Heidelberg: Springer, 2008. doi: 10.1007/978-3-540-92803-4.
- [11] Frank Dignum, Virginia Dignum, Sven Koenig, Sarit Kraus, Munindar P. Singh, and Michael Wooldridge, editors. *Proceedings of the 4th International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Utrecht, The Netherlands: ACM Press, 2005. doi: 10.1145/1082473.
- [12] Rino Falcone, Suzanne Barber, Jordi Sabater-Mir, and Munindar P. Singh, editors. *Trusting Agents for Trusting Electronic Societies: Theory and Applications in HCI and E-Commerce: Proceedings of the 6th and the 7th International Workshops on Trust in Agent Societies*. Lecture Notes in Computer Science 3577. Berlin: Springer, 2005. doi: 10.1007/11532095.
- [13] Gianluca Moro, Claudio Sartori, and Munindar P. Singh, editors. *Proceedings of the 2nd International Workshop on Agents and Peer-to-Peer Computing*. Lecture Notes in Computer Science 2872. Heidelberg: Springer, 2005. doi: 10.1007/b104265.
- [14] Rino Falcone, Suzanne Barber, Larry Korba, and Munindar P. Singh, editors. *Trust, Reputation, and Security: Theories and Practice*. Lecture Notes in Computer Science 2631. Berlin: Springer, 2003. doi: 10.1007/3-540-36609-1.
- [15] Rino Falcone, Munindar P. Singh, and Yao-Hua Tan, editors. *Trust in Cyber-Societies: Integrating the Human and Artificial Perspectives*. Lecture Notes in Computer Science 2246. Berlin: Springer, 2001. doi: 10.1007/3-540-45547-7.
- [16] Jörg P. Müller, Munindar P. Singh, and Anand S. Rao, editors. *Intelligent Agents V: Proceedings of the 5th International Workshop on Agent Theories, Architectures, and Languages*. Lecture Notes in Artificial Intelligence 1555. Berlin: Springer, 1999. doi: 10.1007/3-540-49057-4.
- [17] Munindar P. Singh, Anand S. Rao, and Michael J. Wooldridge, editors. *Intelligent Agents IV: Proceedings of the 4th International Workshop on Agent Theories, Architectures, and Languages*. Lecture Notes in Artificial Intelligence 1365. Berlin: Springer, 1998. doi: 10.1007/BFb0026744.
- [18] Arbee L. P. Chen, Wolfgang Klas, and Munindar P. Singh, editors. *Proceedings of the 2nd IF-CIS International Conference on Cooperative Information Systems (CoopIS)*. Kiawah Island, South Carolina: IEEE Computer Society Press, 1997. doi: 10.1109/COOPIS.1997.

### 3.3 Journal Articles

- [19] Vaibhav Garg, Hui Guo, Nirav Ajmeri, Saikath Bhattacharya, and Munindar P. Singh. “Understanding Mobile App Reviews to Guide Misuse Audits.” *Communications of the ACM (CACM)* 68, 2025, pages 1–7.
- [20] Amanul Haque and Munindar P. Singh. “NewsSlant: Analyzing Political News and Its Influence Through a Moral Lens.” *IEEE Transactions on Computational Social Systems (TCSS)* 11(3), June 2024, pages 3329–3337. doi: 10.1109/TCSS.2023.3341910.
- [21] Ruijie Xi and Munindar P. Singh. “The Blame Game: Understanding Blame Assignment in Social Media.” *IEEE Transactions on Computational Social Systems (TCSS)* 11(2), April 2024, pages 2267–2276. doi: 10.1109/TCSS.2023.3261242.

- [22] Geeta Mahala, Özgür Kafalı, Hoa Khanh Dam, Aditya Ghose, and Munindar P. Singh. “A Normative Approach for Resilient Multiagent Systems.” *Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS)* 37(2), December 2023, 46:1–46:40. doi: 10.1007/s10458-023-09627-4.
- [23] Pankaj R. Telang, Munindar P. Singh, and Neil Yorke-Smith. “Maintenance Commitments: Conception, Semantics, and Coherence.” *Artificial Intelligence* 324, November 2023, page 103993. doi: 10.1016/j.artint.2023.103993.
- [24] Francisco Bráulio Oliveira, Davoud Mougouei, Amanul Haque, Jaime Simão Sichman, Hoa Dam, Simon Evans, Aditya Ghose, and Munindar P. Singh. “Beyond Fear and Anger: A Global Analysis of Emotional Response to Covid-19 News on Twitter.” *Online Social Networks and Media (OSNEM)* 36, July 2023, 100253:1–100253:10. doi: 10.1016/j.osnem.2023.100253.
- [25] Zelin Wan, Jin-Hee Cho, Mu Zhu, Ahmed H. Anwar, Charles A. Kamhoua, and Munindar P. Singh. “Resisting Multiple Advanced Persistent Threats via Hypergame-Theoretic Defensive Deception.” *IEEE Transactions on Network and Service Management (TNSM)* 20(3), September 2023, pages 3816–3830. doi: 10.1109/TNSM.2023.3240366.
- [26] Amanul Haque, Nirav Ajmeri, and Munindar P. Singh. “Understanding Dynamics of Polarization via Multiagent Social Simulation.” *AI & Society: Journal of Knowledge, Culture and Communication* 38(4), August 2023, pages 1373–1389. doi: 10.1007/s00146-022-01626-5.
- [27] Munindar P. Singh, Min Chi, and Veena Misra. “Healthful Connected Living: Vision and Challenges for the Case of Obesity.” *IEEE Internet Computing (IC)* 27(3), May 2023, pages 7–14. doi: 10.1109/MIC.2023.3257994.
- [28] Amika M. Singh and Munindar P. Singh. “Wasabi: A Conceptual Model for Trustworthy Artificial Intelligence.” *IEEE Computer* 56(2), February 2023, pages 20–28. doi: 10.1109/MC.2022.3212022.
- [29] Veljko Dubljević, Sean Douglas, Jovan Milojevich, Nirav Ajmeri, William A. Bauer, George F. List, and Munindar P. Singh. “Moral and Social Ramifications of Autonomous Vehicles: A Qualitative Study of the Perceptions of Professional and Semi-Professional Drivers.” *Behaviour & Information Technology* 42(9), June 2023, pages 1271–1278. doi: 10.1080/0144929X.2022.2070078.
- [30] Mehdi Mashayekhi, Nirav Ajmeri, George F. List, and Munindar P. Singh. “Prosocial Norm Emergence in Multiagent Systems.” *ACM Transactions on Autonomous and Adaptive Systems (TAAS)* 17(1–2), June 2022, 3:1–3:24. doi: 10.1145/3540202.
- [31] Timotheus Kampik, Adnane Mansour, Olivier Boissier, Sabrina Kirrane, Julian Padget, Terry R. Payne, Munindar P. Singh, Valentina Tamma, and Antoine Zimmerman. “Governance of Autonomous Agents on the Web: Challenges and Opportunities.” *ACM Transactions on Internet Technology (TOIT)* 22(4), November 2022, 104:1–104:31. doi: 10.1145/3507910.
- [32] Zelin Wan, Jin-Hee Cho, Mu Zhu, Ahmed H. Anwar, Charles A. Kamhoua, and Munindar P. Singh. “Foureye: Defensive Deception Against Advanced Persistent Threats via Hypergame Theory.” *IEEE Transactions on Network and Service Management (TNSM)* 19(1), March 2022, pages 112–129. doi: 10.1109/TNSM.2021.3117698.
- [33] Samuel H. Christie V, Amit K. Chopra, and Munindar P. Singh. “Mandrake: Multiagent Systems as a Basis for Programming Fault-Tolerant Decentralized Applications.” *Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS)* 36(1), April 2022, 16:1–16:30. doi: 10.1007/s10458-021-09540-8.

- [34] Francisco Bráulio Oliveira, Amanul Haque, Davoud Mougouei, Simon Evans, Jaime Simão Sichman, and Munindar P. Singh. “Investigating the Emotional Response to COVID-19 News on Twitter: A Topic Modelling and Emotion Classification Approach.” *IEEE Access* 10, February 2022, pages 16883–16897. doi: 10.1109/ACCESS.2022.3150329.
- [35] Amit K. Chopra and Munindar P. Singh. “Accountability as a Foundation for Requirements in Sociotechnical Systems.” *IEEE Internet Computing (IC)* 25(6), September 2021, pages 33–41. doi: 10.1109/MIC.2021.3106835.
- [36] Veljko Dubljević, George F. List, Jovan Milojevich, Nirav Ajmeri, William A. Bauer, Munindar P. Singh, Eleni Bardaka, Thomas A. Birkland, Charles H. W. Edwards, Roger C. Mayer, Ioan Muntean, Thomas M. Powers, Hesham A. Rakha, Vance A. Ricks, and M. Shoaib Samandar. “Toward a Rational and Ethical Sociotechnical System of Autonomous Vehicles: A Novel Application of Multi-Criteria Decision Analysis.” *PLoS ONE* 16(8), August 2021, e0256224. doi: 10.1371/journal.pone.0256224.
- [37] Mu Zhu, Ahmed H. Anwar, Zelin Wan, Jin-Hee Cho, Charles A. Kamhoua, and Munindar P. Singh. “A Survey of Defensive Deception: Approaches Using Game Theory and Machine Learning.” *IEEE Communications Surveys & Tutorials (COMST)* 23(4), October 2021, pages 2460–2493. doi: 10.1109/COMST.2021.3102874.
- [38] Guangchao Yuan, Munindar P. Singh, and Pradeep K. Murukannaiah. “An Interpretable Framework for Investigating the Neighborhood Effect in POI Recommendation.” *PLoS ONE* 16(8), August 2021, e0255685. doi: 10.1371/journal.pone.0255685.
- [39] Reyhan Aydoğan, Özgür Kafalı, Furkan Arslan, Catholijn M. Jonker, and Munindar P. Singh. “NOVA: Value-Based Negotiation of Norms.” *ACM Transactions on Intelligent Systems and Technology (TIST)* 12(4), August 2021, 45:1–45:29. doi: 10.1145/3465054.
- [40] Samuel H. Christie V, Amit K. Chopra, and Munindar P. Singh. “Hercule: Representing and Reasoning about Norms as a Foundation for Declarative Contracts over Blockchain.” *IEEE Internet Computing (IC)* 25(4), July 2021, pages 67–75. doi: 10.1109/MIC.2021.3080982.
- [41] Karthik Sheshadri, Chaitanya Shivade, and Munindar P. Singh. “Detecting Framing Changes in Topical News.” *IEEE Transactions on Computational Social Systems (TCSS)* 8(3), June 2021, pages 780–791. doi: 10.1109/TCSS.2021.3063108.
- [42] Samuel H. Christie V, Amit K. Chopra, and Munindar P. Singh. “Bungie: Improving Fault Tolerance via Extensible Application-Level Protocols.” *IEEE Computer* 54(5), May 2021, pages 44–53. doi: 10.1109/MC.2021.3052147.
- [43] Amit K. Chopra, Samuel H. Christie V, and Munindar P. Singh. “An Evaluation of Communication Protocol Languages for Engineering Multiagent Systems.” *Journal of Artificial Intelligence Research (JAIR)* 69, December 2020, pages 1351–1393. doi: 10.1613/jair.1.12212.
- [44] Samuel H. Christie V, Daria Smirnova, Amit K. Chopra, and Munindar P. Singh. “Protocols Over Things: A Decentralized Programming Model for the Internet of Things.” *IEEE Computer* 53(12), December 2020, pages 60–68. doi: 10.1109/MC.2020.3023887.
- [45] Özgür Kafalı, Nirav Ajmeri, and Munindar P. Singh. “DESEN: Specification of Sociotechnical Systems via Patterns of Regulation and Control.” *ACM Transactions on Software Engineering and Methodology (TOSEM)* 29(1), February 2020, 7:1–7:50. doi: 10.1145/3365664.

- [46] Hui Guo, Özgür Kafalı, Anne-Liz Jeukeng, Laurie Williams, and Munindar P. Singh. “Çorba: Crowdsourcing to Obtain Requirements from Regulations and Breaches.” *Empirical Software Engineering (EMSE)* 25(1), January 2020, pages 532–561. doi: 10.1007/s10664-019-09753-2.
- **Selected for a Journal First presentation at the International Conference on Software Engineering (ICSE) 2020.**
- [47] Munindar P. Singh and Amit K. Chopra. “Computational Governance and Violable Contracts for Blockchain Applications.” *IEEE Computer* 53(1), January 2020, pages 53–62. doi: 10.1109/MC.2019.2947372.
- [48] Karthik Sheshadri and Munindar P. Singh. “The Public and Legislative Impact of Hyperconcentrated Topic News.” *Science Advances* 5, August 2019. Article number eaat8296, pages 1–8. doi: 10.1126/sciadv.aat8296.
- [49] Pankaj R. Telang, Munindar P. Singh, and Neil Yorke-Smith. “A Coupled Operational Semantics for Goals and Commitments.” *Journal of Artificial Intelligence Research (JAIR)* 65, May 2019, pages 31–85. doi: 10.1613/jair.1.11494.
- [50] Felipe Meneguzzi, Mauricio C. Magnaguagno, Munindar P. Singh, Pankaj R. Telang, and Neil Yorke-Smith. “GoCo: Planning Expressive Commitment Protocols.” *Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS)* 32(4), July 2018, pages 459–502. doi: 10.1007/s10458-018-9385-0.
- [51] Shams Al-Amin, Nirav Ajmeri, Hongying Du, Emily Z. Berglund, and Munindar P. Singh. “Toward Effective Adoption of Secure Software Development Practices.” *Simulation Modelling Practice and Theory (SIMPAT)* 85, June 2018, pages 33–46. doi: 10.1016/j.simpat.2018.03.006.
- [52] Jan Mendling, Ingo Weber, Wil van der Aalst, Jan vom Brocke, Cristina Cabanillas, Florian Daniel, Søren Debois, Claudio Di Ciccio, Marlon Dumas, Schahram Dustdar, Avigdor Gal, Luciano García-Bañuelos, Guido Governatori, Richard Hull, Marcello La Rosa, Henrik Leopold, Frank Leymann, Jan Recker, Manfred Reichert, Hajo A. Reijers, Stefanie Rinderle-Ma, Andreas Solti, Michael Rosemann, Stefan Schulte, Munindar P. Singh, Tijs Slaats, Mark Staples, Barbara Weber, Matthias Weidlich, Mathias Weske, Xiwei Xu, and Liming Zhu. “Blockchains for Business Process Management – Challenges and Opportunities.” *ACM Transactions on Management Information Systems (TMIS)* 9(1), February 2018, 4:1–4:16. doi: 10.1145/3183367.
- [53] Nirav Ajmeri, Chung-Wei Hang, Simon D. Parsons, and Munindar P. Singh. “Aragorn: Eliciting and Maintaining Secure Service Policies.” *IEEE Computer* 50(12), December 2017, pages 50–58. doi: 10.1109/MC.2017.4451210.
- [54] Ricard López Fogués, Pradeep K. Murukannaiah, Jose M. Such, and Munindar P. Singh. “SoSharP: Recommending Sharing Policies in Multiuser Privacy Scenarios.” *IEEE Internet Computing (IC)* 21(6), November 2017, pages 28–36. doi: 10.1109/MIC.2017.4180836.
- [55] Adel ElMessiry, William O. Cooper, Thomas F. Catron, Jan Karrass, Zhe Zhang, and Munindar P. Singh. “Triaging Patient Complaints: Monte Carlo Cross-Validation of Six Machine Learning Classifiers.” *JMIR Medical Informatics* 5(3), July 2017, pages 1–9. doi: 10.2196/medinform.7140.
- [56] Anup K. Kalia, Norbou Buchler, Arwen H. DeCostanza, and Munindar P. Singh. “Computing Team Process Measures from the Structure and Content of Broadcast Collaborative Communications.”

- IEEE Transactions on Computational Social Systems (TCSS)* 4(2), June 2017, pages 26–39. doi: 10.1109/TCSS.2017.2672980.
- [57] Athman Bouguettaya, Munindar P. Singh, Michael N. Huhns, Quan Z. Sheng, Hai Dong, Qi Yu, Azadeh Ghari Neiat, Sajib Mistry, Boualem Benatallah, Brahim Medjahed, Mourad Ouzzani, Fabio Casati, Xumin Liu, Hongbing Wang, Dimitrios Georgakopoulos, Liang Chen, Surya Nepal, Zaki Malik, Abdelkarim Erradi, Yan Wang, Brian Blake, Schahram Dustdar, Frank Leymann, and Michael Papazoglou. “A Service Computing Manifesto: The Next 10 Years.” *Communications of the ACM (CACM)* 60(4), April 2017, pages 64–72. doi: 10.1145/2983528.
- [58] Ricard López Fogués, Pradeep K. Murukannaiah, Jose M. Such, and Munindar P. Singh. “Sharing Policies in Multiuser Privacy Scenarios: Incorporating Context, Preferences, and Arguments in Decision Making.” *ACM Transactions on Computer-Human Interaction (TOCHI)* 24(1), March 2017, 5:1–5:29. doi: 10.1145/3038920.
- [59] Özgür Kafalı, Nirav Ajmeri, and Munindar P. Singh. “Revani: Revising and Verifying Normative Specifications for Privacy.” *IEEE Intelligent Systems (IS)* 31(5), September 2016, pages 8–15. doi: 10.1109/MIS.2016.89.
- [60] Luis G. Nardin, Tina Balke-Visser, Nirav Ajmeri, Anup K. Kalia, Jaime S. Sichman, and Munindar P. Singh. “Classifying Sanctions and Designing a Conceptual Sanctioning Process Model for Socio-Technical Systems.” *The Knowledge Engineering Review (KER)* 31(2), March 2016, pages 142–166. doi: 10.1017/S0269888916000023.
- [61] Anup K. Kalia, Zhe Zhang, and Munindar P. Singh. “Güven: Estimating Trust from Communications.” *Journal of Trust Management (JTM)* 2, January 2016, pages 1–19. doi: 10.1186/s40493-015-0022-4.
- [62] Pankaj R. Telang, Anup K. Kalia, and Munindar P. Singh. “Modeling Healthcare Processes using Commitments: An Empirical Evaluation.” *PLoS ONE* 10(11), November 2015, e0141202. doi: 10.1371/journal.pone.0141202.
- [63] Anup K. Kalia and Munindar P. Singh. “Muon: Designing Multiagent Communication Protocols from Interaction Scenarios.” *Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS)* 29(4), July 2015, pages 621–657. doi: 10.1007/s10458-014-9264-2.
- [64] Pradeep K. Murukannaiah and Munindar P. Singh. “Platys: An Active Learning Framework for Place-Aware Application Development and its Evaluation.” *ACM Transactions on Software Engineering and Methodology (TOSEM)* 24(3), May 2015, 19:1–19:32. doi: 10.1145/2729976.
- [65] Simon D. Parsons, Katie Atkinson, Zimi Li, Peter McBurney, Elizabeth I. Sklar, Munindar P. Singh, Karen Haigh, Karl Levitt, and Jeff Rowe. “Argument Schemes for Reasoning about Trust.” *Argument and Computation* 5(2–3), August 2014, pages 160–190. doi: 10.1080/19462166.2014.913075.
- [66] Xibin Gao and Munindar P. Singh. “Mining Contracts for Business Events and Temporal Constraints in Service Engagements.” *IEEE Transactions on Services Computing (TSC)* 7(3), July 2014, pages 427–439. doi: 10.1109/TSC.2013.21.
- [67] Pankaj R. Telang, Anup K. Kalia, and Munindar P. Singh. “Engineering Service Engagements via Commitments.” *IEEE Internet Computing (IC)* 18(3), May 2014, pages 46–54. doi: 10.1109/MIC.2013.86.

- [68] Prashant C. Kediya and Munindar P. Singh. “Licit: Administering Usage Licenses in Federated Environments.” *IEEE Transactions on Services Computing (TSC)* 7(1), January 2014, pages 96–108. doi: 10.1109/TSC.2013.1.
- [69] Munindar P. Singh. “Norms as a Basis for Governing Sociotechnical Systems.” *ACM Transactions on Intelligent Systems and Technology (TIST)* 5(1), December 2013, 21:1–21:23. doi: 10.1145/2542182.2542203.
- [70] Chung-Wei Hang, Zhe Zhang, and Munindar P. Singh. “Shin: Generalized Trust Propagation with Limited Evidence.” *IEEE Computer* 46(3), March 2013, pages 78–85. doi: 10.1109/MC.2012.116.
- [71] Scott N. Gerard and Munindar P. Singh. “Formalizing and Verifying Protocol Refinements.” *ACM Transactions on Intelligent Systems and Technology (TIST)* 42(2), March 2013. Appendix pages 1–7, 21:1–21:27. doi: 10.1145/2438653.2438656.
- [72] Amit K. Chopra, Alexander Artikis, Jamal Bentahar, Marco Colombetti, Frank Dignum, Nicoletta Fornara, Andrew J. I. Jones, Munindar P. Singh, and Pinar Yolum. “Research Directions in Agent Communication.” *ACM Transactions on Intelligent Systems and Technology (TIST)* 42(2), March 2013, 20:1–20:23. doi: 10.1145/2438653.2438655.
- [73] Chung-Wei Hang and Munindar P. Singh. “Generalized Framework for Personalized Recommendations in Agent Networks.” *Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS)* 25(3), November 2012, pages 475–498. doi: 10.1007/s10458-011-9186-1.
- [74] Pankaj R. Telang and Munindar P. Singh. “Specifying and Verifying Cross-Organizational Business Models: An Agent-Oriented Approach.” *IEEE Transactions on Services Computing (TSC)* 5(3), July 2012. Appendix pages 1–5, pages 305–318. doi: 10.1109/TSC.2011.4.
- [75] Xibin Gao, Munindar P. Singh, and Pankaj Mehra. “Mining Business Contracts for Service Exceptions.” *IEEE Transactions on Services Computing (TSC)* 5(3), July 2012, pages 333–344. doi: 10.1109/TSC.2011.1.
- [76] Pradeep K. Murukannaiah and Munindar P. Singh. “Platys Social: Relating Shared Places and Private Social Circles.” *IEEE Internet Computing (IC)* 16(3), May 2012, pages 53–59. doi: 10.1109/MIC.2011.106.
- [77] Derek J. Sollenberger and Munindar P. Singh. “Koko: An Architecture for Affect-Aware Games.” *Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS)* 24(2), March 2012, pages 255–286. doi: 10.1007/s10458-010-9160-3.
- [78] Frances Brazier, Virginia Dignum, Michael N. Huhns, Christian Derksen, Frank Dignum, Tim Lessner, Julian Padget, Thomas Quillinan, and Munindar P. Singh. “Agent-Based Organisational Governance of Services.” *Multiagent and Grid Systems: An International Journal (MAGS)* 8(1), January 2012, pages 3–18. doi: 10.3233/MGS-2012-0187.
- [79] Christopher J. Hazard and Munindar P. Singh. “Intertemporal Discount Factors as a Measure of Trustworthiness in Electronic Commerce.” *IEEE Transactions on Knowledge and Data Engineering* 23(5), May 2011, pages 699–712. doi: 10.1109/TKDE.2010.141.
- [80] Chung-Wei Hang and Munindar P. Singh. “Trustworthy Service Selection and Composition.” *ACM Transactions on Autonomous and Adaptive Systems (TAAS)* 6(1), February 2011, 5:1–5:17. doi: 10.1145/1921641.1921646.

- [81] Yonghong Wang, Chung-Wei Hang, and Munindar P. Singh. “A Probabilistic Approach for Maintaining Trust Based on Evidence.” *Journal of Artificial Intelligence Research (JAIR)* 40, January 2011, pages 221–267. doi: 10.1613/jair.3108.
- [82] Yonghong Wang and Munindar P. Singh. “Evidence-Based Trust: A Mathematical Model Geared for Multiagent Systems.” *ACM Transactions on Autonomous and Adaptive Systems (TAAS)* 5(4), November 2010, 14:1–14:28. doi: 10.1145/1867713.1867715.
- [83] Munindar P. Singh, Amit K. Chopra, and Nirmitt Desai. “Commitment-Based Service-Oriented Architecture.” *IEEE Computer* 42(11), November 2009, pages 72–79. doi: 10.1109/MC.2009.347.
- [84] Nirmitt Desai, Amit K. Chopra, and Munindar P. Singh. “Amoeba: A Methodology for Modeling and Evolving Cross-Organizational Business Processes.” *ACM Transactions on Software Engineering and Methodology (TOSEM)* 19(2), October 2009, 6:1–6:45. doi: 10.1145/1571629.1571632.
- [85] Payal Chakravarty and Munindar P. Singh. “Incorporating Events into Cross-Organizational Business Processes.” *IEEE Internet Computing (IC)* 12(2), March 2008, pages 46–53. doi: 10.1109/MIC.2008.35.
- [86] Ashok U. Mallya and Munindar P. Singh. “An Algebra for Commitment Protocols.” *Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS)* 14(2), April 2007, pages 143–163. doi: 10.1007/s10458-006-7232-1.
- [87] Nirmitt Desai, Ashok U. Mallya, Amit K. Chopra, and Munindar P. Singh. “Interaction Protocols as Design Abstractions for Business Processes.” *IEEE Transactions on Software Engineering* 31(12), December 2005, pages 1015–1027. doi: 10.1109/TSE.2005.140.
- [88] Pinar Yolum and Munindar P. Singh. “Engineering self-organizing referral networks for trustworthy service selection.” *IEEE Transactions on Systems, Man, and Cybernetics, Part A* 35(3), May 2005, pages 396–407. doi: 10.1109/TSMCA.2005.846401.
- [89] Michael N. Huhns and Munindar P. Singh. “Service-Oriented Computing: Key Concepts and Principles.” *IEEE Internet Computing (IC)* 9(1), January 2005, pages 75–81. doi: 10.1109/MIC.2005.21.
- [90] Feng Wan and Munindar P. Singh. “Enabling Persistent Web Services via Commitments.” *Information Technology and Management* 6(1), January 2005, pages 41–60. doi: 10.1007/s10799-004-7774-3. Invited.
- [91] E. Michael Maximilien and Munindar P. Singh. “A Framework and Ontology for Dynamic Web Services Selection.” *IEEE Internet Computing (IC)* 8(5), September 2004, pages 84–93. doi: 10.1109/MIC.2004.27.
- [92] Pinar Yolum and Munindar P. Singh. “Reasoning About Commitments in the Event Calculus: An Approach for Specifying and Executing Protocols.” *Annals of Mathematics and Artificial Intelligence* 42(1–3), September 2004, pages 227–253. doi: 10.1023/B:AMAI.0000034528.55456.d9.
- [93] Raghuram M. Sreenath and Munindar P. Singh. “Agent-Based Service Selection.” *Journal of Web Semantics* 1(3), April 2004, pages 261–279. doi: 10.1016/j.websem.2003.11.006.
- [94] Pinar Yolum and Munindar P. Singh. “Dynamic Communities in Referral Networks.” *Web Intelligence and Agent Systems* 1(2), September 2003, pages 105–116. ISSN: 1875-9289.

- [95] Bin Yu, Mahadevan Venkatraman, and Munindar P. Singh. “An Adaptive Social Network for Information Access: Theoretical and Experimental Results.” *Applied Artificial Intelligence* 17(1), January 2003, pages 21–38. doi: 10.1080/713827056.
- [96] Bin Yu and Munindar P. Singh. “Distributed Reputation Management for Electronic Commerce.” *Computational Intelligence* 18(4), November 2002, pages 535–549. doi: 10.1111/1467-8640.00202.
- [97] Jie Xing, Feng Wan, Sudhir K. Rustogi, and Munindar P. Singh. “A Commitment-Based Approach for Business Process Interoperation.” *IEICE Transactions on Information and Systems* E84-D(10), October 2001. Special issue on *Autonomous Decentralized Systems and Systems Assurance*, pages 1324–1332. ISSN: 0916-8532.
- [98] Munindar P. Singh, Bin Yu, and Mahadevan Venkatraman. “Community-Based Service Location.” *Communications of the ACM (CACM)* 44(4), April 2001, pages 49–54. doi: 10.1145/367211.367255.
- [99] Munindar P. Singh. “Synthesizing Coordination Requirements for Heterogeneous Autonomous Agents.” *Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS)* 3(2), June 2000, pages 107–132. doi: 10.1023/A:1010033827337.
- [100] Mahadevan Venkatraman and Munindar P. Singh. “Verifying Compliance with Commitment Protocols: Enabling Open Web-Based Multiagent Systems.” *Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS)* 2(3), September 1999, pages 217–236. doi: 10.1023/A:1010056221226.
- [101] Munindar P. Singh and Michael N. Huhns. “Multiagent Systems for Workflow.” *International Journal of Intelligent Systems in Accounting, Finance & Management* 8(2), June 1999. Special Issue on AI Applications, pages 105–117. doi: 10.1002/(SICI)1099-1174(199906)8:2<105::AID-ISA163>3.0.CO;2-%23. Invited.
- [102] Anuj K. Jain, Manuel Aparicio IV, and Munindar P. Singh. “Agents for Process Coherence in Virtual Enterprises.” *Communications of the ACM (CACM)* 42(3), March 1999, pages 62–69. doi: 10.1145/295685.295702.
- [103] Munindar P. Singh. “An Ontology for Commitments in Multiagent Systems: Toward a Unification of Normative Concepts.” *Artificial Intelligence and Law* 7(1), March 1999, pages 97–113. doi: 10.1023/A:1008319631231.
- [104] Michael N. Huhns and Munindar P. Singh. “Multiagent Treatment of Agenthood.” *Applied Artificial Intelligence* 13(1–2), January 1999, pages 3–10. doi: 10.1080/088395199117469.
- [105] Munindar P. Singh. “Agent Communication Languages: Rethinking the Principles.” *IEEE Computer* 31(12), December 1998, pages 40–47. doi: 10.1109/2.735849.
- **This article won the Influential Paper Award of the International Foundation for Autonomous Agents and Multiagent Systems (IFAAMAS) in 2016.**
  - This article was identified as a “crucial paper” and reprinted in *Communication in Multi-agent Systems*. Edited by Marc-Philippe Huget. Lecture Notes in Artificial Intelligence 2650, Springer-Verlag, Berlin, 2003, pages 37–50. doi: 10.1007/978-3-540-44972-0\_2.
- [106] Munindar P. Singh. “Semantical Considerations on Intention Dynamics for BDI Agents.” *Journal of Experimental and Theoretical Artificial Intelligence* 10(4), October 1998, pages 551–564. doi: 10.1080/095281398146752.

- [107] Munindar P. Singh. “Toward a Model Theory of Actions: How Agents do it in Branching Time.” *Computational Intelligence* 14(3), August 1998, pages 287–317. doi: 10.1111/0824-7935.00064.
- [108] Munindar P. Singh. “Applying the Mu-Calculus in Planning and Reasoning about Action.” *Journal of Logic and Computation* 8(3), June 1998, pages 425–445. doi: 10.1093/logcom/8.3.425.
- [109] Munindar P. Singh, Philip E. Cannata, Michael N. Huhns, Nigel Jacobs, Tomasz Ksiezzyk, Kayliang Ong, Amit P. Sheth, Christine Tomlinson, and Darrell Woelk. “The Carnot Heterogeneous Database Project: Implemented Applications.” *Distributed and Parallel Databases: An International Journal* 5(2), April 1997, pages 207–225. doi: 10.1023/A:1008645509474.
- [110] Paul C. Attie, Munindar P. Singh, E. Allen Emerson, Amit Sheth, and Marek Rusinkiewicz. “Scheduling Workflows by Enforcing Intertask Dependencies.” *Distributed Systems Engineering Journal* 3(4), December 1996, pages 222–238. doi: 10.1088/0967-1846/3/4/003.
- [111] Munindar P. Singh and Michael N. Huhns. “Automating Workflows for Service Order Processing: Integrating AI and Database Technologies.” *IEEE Expert* 9(5), October 1994, pages 19–23. doi: 10.1109/64.331480.
- [112] Munindar P. Singh and Nicholas M. Asher. “A Logic of Intentions and Beliefs.” *Journal of Philosophical Logic* 22(5), October 1993, pages 513–544. doi: 10.1007/BF01349562.
- [113] Munindar P. Singh, Michael N. Huhns, and Larry M. Stephens. “Declarative Representations of Multiagent Systems.” *IEEE Transactions on Knowledge and Data Engineering* 5(5), October 1993, pages 721–739. doi: 10.1109/69.243505.
- [114] Munindar P. Singh. “A Semantics for Speech Acts.” *Annals of Mathematics and Artificial Intelligence* 8(I–II), September 1993, pages 47–71. doi: 10.1007/BF02451549.

### 3.4 Papers in Major Conference Proceedings

- [115] Sz-Ting Tzeng, Nirav Ajmeri, and Munindar P. Singh. “Value-Based Rationales Improve Social Experience: A Multiagent Simulation Study.” *Proceedings of the 27th European Conference on Artificial Intelligence (ECAI)*. Santiago de Compostela, Spain, October 2024, pages 1–8.
- [116] Eleni Bardaka, Pascal Van Hentenryck, Crystal Chen Lee, Christopher B. Mayhorn, Kai Monast, Samitha Samaranyake, and Munindar P. Singh. “Empathy and AI: Achieving Equitable Microtransit for Underserved Communities.” *Proceedings of the 30th International Joint Conference on Artificial Intelligence (IJCAI), Special Track on AI for Good*. Jeju, Korea: IJCAI, August 2024, pages 7179–7187. doi: 10.24963/ijcai.2024/794.
- [117] Munindar P. Singh, Samuel H. Christie V, and Amit K. Chopra. “Langshaw: Declarative Interaction Protocols Based on Sayso and Conflict.” *Proceedings of the 30th International Joint Conference on Artificial Intelligence (IJCAI)*. Jeju, Korea: IJCAI, August 2024, pages 202–210. doi: 10.24963/ijcai.2024/23.
- [118] Ruijie Xi and Munindar P. Singh. “Morality in the Mundane: Categorizing Moral Reasoning in Real-life Social Situations.” *Proceedings of the 18th International AAAI Conference on Web and Social Media (ICWSM)*. Buffalo, New York: AAAI Press, June 2024, pages 1648–1660. doi: 10.1609/icwsm.v18i1.31415.

- [119] Sz-Ting Tzeng, Nirav Ajmeri, and Munindar P. Singh. “Norm Enforcement with a Soft Touch: Faster Emergence, Happier Agents.” *Proceedings of the 23rd International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Auckland: IFAAMAS, May 2024, pages 1837–1846. doi: 10.5555/3635637.3663046.
- [120] Amika M. Singh and Munindar P. Singh. “Norm Deviation in Multiagent Systems: A Foundation for Responsible Autonomy.” *Proceedings of the 32nd International Joint Conference on Artificial Intelligence (IJCAI)*. Macau: IJCAI, August 2023, pages 289–297. doi: 10.24963/ijcai.2023/33.
- [121] Xiaofei Xu, Quan Z. Sheng, Boualem Benatallah, Zhong Chen, Robert Gazda, Abdulmotaleb El Saddik, and Munindar P. Singh. “Metaverse Services: The Way of Services Towards the Future.” *Proceedings of the 22th IEEE International Conference on Web Services (ICWS)*. Chicago: IEEE Computer Society, July 2023, pages 179–185. doi: 10.1109/ICWS60048.2023.00037. Invited.
- [122] Zhen Guo and Munindar P. Singh. “Representing and Determining Argumentative Relevance in Online Discussions: A General Approach.” *Proceedings of the 17th International AAI Conference on Web and Social Media (ICWSM)*. Limassol, Cyprus: AAI Press, June 2023, pages 292–302. doi: 10.1609/icwsm.v17i1.22146.
- [123] Jiaqing Yuan and Munindar P. Singh. “Conversation Modeling to Predict Derailment.” *Proceedings of the 17th International AAI Conference on Web and Social Media (ICWSM)*. Limassol, Cyprus: AAI Press, June 2023, pages 926–935. doi: 10.1609/icwsm.v17i1.22200.
- [124] Samuel H. Christie V, Munindar P. Singh, and Amit K. Chopra. “Kiko: Programming Agents to Enact Interaction Protocols.” *Proceedings of the 22nd International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. London: IFAAMAS, May 2023, pages 1154–1163. doi: 10.5555/3545946.3598758.
- [125] Ahmed H. Anwar, Mu Zhu, Zelin Wan, Jin-Hee Cho, Charles A. Kamhoua, and Munindar P. Singh. “Honeypot-Based Cyber Deception Against Malicious Reconnaissance via Hypergame Theory.” *Proceedings of IEEE Global Communications Conference (GLOBECOM)*. Rio de Janeiro: IEEE, December 2022, pages 3393–3398. doi: 10.1109/GLOBECOM48099.2022.10000813.
- [126] Rishabh Agrawal, Nirav Ajmeri, and Munindar P. Singh. “Socially Intelligent Genetic Agents for the Emergence of Explicit Norms.” *Proceedings of the 31st International Joint Conference on Artificial Intelligence (IJCAI)*. Vienna: IJCAI, July 2022, pages 10–16. doi: 10.24963/ijcai.2022/2.
- [127] Pradeep K. Murukannaiah, Nirav Ajmeri, and Munindar P. Singh. “Enhancing Creativity as Innovation via Asynchronous Crowdsourcing.” *Proceedings of the 14th ACM Web Science Conference (WebSci)*. Barcelona: ACM, June 2022, pages 66–74. doi: 10.1145/3501247.3531555.
- [128] Samuel H. Christie V, Amit K. Chopra, and Munindar P. Singh. “Pippi: Practical Protocol Instantiation.” *Proceedings of the 21st International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Auckland: IFAAMAS, May 2022, pages 281–289. doi: 10.5555/3535850.3535883.
- [129] Samuel H. Christie V, Amit K. Chopra, and Munindar P. Singh. “Deserv: Decentralized Serverless Computing.” *Proceedings of the 19th IEEE International Conference on Web Services (ICWS)*. Virtual: IEEE Computer Society, September 2021, pages 51–60. doi: 10.1109/ICWS53863.2021.00020. Invited.
- [130] Munindar P. Singh and Samuel H. Christie V. “Tango: Declarative Semantics for Multiagent Communication Protocols.” *Proceedings of the 30th International Joint Conference on Artificial Intelligence (IJCAI)*. Online: IJCAI, August 2021, pages 391–397. doi: 10.24963/ijcai.2021/55.

- [131] Iffat Anjum, Mu Zhu, Isaac Polinsky, William H. Enck, Michael K. Reiter, and Munindar P. Singh. “Role-Based Deception in Enterprise Networks.” *Proceedings of the 11th ACM Conference on Data and Application Security and Privacy (CODASPY)*. Online: ACM, April 2021, pages 65–76. doi: 10.1145/3422337.3447824.
- [132] Pankaj R. Telang, Munindar P. Singh, and Neil Yorke-Smith. “Maintenance of Social Commitments in Multiagent Systems.” *Proceedings of the 35th AAAI Conference on Artificial Intelligence (AAAI)* 35(13), February 2021, pages 11369–11377. doi: 10.1609/aaai.v35i13.17355.
- [133] Nirav Ajmeri, Hui Guo, Pradeep K. Murukannaiah, and Munindar P. Singh. “Elessar: Ethics in Norm-Aware Agents.” *Proceedings of the 19th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Auckland: IFAAMAS, May 2020, pages 16–24. doi: 10.5555/3398761.3398769.
- [134] Samuel H. Christie V, Amit K. Chopra, and Munindar P. Singh. “Refinement for Multiagent Information Protocols.” *Proceedings of the 19th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Auckland: IFAAMAS, May 2020, pages 258–266. doi: 10.5555/3398761.3398796.
- [135] Pradeep K. Murukannaiah, Nirav Ajmeri, Catholijn M. Jonker, and Munindar P. Singh. “New Foundations of Ethical Multiagent Systems.” *Proceedings of the 19th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Blue Sky Ideas Track. Auckland: IFAAMAS, May 2020, pages 1706–1710. doi: 10.5555/3398761.3398958.
- **This paper won the Blue Sky Paper Award sponsored by the Computing Research Association’s Computing Community Consortium.**
- [136] Zhen Guo, Zhe Zhang, and Munindar P. Singh. “In Opinion Holders’ Shoes: Modeling Cumulative Influence for View Change in Online Argumentation.” *Proceedings of the 29th Web Conference (WWW)*. Taipei: ACM, April 2020, pages 2388–2399. doi: 10.1145/3366423.3380302.
- [137] Hui Guo and Munindar P. Singh. “Caspar: Extracting and Synthesizing User Stories of Problems from App Reviews.” *Proceedings of the 42nd International Conference on Software Engineering (ICSE)*. Seoul: ACM, May 2020, pages 628–640. doi: 10.1145/3377811.3380924.
- [138] Munindar P. Singh and Amit K. Chopra. “Clouseau: Generating Communication Protocols from Commitments.” *Proceedings of the 34th Conference on Artificial Intelligence (AAAI)*. New York: AAAI Press, February 2020, pages 7244–7252. doi: 10.1609/aaai.v34i05.6215.
- [139] Zhe Zhang and Munindar P. Singh. “Leveraging Structural and Semantic Correspondence for Attribute-Oriented Aspect Sentiment Discovery.” *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP)*. Hong Kong: Association for Computational Linguistics, November 2019, pages 5531–5541. doi: 10.18653/v1/D19-1555.
- [140] Anup K. Kalia, Nirav Ajmeri, Kevin Chan, Jin-Hee Cho, Sibel Adalı, and Munindar P. Singh. “The Interplay of Emotions and Norms in Multiagent Systems.” *Proceedings of the 28th International Joint Conference on Artificial Intelligence (IJCAI)*. Macau: IJCAI, August 2019, pages 371–377. doi: 10.24963/ijcai.2019/53.
- [141] Akın Günay, Amit K. Chopra, and Munindar P. Singh. “Supple: Multiagent Communication Protocols with Causal Types.” *Proceedings of the 18th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Montréal: IFAAMAS, May 2019, pages 781–789. doi: 10.5555/3306127.3331769.

- [142] Zhe Zhang and Munindar P. Singh. “Limbic: Author-Based Sentiment Aspect Modeling Regularized with Word Embeddings and Discourse Relations.” *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP)*. Brussels: Association for Computational Linguistics, November 2018, pages 3412–3422. doi: 10.18653/v1/D18-1378.
- [143] Nirav Ajmeri, Hui Guo, Pradeep K. Murukannaiah, and Munindar P. Singh. “Robust Norm Emergence by Revealing and Reasoning about Context: Socially Intelligent Agents for Enhancing Privacy.” *Proceedings of the 27th International Joint Conference on Artificial Intelligence (IJCAI)*. Stockholm: IJCAI, July 2018, pages 28–34. doi: 10.24963/ijcai.2018/4.
- [144] Samuel H. Christie V, Amit K. Chopra, and Munindar P. Singh. “Compositional Correctness in Multiagent Interactions.” *Proceedings of the 17th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Stockholm: IFAAMAS, July 2018, pages 1159–1167. doi: 10.5555/3237383.3237868.
- [145] Amit K. Chopra and Munindar P. Singh. “Sociotechnical Systems and Ethics in the Large.” *Proceedings of the AAAI/ACM Conference on Artificial Intelligence, Ethics, and Society (AIES)*. New Orleans: ACM, February 2018, pages 48–53. doi: 10.1145/3278721.3278740.
- [146] Thomas Christopher King, Akin Günay, Amit K. Chopra, and Munindar P. Singh. “Tosca: Operationalizing Commitments over Information Protocols.” *Proceedings of the 26th International Joint Conference on Artificial Intelligence (IJCAI)*. Melbourne: IJCAI, August 2017, pages 256–264. doi: 10.24963/ijcai.2017/37.
- [147] Adel ElMessiry, Zhe Zhang, Thomas F. Catron, William O. Cooper, Jan Karrass, and Munindar P. Singh. “Leveraging Sentiment Analysis for Classifying Patient Complaints.” *Proceedings of the 8th ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (BCB)*. Boston: ACM, August 2017, pages 44–51. doi: 10.1145/3107411.3107421.
- [148] Guangchao Yuan, Chung-Wei Hang, Michael N. Huhns, and Munindar P. Singh. “A Mechanism for Cooperative Demand-Side Management.” *Proceedings of the 37th IEEE International Conference on Distributed Computing Systems (ICDCS)*. Atlanta: IEEE, June 2017, pages 361–371. doi: 10.1109/ICDCS.2017.300.
- [149] Nirav Ajmeri, Hui Guo, Pradeep K. Murukannaiah, and Munindar P. Singh. “Arnor: Modeling Social Intelligence via Norms to Engineer Privacy-Aware Personal Agents.” *Proceedings of the 16th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. São Paulo: IFAAMAS, May 2017, pages 230–238. doi: 10.5555/3091125.3091163.
- [150] Amit K. Chopra, Samuel H. Christie V, and Munindar P. Singh. “Splee: A Declarative Information-Based Language for Multiagent Interaction Protocols.” *Proceedings of the 16th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. São Paulo: IFAAMAS, May 2017, pages 1054–1063. doi: 10.5555/3091125.3091274.
- [151] Özgür Kafalı, Jasmine Jones, Megan Petruso, Laurie Williams, and Munindar P. Singh. “How Good is a Security Policy against Real Breaches? A HIPAA Case Study.” *Proceedings of the 39th International Conference on Software Engineering (ICSE)*. Buenos Aires: IEEE Computer Society, May 2017, pages 530–540. doi: 10.1109/ICSE.2017.55.
- [152] Özgür Kafalı, Nirav Ajmeri, and Munindar P. Singh. “Kont: Computing Tradeoffs in Normative Multiagent Systems.” *Proceedings of the 31st Conference on Artificial Intelligence (AAAI)*. San Francisco: AAAI, February 2017, pages 3006–3012. doi: 10.1609/aaai.v31i1.10706.

- [153] Pradeep K. Murukannaiah, Nirav Ajmeri, and Munindar P. Singh. “Acquiring Creative Requirements from the Crowd: Understanding the Influences of Personality and Creative Potential in Crowd RE.” *Proceedings of the 24th IEEE International Requirements Engineering Conference (RE)*. Beijing: IEEE Computer Society, September 2016, pages 176–185. doi: 10.1109/RE.2016.68.
- [154] Maria Riaz, Jonathan Stallings, Munindar P. Singh, John B. Slankas, and Laurie Williams. “DIGS—A Framework for Discovering Goals for Security Requirements Engineering.” *Proceedings of the 10th ACM/IEEE International Symposium on Empirical Software Engineering and Measurement (ESEM)*. Ciudad Real, Spain: ACM, September 2016, 35:1–35:10. doi: 10.1145/2961111.2962599.
- [155] Guangchao Yuan, Pradeep K. Murukannaiah, and Munindar P. Singh. “Percimo: A Personalized Community Model for Location Estimation in Social Media.” *Proceedings of the 8th IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*. San Francisco: IEEE, August 2016, pages 271–278. doi: 10.1109/ASONAM.2016.7752245.
- [156] Özgür Kafalı, Munindar P. Singh, and Laurie Williams. “Nane: Identifying Misuse Cases Using Temporal Norm Enactments.” *Proceedings of the 24th IEEE International Requirements Engineering Conference (RE)*. Beijing: IEEE Computer Society, September 2016, pages 136–145. doi: 10.1109/RE.2016.34.
- [157] Nirav Ajmeri, Jiaming Jiang, Rada Y. Chirkova, Jon Doyle, and Munindar P. Singh. “Coco: Runtime Reasoning about Conflicting Commitments.” *Proceedings of the 25th International Joint Conference on Artificial Intelligence (IJCAI)*. New York: IJCAI, July 2016, pages 17–23. ISBN: 978-1-57735-770-4. URL: <https://www.ijcai.org/Abstract/16/010>.
- [158] Mehdi Mashayekhi, Hongying Du, George F. List, and Munindar P. Singh. “Silk: A Simulation Study of Regulating Open Normative Multiagent Systems.” *Proceedings of the 25th International Joint Conference on Artificial Intelligence (IJCAI)*. New York: IJCAI, July 2016, pages 373–379. ISBN: 978-1-57735-770-4. URL: <https://www.ijcai.org/Abstract/16/060>.
- [159] Amit K. Chopra and Munindar P. Singh. “Custard: Computing Norm States over Information Stores.” *Proceedings of the 15th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Singapore: IFAAMAS, May 2016, pages 1096–1105. doi: 10.5555/2936924.2937085.
- [160] Amit K. Chopra and Munindar P. Singh. “From Social Machines to Social Protocols: Software Engineering Foundations for Sociotechnical Systems.” *Proceedings of the 25th International World Wide Web Conference*. Montréal: ACM, April 2016, pages 903–914. doi: 10.1145/2872427.2883018.
- [161] Pankaj R. Telang, Anup K. Kalia, John F. Madden, and Munindar P. Singh. “Combining Practical and Dialectical Commitments for Service Engagements.” *Proceedings of the 13th International Conference on Service-Oriented Computing (ICSOC)*. Lecture Notes in Computer Science 9435. Goa, India: Springer, November 2015, pages 3–18. doi: 10.1007/978-3-662-48616-0\_1.
- **Best Paper Award.**
- [162] Scott N. Gerard, Pankaj R. Telang, Anup K. Kalia, and Munindar P. Singh. “Positron: Composing Commitment-Based Protocols.” *Proceedings of the 13th International Conference on Service-Oriented Computing (ICSOC)*. Lecture Notes in Computer Science 9435. Goa, India: Springer, November 2015, pages 19–35. doi: 10.1007/978-3-662-48616-0\_2.

- [163] Anup K. Kalia, Pradeep K. Murukannaiah, and Munindar P. Singh. “TRACE: A Dynamic Model of Trust for People-Driven Service Engagements: Combining Trust with Risk, Commitments, and Emotions.” *Proceedings of the 13th International Conference on Service-Oriented Computing (ICSOC)*. Lecture Notes in Computer Science 9435. Short paper. Goa, India: Springer, November 2015, pages 353–361. doi: 10.1007/978-3-662-48616-0\_24.
- [164] Pradeep K. Murukannaiah, Anup K. Kalia, Pankaj R. Telang, and Munindar P. Singh. “Resolving Goal Conflicts via Argumentation-Based Analysis of Competing Hypotheses.” *Proceedings of the 23rd IEEE International Requirements Engineering Conference (RE)*. Ottawa: IEEE Computer Society, August 2015, pages 156–165. doi: 10.1109/RE.2015.7320418.
- [165] Matteo Baldoni, Cristina Baroglio, Amit K. Chopra, and Munindar P. Singh. “Composing and Verifying Commitment-Based Multiagent Protocols.” *Proceedings of the 24th International Joint Conference on Artificial Intelligence (IJCAI)*. Buenos Aires: IJCAI, July 2015, pages 10–17. ISBN: 978-1-57735-738-4. URL: <https://www.ijcai.org/Abstract/15/009>.
- [166] Puwei Wang, Anup K. Kalia, and Munindar P. Singh. “A Collaborative Approach to Predicting Service Price for QoS-Aware Service Selection.” *Proceedings of the 13th IEEE International Conference on Web Services (ICWS)*. New York: IEEE Computer Society, June 2015, pages 33–40. doi: 10.1109/ICWS.2015.15.
- [167] Amit K. Chopra and Munindar P. Singh. “Generalized Commitment Alignment.” *Proceedings of the 14th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Istanbul: IFAAMAS, May 2015, pages 453–461. doi: 10.5555/2772879.2772938.
- [168] Munindar P. Singh. “Cybersecurity as an Application Domain for Multiagent Systems.” *Proceedings of the 14th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Blue Sky Ideas Track. Istanbul: IFAAMAS, May 2015, pages 1207–1212. doi: 10.5555/2772879.2773304.
- [169] Amit K. Chopra and Munindar P. Singh. “Cupid: Commitments in Relational Algebra.” *Proceedings of the 29th Conference on Artificial Intelligence (AAAI)*. Austin, Texas: AAAI Press, January 2015, pages 2052–2059. doi: 10.1609/aaai.v29i1.9443.
- [170] Anup K. Kalia, Norbou Buchler, Diane Ungvarsky, Ramesh Govindan, and Munindar P. Singh. “Determining Team Hierarchy from Broadcast Communications.” *Proceedings of the 6th International Conference on Social Informatics (SocInfo)*. Lecture Notes in Computer Science 8851. Barcelona: Springer, November 2014, pages 493–507. doi: 10.1007/978-3-319-13734-6\_35.
- [171] Guangchao Yuan, Pradeep K. Murukannaiah, Zhe Zhang, and Munindar P. Singh. “Exploiting Sentiment Homophily for Link Prediction.” *Proceedings of the 7th ACM Conference on Recommender Systems (RecSys)*. Foster City, California: ACM, October 2014, pages 17–24. doi: 10.1145/2645710.2645734.
- [172] Amit K. Chopra, Fabiano Dalpiaz, F. Başak Aydemir, Paolo Giorgini, John Mylopoulos, and Munindar P. Singh. “Protos: Foundations for Engineering Innovative Sociotechnical Systems.” *Proceedings of the 22nd IEEE International Requirements Engineering Conference (RE)*. Karlskrona, Sweden: IEEE Computer Society, August 2014, pages 53–62. doi: 10.1109/RE.2014.6912247.
- [173] Zhe Zhang and Munindar P. Singh. “ReNew: A Semi-Supervised Framework for Generating Domain-Specific Lexicons and Sentiment Analysis.” *Proceedings of the 52nd Annual Meeting of the*

*Association for Computational Linguistics (ACL), Volume 1: Long Papers*. Baltimore: Association for Computational Linguistics, June 2014, pages 542–551. doi: 10.3115/v1/P14-1051.

- [174] Munindar P. Singh. “Bliss: Specifying Declarative Service Protocols.” *Proceedings of the 11th IEEE International Conference on Services Computing (SCC)*. Anchorage, Alaska: IEEE Computer Society, June 2014, pages 235–242. doi: 10.1109/SCC.2014.39.
- [175] Pradeep K. Murukannaiah and Munindar P. Singh. “Xipho: Extending Tropos to Engineer Context-Aware Personal Agents.” *Proceedings of the 13th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Paris: IFAAMAS, May 2014, pages 309–316. doi: 10.5555/2615731.2615783.
- [176] Xibin Gao and Munindar P. Singh. “Extracting Normative Relationships from Business Contracts.” *Proceedings of the 13th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Paris: IFAAMAS, May 2014, pages 101–108. doi: 10.5555/2615731.2615751.

• **Identified as among the top 10% of papers accepted at AAMAS 2014.**

- [177] Christopher J. Hazard and Munindar P. Singh. “Macau: A Basis for Evaluating Reputation Systems.” *Proceedings of the 23rd International Joint Conference on Artificial Intelligence (IJCAI)*. Beijing: IJCAI, August 2013, pages 191–197. ISBN: 978-1-57735-633-2. URL: <https://www.ijcai.org/Proceedings/13/Papers/038.pdf>.
- [178] Felipe Meneguzzi, Pankaj R. Telang, and Munindar P. Singh. “A First-Order Formalization of Commitments and Goals for Planning.” *Proceedings of the 27th Conference on Artificial Intelligence (AAAI)*. Bellevue, Washington: AAAI Press, July 2013, pages 697–703. doi: 10.1609/aaai.v27i1.8632.
- [179] Anup K. Kalia, Hamid R. Motahari Nezhad, Claudio Bartolini, and Munindar P. Singh. “Monitoring Commitments in People-Driven Service Engagements.” *Proceedings of the 10th IEEE International Conference on Services Computing (SCC)*. Santa Clara, California: IEEE Computer Society, June 2013, pages 160–167. doi: 10.1109/SCC.2013.62.
- [180] Pankaj R. Telang, Felipe Meneguzzi, and Munindar P. Singh. “Hierarchical Planning about Goals and Commitments.” *Proceedings of the 12th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. St. Paul, Minnesota: IFAAMAS, May 2013, pages 877–884. doi: 10.5555/2484920.2485059.
- [181] Scott N. Gerard and Munindar P. Singh. “Evolving Protocols and Agents in Multiagent Systems.” *Proceedings of the 12th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. St. Paul, Minnesota: IFAAMAS, May 2013, pages 997–1004. doi: 10.5555/2484920.2485078.
- [182] Zi Feng, Konstantinos Pelechrinis, Srikanth Krishnamurthy, Ananthram Swami, Felix Wu, and Munindar P. Singh. “Collaborative Assessment of Functional Reliability in Wireless Networks.” *Proceedings of the 9th IEEE International Conference on Mobile Ad-hoc and Sensor Systems (MASS)*. Las Vegas, October 2012, pages 425–423. doi: 10.1109/MASS.2012.6502543.
- [183] Simon D. Parsons, Katie Atkinson, Karen Haigh, Karl Levitt, Peter McBurney, Jeff Rowe, Munindar P. Singh, and Elizabeth I. Sklar. “Argument Schemes for Reasoning about Trust.” *Proceedings of the 4th International Conference on Computational Models of Argument (COMMA)*. Vienna, September 2012, pages 430–441. doi: 10.3233/978-1-61499-111-3-430.

- [184] Chung-Wei Hang, Anup K. Kalia, and Munindar P. Singh. “Behind the Curtain: Service Selection via Trust in Composite Services.” *Proceedings of the 10th IEEE International Conference on Web Services (ICWS)*. Honolulu: IEEE Computer Society, June 2012, pages 9–16. doi: 10.1109/ICWS.2012.96.
- [185] Munindar P. Singh. “Semantics and Verification of Information-Based Protocols.” *Proceedings of the 11th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Valencia, Spain: IFAAMAS, June 2012, pages 1149–1156. doi: 10.5555/2343776.2343861.
- [186] Pankaj R. Telang and Munindar P. Singh. “Comma: A Commitment-Based Business Modeling Methodology and its Empirical Evaluation.” *Proceedings of the 11th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Valencia, Spain: IFAAMAS, June 2012, pages 1073–1080. doi: 10.5555/2343776.2343850.
- [187] Munindar P. Singh. “LoST: Local State Transfer—An Architectural Style for the Distributed Enactment of Business Protocols.” *Proceedings of the 9th IEEE International Conference on Web Services (ICWS)*. Washington, DC: IEEE Computer Society, July 2011, pages 57–64. doi: 10.1109/ICWS.2011.48.
- [188] Amit K. Chopra and Munindar P. Singh. “Specifying and Applying Commitment-Based Business Patterns.” *Proceedings of the 10th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Taipei: IFAAMAS, May 2011, pages 475–482. doi: 10.5555/2031678.2031685.
- [189] Munindar P. Singh. “Trust as Dependence: A Logical Approach.” *Proceedings of the 10th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Taipei: IFAAMAS, May 2011, pages 863–870. doi: 10.5555/2031678.2031741.
- [190] Munindar P. Singh. “Information-Driven Interaction-Oriented Programming: BSPL, the Blindingly Simple Protocol Language.” *Proceedings of the 10th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Taipei: IFAAMAS, May 2011, pages 491–498. doi: 10.5555/2031678.2031687.
- [191] Elisa Marengo, Matteo Baldoni, Amit K. Chopra, Cristina Baroglio, Viviana Patti, and Munindar P. Singh. “Commitments with Regulations: Reasoning about Safety and Control in REGULA.” *Proceedings of the 10th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Taipei: IFAAMAS, May 2011, pages 467–474. doi: 10.5555/2031678.2031684.
- [192] Derek J. Sollenberger and Munindar P. Singh. “Kokomo: An empirically evaluated methodology for affective applications.” *Proceedings of the 10th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Taipei: IFAAMAS, May 2011, pages 293–300. doi: 10.5555/2030470.2030513.
- [193] Pankaj R. Telang and Munindar P. Singh. “Abstracting and Applying Business Modeling Patterns from RosettaNet.” *Proceedings of the 8th International Conference on Service-Oriented Computing (ICSOC)*. Lecture Notes in Computer Science 6470. San Francisco: Springer, December 2010, pages 426–440. doi: 10.1007/978-3-642-17358-5\_29.
- [194] Adel ElMessiry, Xibin Gao, and Munindar P. Singh. “Incorporating Expectations as a Basis for Business Service Selection.” *Proceedings of the 8th International Conference on Service-Oriented Computing (ICSOC)*. Lecture Notes in Computer Science 6470. San Francisco: Springer, December 2010, pages 486–500. doi: 10.1007/978-3-642-17358-5\_33.

- [195] Chung-Wei Hang and Munindar P. Singh. “From Quality to Utility: Adaptive Service Selection Framework.” *Proceedings of the 8th International Conference on Service-Oriented Computing (ICSOC)*. Lecture Notes in Computer Science 6470. San Francisco: Springer, December 2010, pages 456–470. doi: 10.1007/978-3-642-17358-5\_31.
- [196] Chung-Wei Hang, Yonghong Wang, and Munindar P. Singh. “Operators for Propagating Trust and their Evaluation in Social Networks.” *Proceedings of the 8th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Budapest: IFAAMAS, May 2009, pages 1025–1032. doi: 10.5555/1558109.1558155.
- [197] Amit K. Chopra and Munindar P. Singh. “Multiagent Commitment Alignment.” *Proceedings of the 8th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Budapest: IFAAMAS, May 2009, pages 937–944. doi: 10.5555/1558109.1558143.
- [198] Matteo Baldoni, Cristina Baroglio, Amit K. Chopra, Nirmmit Desai, Viviana Patti, and Munindar P. Singh. “Choice, Interoperability, and Conformance in Interaction Protocols and Service Choreographies.” *Proceedings of the 8th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Budapest: IFAAMAS, May 2009, pages 843–850. doi: 10.5555/1558109.1558129.
- [199] Nirmmit Desai and Munindar P. Singh. “On the Enactability of Business Protocols.” *Proceedings of the 23rd Conference on Artificial Intelligence (AAAI)*. Chicago: AAAI Press, July 2008, pages 1126–1131. URL: <https://cdn.aaai.org/AAAI/2008/AAAI08-178.pdf>.
- [200] Munindar P. Singh. “Semantical Considerations on Dialectical and Practical Commitments.” *Proceedings of the 23rd Conference on Artificial Intelligence (AAAI)*. Chicago: AAAI Press, July 2008, pages 176–181. URL: <https://cdn.aaai.org/AAAI/2008/AAAI08-028.pdf/>.
- [201] Amit K. Chopra and Munindar P. Singh. “Constitutive Interoperability.” *Proceedings of the 7th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Estoril, Portugal: IFAAMAS, May 2008, pages 797–804. doi: 10.5555/1402298.1402335.
- [202] Nirmmit Desai, Nanjangud C. Narendra, and Munindar P. Singh. “Checking Correctness of Business Contracts via Commitments.” *Proceedings of the 7th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Estoril, Portugal: IFAAMAS, May 2008, pages 787–794. doi: 10.5555/1402298.1402333.
- [203] Yathiraj B. Udipi and Munindar P. Singh. “Governance of Cross-Organizational Service Agreements: A Policy-Based Approach.” *Proceedings of the 4th IEEE International Conference on Services Computing (SCC)*. Salt Lake City: IEEE Computer Society, July 2007, pages 36–43. doi: 10.1109/SCC.2007.63.
- [204] Nirmmit Desai, Amit K. Chopra, Matthew Arrott, Bill Specht, and Munindar P. Singh. “Engineering Foreign Exchange Processes via Commitment Protocols.” *Proceedings of the 4th IEEE International Conference on Services Computing (SCC), Application and Industry Track*. Salt Lake City: IEEE Computer Society, July 2007, pages 514–521. doi: 10.1109/SCC.2007.58.
- [205] Nirmmit Desai and Munindar P. Singh. “A Modular Action Description Language for Protocol Composition.” *Proceedings of the 22nd Conference on Artificial Intelligence (AAAI)*. Vancouver: AAAI Press, July 2007, pages 962–967.
- [206] Nirmmit Desai, Amit K. Chopra, and Munindar P. Singh. “Representing and Reasoning about Commitments in Business Processes.” *Proceedings of the 22nd Conference on Artificial Intelligence (AAAI)*. Vancouver: AAAI Press, July 2007, pages 1328–1333.

- [207] Pinar Yolum and Munindar P. Singh. “Enacting Protocols by Commitment Concession.” *Proceedings of the 6th International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Honolulu: IFAAMAS, May 2007, pages 116–123. doi: 10.1145/1329125.1329158.
- [208] Munindar P. Singh. “Formalizing Communication Protocols for Multiagent Systems.” *Proceedings of the 20th International Joint Conference on Artificial Intelligence (IJCAI)*. Hyderabad: IJCAI, January 2007, pages 1519–1524. URL: <https://www.ijcai.org/Proceedings/07/Papers/245.pdf>. Full paper with oral presentation.
- [209] Yonghong Wang and Munindar P. Singh. “Formal Trust Model for Multiagent Systems.” *Proceedings of the 20th International Joint Conference on Artificial Intelligence (IJCAI)*. Hyderabad: IJCAI, January 2007, pages 1551–1556. URL: <https://www.ijcai.org/Proceedings/07/Papers/250.pdf>. Full paper.
- [210] Yathiraj B. Udupi and Munindar P. Singh. “Multiagent Policy Architecture for Virtual Business Organizations.” *Proceedings of the 3rd IEEE International Conference on Services Computing (SCC)*. Chicago: IEEE Computer Society, September 2006, pages 44–51. doi: 10.1109/SCC.2006.75.
- [211] Nirmal Desai, Amit K. Chopra, and Munindar P. Singh. “Business Process Adaptations via Protocols.” *Proceedings of the 3rd IEEE International Conference on Services Computing (SCC)*. Chicago: IEEE Computer Society, September 2006, pages 103–110. doi: 10.1109/SCC.2006.30.
- **Best Student Paper Award.**
- [212] Yonghong Wang and Munindar P. Singh. “Trust Representation and Aggregation in a Distributed Agent System.” *Proceedings of the 21st National Conference on Artificial Intelligence (AAAI)*. Boston: AAAI Press, July 2006, pages 1425–1430.
- [213] Yathiraj B. Udupi and Munindar P. Singh. “Contract Enactment in Virtual Organizations: A Commitment-Based Approach.” *Proceedings of the 21st National Conference on Artificial Intelligence (AAAI)*. Boston: AAAI Press, July 2006, pages 722–727.
- [214] Ashok U. Mallya and Munindar P. Singh. “Specifying and Resolving Preferences Among Agent Interaction Patterns.” *Proceedings of the 5th International Joint Conference on Autonomous Agents and Multiagent Systems*. Hakodate, Japan: ACM Press, May 2006, pages 1361–1368. doi: 10.1145/1160633.1160886.
- [215] Amit K. Chopra and Munindar P. Singh. “Contextualizing Commitment Protocols.” *Proceedings of the 5th International Joint Conference on Autonomous Agents and Multiagent Systems*. Hakodate, Japan: ACM Press, May 2006, pages 1345–1352. doi: 10.1145/1160633.1160884.
- [216] E. Michael Maximilien and Munindar P. Singh. “Toward Web Services Interaction Styles.” *Proceedings of the IEEE International Conference on Services Computing (SCC)*. Orlando: IEEE Computer Society, July 2005, pages 147–154. doi: 10.1109/SCC.2005.101.
- [217] Ashok U. Mallya and Munindar P. Singh. “Modeling Exceptions via Commitment Protocols.” *Proceedings of the 4th International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Utrecht, The Netherlands: ACM Press, July 2005, pages 122–129. doi: 10.1145/1082473.1082492.

- [218] E. Michael Maximilien and Munindar P. Singh. “Agent-Based Trust Model Involving Multiple Qualities.” *Proceedings of the 4th International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Utrecht, The Netherlands: ACM Press, July 2005, pages 519–526. doi: 10.1145/1082473.1082552.
- [219] Feng Wan and Munindar P. Singh. “Formalizing and Achieving Multiparty Agreements via Commitments.” *Proceedings of the 4th International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Utrecht, The Netherlands: ACM Press, July 2005, pages 770–777. doi: 10.1145/1082473.1082591.
- [220] E. Michael Maximilien and Munindar P. Singh. “Toward Autonomic Web Services Trust and Selection.” *Proceedings of the 2nd International Conference on Service-Oriented Computing (ICSOC)*. New York: ACM, November 2004, pages 212–221. doi: 10.1145/1035167.1035198.
- [221] Pinar Yolum and Munindar P. Singh. “Service Graphs for Building Trust.” *Proceedings of the 12th International Conference on Cooperative Information Systems (CoopIS)*. Lecture Notes in Computer Science 3290. Berlin: Springer, October 2004, pages 509–525. doi: 10.1007/978-3-540-30468-5\_32.
- [222] Munindar P. Singh, Amit K. Chopra, Nirmal V. Desai, and Ashok U. Mallya. “Protocols for Processes: Programming in the Large for Open Systems.” *Proceedings of the 19th Annual ACM Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA)*. SIGPLAN Notices, volume 39, number 12, December 2004, pages 73–83. Vancouver: ACM, October 2004, pages 73–83. doi: 10.1145/1052883.1052893.
- [223] A. Soydan Bilgin, Rada Y. Chirkova, Timo J. Salo, and Munindar P. Singh. “Deriving Efficient SQL Sequences via Read-Aheads.” *Proceedings of the 6th International Conference on Data Warehousing and Knowledge Discovery (DaWaK)*. Lecture Notes in Computer Science 3181. Zaragoza, Spain: Springer, September 2004, pages 299–308. doi: 10.1007/978-3-540-30076-2\_30.
- [224] Bin Yu, Katia Sycara, and Munindar P. Singh. “Developing Trust in Large-Scale Peer-to-Peer Systems.” *Proceedings of the 1st IEEE Symposium on Multi-Agent Security and Survivability*. Philadelphia: IEEE Press, August 2004, pages 1–10. doi: 10.1109/MASSUR.2004.1368412.
- [225] Nirmal Desai and Munindar P. Singh. “Protocol-Based Business Process Modeling and Enactment.” *Proceedings of the IEEE International Conference on Web Services (ICWS)*. San Diego: IEEE Computer Society, July 2004, pages 35–42. doi: 10.1109/ICWS.2004.1314721.
- [226] A. Soydan Bilgin and Munindar P. Singh. “A DAML-Based Repository for QoS-Aware Semantic Web Service Selection.” *Proceedings of the IEEE International Conference on Web Services (ICWS)*. San Diego: IEEE Computer Society, July 2004, pages 368–375. doi: 10.1109/ICWS.2004.1314759.
- [227] Feng Wan and Munindar P. Singh. “Mapping Dooley Graphs and Commitment Causality to the  $\pi$ -Calculus.” *Proceedings of the 3rd International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. New York: ACM Press, July 2004, pages 412–419. doi: 10.5555/1018409.1018774.
- [228] Munindar P. Singh. “Distributed Enactment of Multiagent Workflows: Temporal Logic for Web Service Composition.” *Proceedings of the 2nd International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Melbourne: ACM Press, July 2003, pages 907–914. doi: 10.1145/860575.860721.

- [229] Bin Yu and Munindar P. Singh. “Searching Social Networks.” *Proceedings of the 2nd International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Melbourne: ACM Press, July 2003, pages 65–72. doi: 10.1145/860575.860587.
- [230] Bin Yu and Munindar P. Singh. “Detecting Deception in Reputation Management.” *Proceedings of the 2nd International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Melbourne: ACM Press, July 2003, pages 73–80. doi: 10.1145/860575.860588.
- [231] Feng Wan and Munindar P. Singh. “Commitments and Causality for Multiagent Design.” *Proceedings of the 2nd International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Melbourne: ACM Press, July 2003, pages 749–756. doi: 10.1145/860575.860696.
- [232] Pinar Yolum and Munindar P. Singh. “Emergent Properties of Referral Systems.” *Proceedings of the 2nd International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Melbourne: ACM Press, July 2003, pages 592–599. doi: 10.1145/860575.860670.
- [233] Jie Xing and Munindar P. Singh. “Engineering Commitment-Based Multiagent Systems: A Temporal Logic Approach.” *Proceedings of the 2nd International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Melbourne: ACM Press, July 2003, pages 891–898. doi: 10.1145/860575.860719.
- [234] Pinar Yolum and Munindar P. Singh. “Flexible Protocol Specification and Execution: Applying Event Calculus Planning using Commitments.” *Proceedings of the 1st International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Bologna: ACM Press, July 2002, pages 527–534. doi: 10.1145/544862.544867.
- [235] Bin Yu and Munindar P. Singh. “An Evidential Model of Distributed Reputation Management.” *Proceedings of the 1st International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. ACM Press, July 2002, pages 294–301. doi: 10.1145/544741.544809.
- [236] Mona Singh, Anuj K. Jain, and Munindar P. Singh. “E-commerce over Communicators: Challenges and Solutions for User Interfaces.” *Proceedings of the 1st Annual ACM Conference on Electronic Commerce*. Denver: ACM Press, November 1999, pages 177–186. doi: 10.1145/336992.337040.
- [237] Sudhir K. Rustogi and Munindar P. Singh. “Be Patient and Tolerate Imprecision: How Autonomous Agents can Coordinate Effectively.” *Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI)*. August 1999, pages 512–517. URL: <https://www.ijcai.org/Proceedings/99-1/Papers/074.pdf>.
- [238] Munindar P. Singh. “The Intentions of Teams: Team Structure, Endodeixis, and Exodeixis.” *Proceedings of the 13th European Conference on Artificial Intelligence (ECAI)*. Brighton, United Kingdom: John Wiley, August 1998, pages 303–307.
- [239] Munindar P. Singh. “Developing Formal Specifications to Coordinate Heterogeneous Autonomous Agents.” *Proceedings of the 3rd International Conference on Multiagent Systems (ICMAS)*. Paris: IEEE Computer Society, July 1998, pages 261–268. doi: 10.1109/ICMAS.1998.699063.
- **Identified as among the best papers accepted at ICMAS 1998.**
- [240] Munindar P. Singh. “Synthesizing Distributed Constrained Events from Transactional Workflow Specifications.” *Proceedings of the 12th International Conference on Data Engineering (ICDE)*. New Orleans: IEEE, February 1996, pages 616–623. doi: 10.1109/ICDE.1996.492212.

- [241] Munindar P. Singh, L. Greg Meredith, Christine Tomlinson, and Paul C. Attie. “An Event Algebra for Specifying and Scheduling Workflows.” *Proceedings of the 4th International Conference on Database Systems for Advanced Applications (DASFAA)*. Singapore: World Scientific, April 1995, pages 53–60. DOI: 10.1142/2711.
- [242] Michael N. Huhns and Munindar P. Singh. “Automating Workflows for Service Provisioning: Integrating AI and Database Technologies.” *Proceedings of the 10th IEEE Conference on Artificial Intelligence for Applications (CAIA)*. San Antonio: IEEE Computer Society, March 1994, pages 405–411. DOI: 10.1109/CAIA.1994.323647.
- **Selected as one of the best papers accepted at CAIA 1994.**
- [243] Paul C. Attie, Munindar P. Singh, Amit P. Sheth, and Marek Rusinkiewicz. “Specifying and Enforcing Intertask Dependencies.” *Proceedings of the 19th International Conference on Very Large Data Bases (VLDB)*. Dublin: Morgan Kaufmann, August 1993, pages 134–145. URL: <http://www.vldb.org/conf/1993/P134.PDF>.
- [244] Michael N. Huhns, Nigel Jacobs, Tomasz Ksiezzyk, Wei-Min Shen, Munindar P. Singh, and Philip E. Cannata. “Integrating Enterprise Information Models in Carnot.” *Proceedings of the International Conference on Intelligent and Cooperative Information Systems (ICICIS)*. Rotterdam: IEEE, May 1993, pages 32–42. DOI: 10.1109/ICICIS.1993.291772.
- [245] Munindar P. Singh. “A Critical Examination of the Cohen-Levesque Theory of Intentions.” *Proceedings of the 10th European Conference on Artificial Intelligence (ECAI)*. Vienna: John Wiley, August 1992, pages 364–368. ISBN: 978-0-471-93608-4.
- [246] Mona Singh and Munindar P. Singh. “Computing the Temporal Structure of Events in Natural Language.” *Proceedings of the 10th European Conference on Artificial Intelligence (ECAI)*. Vienna: John Wiley, August 1992, pages 528–532. ISBN: 978-0-471-93608-4.
- [247] Munindar P. Singh. “Towards a Formal Theory of Communication for Multiagent Systems.” *Proceedings of the 12th International Joint Conference on Artificial Intelligence (IJCAI)*. Sydney, August 1991, pages 69–74. URL: <https://www.ijcai.org/Proceedings/91-1/Papers/012.pdf>.
- [248] Munindar P. Singh. “Intentions, Commitments and Rationality.” *Proceedings of the 13th Annual Conference of the Cognitive Science Society*. Chicago: Lawrence Erlbaum Associates, August 1991, pages 493–498.
- [249] Munindar P. Singh. “A Logic of Situated Know-how.” *Proceedings of the National Conference on Artificial Intelligence (AAAI)*. Anaheim, California, July 1991, pages 343–348.
- [250] Munindar P. Singh. “Towards a Theory of Situated Know-how.” *Proceedings of the 9th European Conference on Artificial Intelligence (ECAI)*. Stockholm: John Wiley, August 1990, pages 604–609.

### 3.5 Papers in Major Symposia and Workshop Proceedings

The following are papers in major refereed symposia and workshops, most of which were precursors to the AAMAS conference series.

- [251] Pinar Yolum and Munindar P. Singh. “Commitment Machines.” *Proceedings of the 8th International Workshop on Agent Theories, Architectures, and Languages (ATAL 2001)*. Lecture Notes in Artificial Intelligence 2333. Seattle: Springer, 2002, pages 235–247. DOI: 10.1007/3-540-45448-9\_17.

- [252] Bin Yu and Munindar P. Singh. “A Social Mechanism of Reputation Management in Electronic Communities.” *Proceedings of the 4th International Workshop on Cooperative Information Agents*. Lecture Notes in Artificial Intelligence 1860. Boston: Springer, July 2000, pages 154–165. doi: 10.1007/978-3-540-45012-2\_15.
- [253] Sudhir K. Rustogi and Munindar P. Singh. “The Bases of Effective Coordination in Decentralized Multiagent Systems.” *Intelligent Agents V: Proceedings of the 5th International Workshop on Agent Theories, Architectures, and Languages (ATAL-98)*. Paris: Springer, July 1998, pages 149–161. doi: 10.1007/3-540-49057-4\_10.
- [254] Munindar P. Singh. “A Customizable Coordination Service for Autonomous Agents.” *Intelligent Agents IV: Proceedings of the 4th International Workshop on Agent Theories, Architectures, and Languages (ATAL-97)*. Lecture Notes in Computer Science 1365. Providence, Rhode Island: Springer, 1998, pages 93–106. doi: 10.1007/BFb0026752.
- [255] Munindar P. Singh. “Commitments Among Autonomous Agents in Information-Rich Environments.” *Proceedings of the 8th European Workshop on Modelling Autonomous Agents in a Multi-Agent World (MAAMAW)*. Ronneby, Sweden: Springer, May 1997, pages 141–155. doi: 10.1007/3-540-63077-5\_31.
- [256] Michael N. Huhns, Munindar P. Singh, Tomasz Ksiezzyk, and Nigel Jacobs. “Global Information Management via Local Autonomous Agents.” *Proceedings of the 13th International Workshop on Distributed Artificial Intelligence (DAI)*. Seattle, August 1994.

### 3.6 Papers in Other Refereed Proceedings

- [257] Ruijie Xi, Jiaqing Yuan, and Munindar P. Singh. “Tad: Generalized Transformer-Based Domain-Aware Hate Speech Detection.” *Proceedings of the 5th International Workshop on Cyber Social Threats (CySoc)*. Buffalo, New York, June 2024, pages 1–12. doi: 10.36190/2024.05.
- [258] Amanul Haque and Munindar P. Singh. “Extracting Norms from Contracts Via ChatGPT: Opportunities and Challenges.” *Informal Proceedings of the 17th International Workshop on Coordination, Organizations, Institutions, Norms, and Ethics for Governance of Multi-Agent Systems (COINE)*. Auckland, May 2024, pages 1–19.
- [259] Geeta Mahala, Özgür Kafalı, Hoa Khanh Dam, Aditya Ghose, and Munindar P. Singh. “A Normative Approach for Resilient Multiagent Systems: A Summary.” *Proceedings of the 22nd International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Journal-First Abstract. Auckland: IFAAMAS, May 2024, pages 2836–2838. doi: 10.5555/3635637.3663305.
- [260] Zelin Wan, Jin-Hee Cho, Mu Zhu, Ahmed H. Anwar, Charles A. Kamhoua, and Munindar P. Singh. “Deception in Drone Surveillance Missions: Strategic vs. Learning Approaches.” *Proceedings of the 24th International Symposium on Theory, Algorithmic Foundations, and Protocol Design for Mobile Networks and Mobile Computing (MobiHoc)*. Washington, DC: ACM, October 2023, pages 382–387. doi: 10.1145/3565287.3616525.
- [261] Jiaqing Yuan, Michele Merler, Mihir Choudhury, Raju Pavuluri, Munindar P. Singh, and Maja Vukovic. “CoSiNES: Contrastive Siamese Network for Entity Standardization.” *Proceedings of the ACL Workshop on Matching From Unstructured and Structured Data (MATCHING)*. Toronto: Association for Computational Linguistics, June 2023, pages 1–11.

- [262] Aditya K. Khadse, Samuel H. Christie V, Amit K. Chopra, and Munindar P. Singh. “Protocol-Based Engineering of Microservices.” *Proceedings of the 11th International Workshop on Engineering Multi-Agent Systems (EMAS)*. Lecture Notes in Artificial Intelligence 14378. London, May 2023, pages 61–77. doi: 10.1007/978-3-031-48539-8\_4.
- [263] Victor Charpenay, Matteo Baldoni, Andrei Ciortea, Stephen Cranefield, Julian Padget, and Munindar P. Singh. “Governing Agents on the Web (Blue Sky Ideas).” *Proceedings of the 16th International Workshop on Coordination, Organizations, Institutions, Norms, and Ethics for Governance of Multi-Agent Systems (COINE)*. volume 14002. Lecture Notes in Computer Science. London: Springer, May 2023. Chapter 4, pages 55–73. doi: 10.1007/978-3-031-49133-7\_4.
- [264] Samuel H. Christie V, Amit K. Chopra, and Munindar P. Singh. “Mandrake: Multiagent Systems as a Basis for Programming Fault-Tolerant Decentralized Applications.” *Proceedings of the 22nd International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Journal-First Abstract. London: IFAAMAS, May 2023, pages 1218–1220. doi: 10.5555/3545946.3598765.
- [265] Sz-Ting Tzeng, Nirav Ajmeri, and Munindar P. Singh. “Fleur: Social Values Orientation for Robust Norm Emergence.” *Proceedings of the 15th International Workshop on Coordination, Organizations, Institutions, Norms, and Ethics for Governance of Multi-Agent Systems (COINE)*. volume 13549. Lecture Notes in Computer Science. Auckland: Springer, May 2022, pages 185–200. doi: 10.1007/978-3-031-20845-4\_12.
- [266] Amanul Haque, Vaibhav Garg, Hui Guo, and Munindar P. Singh. “Pixie: Preference in Implicit and Explicit Comparisons.” *Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics (ACL), Volume 2: Short Papers*. Dublin: Association for Computational Linguistics, June 2022, pages 106–112. doi: 10.18653/v1/2022.acl-short.13.
- [267] Munindar P. Singh. “Consent as a Foundation for Responsible Autonomy.” *Proceedings of the 36th AAAI Conference on Artificial Intelligence (AAAI) 36(11)*, February 2022. Blue Sky Track, pages 12301–12306. doi: 10.1609/aaai.v36i11.21494.
- [268] Saikath Bhattacharya, Munindar P. Singh, and Laurie Williams. “Software Security Readiness and Deployment.” *Supplemental Proceedings of the 32nd International Symposium on Software Reliability Engineering Workshops (ISSREW)*. Wuhan, China: IEEE, October 2021, pages 298–299. doi: 10.1109/ISSREW53611.2021.00088.
- [269] Sz-Ting Tzeng, Nirav Ajmeri, and Munindar P. Singh. “Noe: Norm Emergence and Robustness Based on Emotions in Multiagent Systems.” *Proceedings of the 14th International Workshop on Coordination, Organizations, Institutions, Norms, and Ethics for Governance of Multi-Agent Systems (COINE)*. volume 13239. Lecture Notes in Computer Science. London: Springer, May 2021, pages 62–77. doi: 10.1007/978-3-031-16617-4\_5.
- [270] Amit K. Chopra, Samuel H. Christie V, and Munindar P. Singh. “Multiagent Foundations for Distributed Systems: A Vision.” *Proceedings of the 9th International Workshop on Engineering Multi-Agent Systems (EMAS 2021)*. Lecture Notes in Artificial Intelligence. London: Springer, May 2022, pages 62–71. doi: 10.1007/978-3-030-97457-2\_4.
- [271] Samuel H. Christie V, Amit K. Chopra, and Munindar P. Singh. “Mandrake: Multiagent Systems as a Basis for Programming Fault-Tolerant Decentralized Applications.” *Pre-proceedings of the 9th International Workshop on Engineering Multi-Agent Systems (EMAS)*. London, May 2021, pages 1–18. URL: <https://emas2021.in.tu-clausthal.de/index.php/accepted-papers>.

- [272] Parth Diwanji, Hui Guo, Anup K. Kalia, and Munindar P. Singh. “Liñ: Unsupervised Extraction of Tasks from Textual Communication.” *Proceedings of the 28th International Conference on Computational Linguistics (COLING)*. Barcelona: ACL, December 2020, pages 1815–1819. doi: 10.18653/v1/2020.coling-main.164. Oral presentation.
- [273] Zhe Zhang, Chung-Wei Hang, and Munindar P. Singh. “Octa: Omissions and Conflicts in Target-Aspect Sentiment Analysis.” *Findings of the Association for Computational Linguistics: Empirical Methods in Natural Language Processing (EMNLP)*. Online: Association for Computational Linguistics, November 2020, pages 1651–1662. doi: 10.18653/v1/2020.findings-emnlp.149.
- [274] Vinayak Dubey, Pankaj R. Telang, Nirav Ajmeri, and Munindar P. Singh. “Effective Defense Against Cybersecurity Attacks Using Reinforcement Learning.” *Proceedings of the 11th International Workshop on Optimization and Learning in Multiagent Systems (OptLearnMAS)*. Auckland, May 2020, pages 1–7.
- [275] Mohammad Sujan Miah, Nazia Sharmin, Iffat Anjum, Mu Zhu, Christopher Kiekintveld, William H. Enck, and Munindar P. Singh. “Optimizing Vulnerability-Driven Honey Traffic Using Game Theory.” *Proceedings of the Workshop on Artificial Intelligence for Cyber Security (AICS)*. New York, February 2020, pages 1–7.
- [276] Munindar P. Singh and Amit K. Chopra. “Requirements Engineering as Science in the Small.” *Proceedings of the 41st International Conference on Software Engineering (ICSE) New Ideas and Emerging Results (NIER)*. Montréal: IEEE Computer Society, May 2019, pages 45–48. doi: 10.1109/ICSE-NIER.2019.00020.
- [277] Hui Guo, Özgür Kafalı, and Munindar P. Singh. “Extraction of Natural Language Requirements from Breach Reports Using Event Inference.” *Proceedings of the 5th International Workshop on Artificial Intelligence for Requirements Engineering (AIRE)*. Banff, Alberta, Canada: IEEE, August 2018, pages 22–28. doi: 10.1109/AIRE.2018.00009.
- [278] Munindar P. Singh and Amit K. Chopra. “The Internet of Things and Multiagent Systems: Decentralized Intelligence in Distributed Computing.” *Proceedings of the 37th IEEE International Conference on Distributed Computing Systems (ICDCS)*. Blue Sky Thinking Track. Atlanta: IEEE, June 2017, pages 1738–1747. doi: 10.1109/ICDCS.2017.304. Invited.
- [279] Munindar P. Singh. “Norms as a Basis for Governing Sociotechnical Systems: Extended Abstract.” *Proceedings of the 24th International Joint Conference on Artificial Intelligence (IJCAI)*. Extended abstract appearing in the IJCAI Journal Abstracts Track. Buenos Aires: IJCAI, July 2015, pages 4207–4211. ISBN: 978-1-57735-738-4. URL: <https://www.ijcai.org/Abstract/15/597>. Invited.
- [280] Guangchao Yuan, Nirav S. Ajmeri, Chris Allred, Pankaj R. Telang, Mark A. Wilson, and Munindar P. Singh. “Modeling Analytics as Knowledge Work: Computing Meets Organizational Psychology.” *Proceedings of the 9th IEEE International Conference on Research Challenges in Information Science (RCIS)*. Athens: IEEE, May 2015, pages 382–387. doi: 10.1109/RCIS.2015.7128899.
- [281] Hongying Du, Bennett Y. Narron, Nirav Ajmeri, Emily Berglund, Jon Doyle, and Munindar P. Singh. “ENGMAS – Understanding Sanction under Variable Observability in a Secure Environment.” *Proceedings of the 2nd International Workshop on Agents and CyberSecurity (ACySE)*. Istanbul: Not formally published, May 2015, pages 15–22.

- [282] Hongying Du, Bennett Y. Narron, Nirav Ajmeri, Emily Berglund, Jon Doyle, and Munindar P. Singh. “Understanding Sanction under Variable Observability in a Secure, Collaborative Environment.” *Proceedings of the 2nd International Symposium and Bootcamp on the Science of Security (HotSoS)*. Urbana, Illinois: ACM, April 2015, 12:1–12:10. doi: 10.1145/2746194.2746206.
- [283] Rob Christiaanse, Aditya Ghose, Pablo Noriega, and Munindar P. Singh. “Characterizing Artificial Socio-Cognitive Technical Systems.” *Proceedings of the European Conference on Social Intelligence (ECSI)*. CEUR Workshop Proceedings 1283. Barcelona: CEUR-WS.org, November 2014, pages 336–346.
- [284] Anup K. Kalia, Nirav Ajmeri, Kevin Chan, Jin-Hee Cho, Sibel Adalı, and Munindar P. Singh. “A Model of Trust, Moods, and Emotions in Multiagent Systems, and its Empirical Evaluation.” *Proceedings of the 16th AAMAS Workshop on Trust in Agent Societies (Trust)*. Paris, May 2014.
- [285] Munindar P. Singh. “Can’t We All Just Get Along? Agreement Technologies and the Science of Security.” *Proceedings of the 2nd International Conference on Agreement Technologies*. Lecture Notes in Computer Science 8068. Beijing: Springer, August 2013, pages 1–3. doi: 10.1007/978-3-642-39860-5\_1. Invited.
- [286] Dhanwant S. Kang, Hua Liu, Munindar P. Singh, and Tong Sun. “Adaptive Process Execution in a Service Cloud: Service Selection and Scheduling Based on Machine Learning.” *Proceedings of the 11th IEEE International Conference on Web Services*. Santa Clara, California, June 2013, pages 324–331. doi: 10.1109/ICWS.2013.51.
- [287] Anup K. Kalia, Zhe Zhang, and Munindar P. Singh. “Trustworthy Decision Making via Commitments.” *Proceedings of the 15th AAMAS Workshop on Trust in Agent Societies (Trust)*. St. Paul, May 2013, pages 24–35.
- [288] Elizabeth I. Sklar, Simon D. Parsons, and Munindar P. Singh. “Towards an Argumentation-Based Model of Social Interaction.” *Proceedings of the 10th International Workshop on Argumentation in Multi-Agent Systems (ArgMAS)*. May 2013.
- [289] Scott N. Gerard, Pankaj R. Telang, Anup K. Kalia, and Munindar P. Singh. “Positron: Composing Commitment Protocols.” *Proceedings of the 1st International Workshop on Engineering Multiagent Systems (EMAS)*. May 2013.
- [290] Simon Parsons, Elizabeth Sklar, Munindar P. Singh, Karl N. Levitt, and Jeff Rowe. “An Argumentation-Based Approach to Handling Trust in Distributed Decision Making.” *AAAI Spring Symposium: Trust and Autonomous Systems*. AAAI Publications SS-13-07. Palo Alto, California: AAAI, March 2013, pages 66–71. URL: <http://www.aaai.org/ocs/index.php/SSS/SSS13/paper/view/5785>.
- [291] Yuqing Tang, Chung-Wei Hang, Simon D. Parsons, and Munindar P. Singh. “Towards Argumentation with Symbolic Dempster-Shafer Evidence.” *Proceedings of the 4th International Conference on Computational Models of Argument (COMMA)*. Vienna, September 2012, pages 462–469. doi: 10.3233/978-1-61499-111-3-462.
- [292] Priyadarshini Manavalan and Munindar P. Singh. “Emerging Properties of Knowledge Sharing Referral Networks: Considerations of Effectiveness and Fairness.” *Proceedings of the 7th Workshop on Agents and Peer-to-Peer Computing (AP2PC 2008)*. Lecture Notes in Computer Science 6573. Estoril, Portugal: Springer, 2012, pages 13–23. doi: 10.1007/978-3-642-31809-2\_2.

- [293] Pankaj R. Telang, Neil Yorke-Smith, and Munindar P. Singh. “Relating Goal and Commitment Semantics.” *Proceedings of the 9th International Workshop on Programming Multiagent Systems (ProMAS 2011)*. Lecture Notes in Computer Science 7217. Taipei: Springer, 2012, pages 22–37. doi: 10.1007/978-3-642-31915-0\_2.
- [294] Amit K. Chopra and Munindar P. Singh. “Colaba: Collaborative Design of Cross-Organizational Business Processes.” *Proceedings of the International Workshop on Requirements Engineering for Systems, Services, and Systems of Systems (RES<sup>4</sup>)*. Trento, Italy: IEEE, August 2011, pages 36–43. doi: 10.1109/RESS.2011.6043928.
- [295] Amit K. Chopra and Munindar P. Singh. “The Evolution of Interoperability.” *Proceedings of the 9th International Workshop on Declarative Agent Languages and Technologies (DALT)*. Lecture Notes in Computer Science 7169. Taipei: Springer, June 2011, pages 90–94. doi: 10.1007/978-3-642-29113-5\_8. Invited.
- [296] Sibel Adalı, William A. Wallace, Yi Qi, Priyanka Vijayakumar, and Munindar P. Singh. “A Unified Framework for Trust in Composite Networks.” *Proceedings of the 13th AAMAS Workshop on Trust in Agent Societies (Trust)*. Taipei, June 2011, pages 1–12.
- [297] Amit K. Chopra, Nir Oren, Sanjay Modgil, Nirmal Desai, Simon Miles, Michael Luck, and Munindar P. Singh. “Analyzing Contract Robustness through a Model of Commitments.” *Proceedings of the 11th International Workshop on Agent Oriented Software Engineering (AOSE 2010)*. Lecture Notes in Computer Science 6788. Toronto: Springer, 2011, pages 17–36. doi: 10.1007/978-3-642-22636-6\_2. Invited.
- [298] Derek J. Sollenberger and Munindar P. Singh. “Methodology for Engineering Affective Social Applications.” *Proceedings of the 10th AAMAS Workshop on Agent Oriented Software Engineering (AOSE 2009)*. Lecture Notes in Computer Science 6038. Springer, 2011, pages 97–109. doi: 10.1007/978-3-642-19208-1\_7.
- [299] Chung-Wei Hang and Munindar P. Singh. “Trust-based Recommendation Based on Graph Similarity.” *Proceedings of the 12th AAMAS Workshop on Trust in Agent Societies (Trust)*. Toronto, May 2010, pages 71–81.
- [300] Christopher J. Hazard and Munindar P. Singh. “An Architectural Approach to Combining Trust and Reputation.” *Proceedings of the 12th AAMAS Workshop on Trust in Agent Societies (Trust)*. Toronto, May 2010, pages 83–93.
- [301] Pankaj R. Telang and Munindar P. Singh. “Abstracting Business Modeling Patterns from RosettaNet.” *Proceedings of the 8th AAMAS Workshop on Service-Oriented Computing: Agents, Semantics, and Engineering (SOCASE)*. Toronto, May 2010, pages 83–96.
- [302] Frances Brazier, Frank Dignum, Virginia Dignum, Michael N. Huhns, Tim Lessner, Julian Padget, Thomas Quillinan, and Munindar P. Singh. “Governance of Services: A Natural Function for Agents.” *Proceedings of the 8th AAMAS Workshop on Service-Oriented Computing: Agents, Semantics, and Engineering (SOCASE)*. Toronto, May 2010, pages 8–22.
- [303] Scott N. Gerard and Munindar P. Singh. “Protocol Refinement: Formalization and Verification.” *Proceedings of the AAMAS Workshop on Agent Communication (AC)*. Toronto, May 2010, pages 19–36.

- [304] Munindar P. Singh and Amit K. Chopra. “Correctness Properties for Multiagent Systems.” *Proceedings of the 6th AAMAS Workshop on Declarative Agent Languages and Technologies (DALT 2009)*. Lecture Notes in Artificial Intelligence 5948. Budapest: Springer, 2010, pages 192–207. doi: 10.1007/978-3-642-11355-0\_12.
- [305] Amit K. Chopra and Munindar P. Singh. “Elements of a Business-Level Architecture for Multiagent Systems.” *Proceedings of the 7th International Workshop on Programming Multiagent Systems (ProMAS 2009)*. Lecture Notes in Artificial Intelligence 5919. Springer, May 2010, pages 15–30. doi: 10.1007/978-3-642-14843-9\_2.
- [306] Yathiraj B. Udipi and Munindar P. Singh. “Information Sharing among Autonomous Agents in Referral Networks.” *Proceedings of the 6th Workshop on Agents and Peer-to-Peer Computing (AP2PC 2007)*. Lecture Notes in Computer Science 5319. Honolulu: Springer, 2010, pages 13–26. doi: 10.1007/978-3-642-11368-0\_2.
- [307] Matthew Arrott, Alan D. Chave, Claudiu Farcas, Emilia Farcas, Jack E. Kleinert, Ingolf Krueger, Michael Meisinger, John A. Orcutt, Cheryl Peach, Oscar Schofield, Munindar P. Singh, and Frank L. Vernon. “Integrating Marine Observatories into a System-of-Systems: Messaging in the US Ocean Observatories Initiative.” *Proceedings of Oceans, the MTS-IEEE Conference on Marine Technology for our Future: Global and Local Challenges*. Biloxi, Mississippi: IEEE Computer Society, October 2009, pages 1–9. doi: 10.23919/OCEANS.2009.5422095.
- [308] Pankaj R. Telang and Munindar P. Singh. “Business Modeling via Commitments.” *Proceedings of the 7th AAMAS Workshop on Service-Oriented Computing: Agents, Semantics, and Engineering (SOCASE)*. Lecture Notes in Computer Science 5907. Budapest: Springer, May 2009, pages 111–125. doi: 10.1007/978-3-642-10739-9\_9.
- [309] Chung-Wei Hang and Munindar P. Singh. “Selecting Trustworthy Services: Learning a Bayesian Network.” *Proceedings of the 12th AAMAS Workshop on Trust in Agent Societies (Trust)*. May 2009.
- [310] Derek J. Sollenberger and Munindar P. Singh. “Architecture for Affective Social Games.” *Proceedings of the 1st AAMAS Workshop on Agents for Games and Simulation (AGS)*. Lecture Notes in Computer Science 5920. Springer, May 2009, pages 79–94. doi: 10.1007/978-3-642-11198-3\_6.
- [311] Yathiraj B. Udipi and Munindar P. Singh. “Design Patterns for Policy-Based Service Engagements.” *Proceedings of the 9th IEEE International Workshop on Policies for Distributed Systems and Networks (POLICY)*. Palisades, New York: IEEE Computer Society, June 2008, pages 97–100. doi: 10.1109/POLICY.2008.38.
- [312] Amit K. Chopra and Munindar P. Singh. “Interoperation in Protocol Enactment.” *Declarative Agent Languages and Technologies V: Selected, Revised, and Invited Papers*. Lecture Notes in Artificial Intelligence 4897. Heidelberg: Springer, May 2007, pages 36–49. doi: 10.1007/978-3-540-77564-5\_3. Invited.
- [313] Amit K. Chopra and Munindar P. Singh. “Producing Compliant Interactions: Conformance, Coverage, and Interoperability.” *Declarative Agent Languages and Technologies IV: Selected, Revised, and Invited Papers*. Lecture Notes in Artificial Intelligence 4327. Heidelberg: Springer, May 2006, pages 1–15. doi: 10.1007/11961536\_1. Invited.
- [314] Ashok U. Mallya and Munindar P. Singh. “Introducing Preferences into Commitment Protocols.” *Agent Communication II, International Workshops on Agent Communication, AC 2005 and AC 2006*,

- Utrecht, Netherlands, July 25, 2005 and Hakodate, Japan, May 9, 2006, Selected and Revised Papers.* Lecture Notes in Computer Science 3859. Springer, 2006, pages 136–149. DOI: 10.1007/978-3-540-68143-4\_10.
- [315] Yu Lei and Munindar P. Singh. “An Evaluation of E-Business Metamodels.” *Proceedings of the 17th International Conference on Software Engineering and Knowledge Engineering (SEKE)*. Taipei, July 2005, pages 88–93. ISBN: 1-891706-16-0.
- [316] Ashok U. Mallya and Munindar P. Singh. “Incorporating Commitment Protocols into Tropos.” *Proceedings of the 6th International Workshop on Agent Oriented Software Engineering (AOSE 2005)*. Edited by Jörg P. Müller and Franco Zambonelli. Lecture Notes in Computer Science 3950. Berlin: Springer, 2006, pages 69–80. DOI: 10.1007/11752660\_6.
- [317] Nirmal Desai, Ashok U. Mallya, Amit K. Chopra, and Munindar P. Singh. “OWL-P: A Methodology for Business Process Modeling and Enactment.” *Proceedings of the AAMAS Workshop on Agent Oriented Information Systems (AOIS)*. Utrecht, The Netherlands, July 2005.
- [318] E. Michael Maximilien and Munindar P. Singh. “Multiagent System for Dynamic Web Services Selection.” *Proceedings of the AAMAS Workshop on Service-Oriented Computing and Agent-Based Engineering (SOCABE)*. Utrecht, The Netherlands: AAMAS, July 2005, pages 1–10.
- [319] Amit K. Chopra, Nirmal V. Desai, Ashok U. Mallya, Leena V. Wagle, and Munindar P. Singh. “A Semantic Protocol-Based Approach for Developing Business Processes.” *Forum Proceedings of the 2nd International Conference on Service Oriented Computing (ICSOC)*. IBM Research Report RA221 (W0411-084). New York, November 2004, pages 99–107. URL: <https://dominoweb.draco.res.ibm.com/reports/ra221.pdf>.
- [320] Ashok U. Mallya and Munindar P. Singh. “A Semantic Approach for Designing Commitment Protocols.” *Proceedings of the International Workshop on Agent Communication (AC)*. edited by Rogier Van Eijk. Lecture Notes in Computer Science 3396. Springer, July 2005, pages 33–49. DOI: 10.1007/978-3-540-32258-0\_3.
- [321] Ashok U. Mallya and Munindar P. Singh. “A Semantic Approach for Designing E-Business Protocols.” *Semantic Web Services and Web Process Composition, First International Workshop (SWSWPC 2004)*. Lecture Notes in Computer Science 3387. San Diego: Springer, 2005, pages 111–123. DOI: 10.1007/978-3-540-30581-1\_10.
- [322] Amit K. Chopra, Nirmal V. Desai, Ashok U. Mallya, and Munindar P. Singh. “Modeling Flexible Business Processes.” *Proceedings of the 1st AAMAS Workshop on Declarative Agent Languages and Technologies (DALT)*. New York, July 2004.
- [323] Feng Wan and Munindar P. Singh. “Analyzing Multiparty Agreements with Commitments.” *Proceedings of the 6th International Bi-Conference Workshop on Agent-Oriented Information Systems (AOIS)*. Lecture Notes in Computer Science 3508. New York: Springer, July 2004, pages 85–96. DOI: 10.1007/11426714\_6.
- [324] Ashok U. Mallya and Munindar P. Singh. “A Semantic Approach for Designing E-Business Protocols.” *Proceedings of the 2nd International Conference on Web Services (ICWS)*. Short research paper. San Diego, 2004, pages 742–745. DOI: 10.1109/ICWS.2004.1314807.
- [325] Bin Yu and Munindar P. Singh. “Incentive Mechanisms for Peer-to-Peer Systems.” *Agents and Peer-to-Peer Computing: Proceedings of the 2nd International Workshop on Agents and Peer-to-Peer*

- Computing (AP2PC 2003)*. Lecture Notes in Computer Science 2872. Springer, 2003, pages 77–88. doi: 10.1007/978-3-540-25840-7\_9.
- [326] E. Michael Maximilien and Munindar P. Singh. “An Ontology for Web Service Ratings and Reputations.” *Proceedings of the 1st International Workshop on Ontologies and Agent Systems (OAS)*. CEUR 73. Melbourne: CEUR-WS.org, July 2003, pages 25–30. URL: <http://ceur-ws.org/Vol-73/oas03-maximilien.pdf>.
- [327] E. Michael Maximilien and Munindar P. Singh. “Agent-Based Architecture for Autonomic Web Service Selection.” *Proceedings of the 1st International Workshop on Web Services and Agent-Based Engineering (WSABE)*. Refereed position paper. Melbourne: AAMAS, July 2003, pages 1–10.
- [328] Pinar Yolum and Munindar P. Singh. “Self-Organizing Referral Networks: A Process View of Trust and Authority.” *Engineering Self-Organising Systems, Nature-Inspired Approaches to Software Engineering (ESOA 2003)*. Lecture Notes in Computer Science 2977. Springer, 2004, pages 195–211. doi: 10.1007/978-3-540-24701-2\_14.
- [329] Amit Chopra and Munindar P. Singh. “Nonmonotonic Commitment Machines.” *Advances in Agent Communication: Proceedings of the International Workshop on Agent Communication Languages (ACL 2003)*. Edited by Frank Dignum. Lecture Notes in Artificial Intelligence 2922. Melbourne: Springer, 2004, pages 183–200. doi: 10.1007/978-3-540-24608-4\_11.
- [330] Ashok U. Mallya, Pinar Yolum, and Munindar P. Singh. “Resolving Commitments Among Autonomous Agents.” *Advances in Agent Communication: Proceedings of the International Workshop on Agent Communication Languages (ACL 2003)*. Edited by Frank Dignum. Lecture Notes in Artificial Intelligence 2922. Springer, 2004, pages 166–182. doi: 10.1007/978-3-540-24608-4\_10.
- [331] Pinar Yolum and Munindar P. Singh. “Achieving Trust via Service Graphs.” *Proceedings of the 6th International Workshop on Trust, Privacy, Deception, and Fraud in Agent Societies (Trust)*. Melbourne, July 2003.
- [332] Pinar Yolum and Munindar P. Singh. “Emergent Personalized Communities in Referral Networks.” *Proceedings of the IJCAI Workshop on Intelligent Techniques for Web Personalization*. Acapulco, August 2003.
- [333] Yathiraj B. Udupi, Pinar Yolum, and Munindar P. Singh. “Trustworthy Service Caching: Cooperative Search in P2P Information Systems.” *Proceedings of the 5th International Bi-Conference Workshop on Agent-Oriented Information Systems (AOIS 2003)*. Lecture Notes in Computer Science 3030. Melbourne: Springer, July 2004, pages 32–44. doi: 10.1007/978-3-540-25943-5\_3.
- [334] Raghuram M. Sreenath and Munindar P. Singh. “A Community-Based Approach for Selecting Service Providers.” *Proceedings of the International Conference on Web Services (ICWS)*. CSREA Press, June 2003, pages 177–183.
- [335] Zhengang Cheng, Munindar P. Singh, and Mladen A. Vouk. “Composition Constraints for Semantic Web Services.” *Proceedings of the WWW Conference Workshop on Real World RDF and Semantic Web Applications*. Honolulu, May 2002. Long presentation.
- [336] Munindar P. Singh. *The Pragmatic Web: Preliminary Thoughts*. *Proceedings of the NSF-OntoWeb Workshop on Database and Information Systems Research for Semantic Web and Enterprises*, Aicalola State Park, Georgia. April 2002. Invited.

- [337] Bin Yu and Munindar P. Singh. “Search in Referral Networks.” *Proceedings of AAMAS Workshop on Regulated Agent-Based Social Systems: Theories and Applications*. Bologna, July 2002.
- [338] Pınar Yolum and Munindar P. Singh. “Flexible Caching in Peer-to-Peer Information Systems.” *Proceedings of the 4th International Bi-Conference Workshop on Agent-Oriented Information Systems (AOIS 2002)*. CEUR Workshop Proceedings 59. CEUR-WS.org, July 2002.
- [339] Pınar Yolum and Munindar P. Singh. “An Agent-Based Approach for Trustworthy Service Location.” *Proceedings of the 1st Workshop on Agents and Peer-to-Peer Computing (AP2PC 2002)*. Lecture Notes in Computer Science 2530. Springer, July 2003, pages 45–56. doi: 10.1007/3-540-45074-2\_5.
- [340] Munindar P. Singh. “Trustworthy Service Composition: Challenges and Research Questions.” *Proceedings of the International Workshop on Trust, Reputation, and Security: Theories and Practice (Trust 2002)*. Lecture Notes in Computer Science 2631. Springer, 2003, pages 39–52. doi: 10.1007/3-540-36609-1\_5.
- [341] Bin Yu and Munindar P. Singh. “Towards a Probabilistic Model of Distributed Reputation Management.” *Proceedings of the Autonomous Agents Workshop on Deception, Fraud and Trust in Agent Societies*. Montreal, June 2001, pages 125–137.
- [342] Jie Xing, Feng Wan, Sudhir K. Rustogi, and Munindar P. Singh. “Commitment-Based Interoperation for E-Commerce.” *Proceedings of the 5th International Symposium on Autonomous Decentralized Systems (ISADS)*. Dallas: IEEE Computer Society, March 2001, pages 161–168. doi: 10.1109/ISADS.2001.917410.
- [343] Jie Xing and Munindar P. Singh. “Formalization of commitment-based agent interaction.” *Proceedings of the 2001 Symposium on Applied Computing (SAC)*. Las Vegas: ACM, March 2001, pages 115–120. doi: 10.1145/372202.372290.
- [344] Pınar Yolum and Munindar P. Singh. “Commitment-Based Enhancement of E-Commerce Protocols.” *Proceedings of the 9th IEEE Workshops on Enabling Technologies: Infrastructure for Enterprises (WET ICE) Workshop: Web-Based Infrastructures and Coordination Architectures for Collaborative Enterprises*. Gaithersburg, Maryland: IEEE Computer Society, June 2000, pages 278–283. doi: 10.1109/ENABL.2000.883743.
- [345] Munindar P. Singh. “A Social Semantics for Agent Communication Languages.” *Proceedings of the 1999 IJCAI Workshop on Agent Communication Languages*. Lecture Notes in Artificial Intelligence 1916. Berlin: Springer, 2000, pages 31–45. doi: 10.1007/10722777\_3.
- [346] Feng Wan, Sudhir K. Rustogi, Jie Xing, and Munindar P. Singh. “Multiagent Workflow Management.” *Proceedings of the IJCAI-99 Workshop on Intelligent Workflow and Process Management: The New Frontier for AI in Business*. August 1999.
- [347] Bin Yu and Munindar P. Singh. “An Multiagent Referral System for Expertise Location.” *Working Notes of the AAAI Workshop on Intelligent Information Systems*. July 1999, pages 66–69.
- [348] Munindar P. Singh. *Communication as Agent Interaction: Toward a Public Semantics*. Preproceedings of the 3rd Workshop on the Semantics and Pragmatics of Dialogue (Amstelogue), Amsterdam. May 1999. Invited.

- [349] Mona Singh and Munindar P. Singh. “Applying Mixed-Initiative Interaction in User Interfaces for Communicators.” *Proceedings of the National Conference on Artificial Intelligence (AAAI) Workshop on Mixed-Initiative Intelligence*. July 1999. Invited.
- [350] Michael N. Huhns and Munindar P. Singh. “Multiagent Systems in Information-Rich Environments.” *Proceedings of the 2nd International Workshop on Cooperative Information Agents: Learning, Mobility and Electronic Commerce for Information Discovery on the Internet*. Springer, 1998, pages 79–93. doi: 10.1007/BFb0053676. Invited.
- [351] Manuel Aparicio IV, Peter Herman, Wendy Stephens, Anuj K. Jain, and Munindar P. Singh. “Agent Information Contracts within Virtual Private Networks.” *Proceedings of the 3rd IEEE High-Assurance Systems Engineering Symposium (HASE)*. IEEE Computer Society, November 1998, pages 304–311. doi: 10.1109/HASE.1998.731634.
- [352] Munindar P. Singh. “Conceptual Modeling for Multiagent Systems: Applying Interaction-Oriented Programming.” *Conceptual Modeling: Current Issues and Future Directions (Selected Papers from the Workshop on Conceptual Modeling)*. Edited by Peter P. Chen, Jacky Akoka, Hannu Kangassalo, and Bernhard Thalheim. Lecture Notes in Computer Science 1565. Berlin: Springer, 1999, pages 195–210. doi: 10.1007/3-540-48854-5\_16. Invited.
- [353] Munindar P. Singh and Michael N. Huhns. “Challenges for Machine Learning in Cooperative Information Systems.” *Distributed Artificial Intelligence Meets Machine Learning: Learning in Multi-Agent Environments*. Edited by Gerhard Weiß. Lecture Notes in Artificial Intelligence 1221. Berlin: Springer, 1997, pages 11–24. doi: 10.1007/3-540-62934-3\_38. Invited.
- [354] Munindar P. Singh. “Commitments in the Architecture of a Limited, Rational Agent.” *Intelligent Agent Systems: Theoretical and Practical Issues*. Edited by Lawrence Cavedon, Wayne Wobcke, and Anand Rao. Lecture Notes in Artificial Intelligence 1209. Invited paper. Berlin: Springer, 1997, pages 72–87. doi: 10.1007/3-540-62686-7\_29. Invited.
- [355] Yu Lei and Munindar P. Singh. “A Comparison of Workflow Metamodels.” *Proceedings of the ER-97 Workshop on Behavioral Modeling and Design Transformations: Issues and Opportunities in Conceptual Modeling*. Los Angeles, November 1997, pages 1–12.
- [356] Mona Singh, James Barnett, and Munindar P. Singh. “Enhancing Conversational Moves for Portable Dialogue Systems.” *Working Notes of the AAAI Fall Symposium on Communicative Action in Humans and Machines*. Edited by David Traum. Cambridge, Massachusetts: AAAI, November 1997, pages 90–96. URL: <http://www.csc.ncsu.edu/faculty/mpsingh/ms/interfaces/c-moves.pdf>.
- [357] Mona Singh, James H. Barnett, and Munindar P. Singh. “Automating Spoken Dialogue Systems.” *Proceedings of the 10th International Symposium on Methodologies for Intelligent Systems (ISMIS)*. Lecture Notes in Computer Science 1325. Charlotte, North Carolina: Springer, October 1997, pages 207–216. doi: 10.1007/3-540-63614-5\_20.
- [358] Anuj K. Jain and Munindar P. Singh. “Using Spheres of Commitment to Support Virtual Enterprises.” *Proceedings of the 4th ISPE International Conference on Concurrent Engineering: Research and Applications (CE)*. International Society for Productivity Enhancements (ISPE), August 1997, pages 469–476.
- [359] Mona Singh and Munindar P. Singh. “On the Temporal Structure of Events.” *Proceedings of the AAAI Workshop on Spatial and Temporal Reasoning*. AAAI Technical Report WS-97-11. Providence, Rhode Island, July 1997, pages 49–54. ISBN: 978-1-57735-044-6.

- [360] Munindar P. Singh. “Multiagent Systems as Spheres of Commitment.” *Proceedings of the International Conference on Multiagent Systems (ICMAS) Workshop on Norms, Obligations, and Conventions*. December 1996, pages 1–13.
- [361] Munindar P. Singh and Mladen A. Vouk. “Scientific Workflows: Scientific Computing Meets Transactional Workflows.” *Reference Papers of the NSF Workshop on Workflow and Process Automation in Information Systems: State-of-the-art and Future Directions*. May 1996. URL: <http://www.csc.ncsu.edu/faculty/mpsingh/workflows/sciworkflows.html>.
- [362] Munindar P. Singh. “Semantical Considerations on Workflows: Algebraically Specifying and Scheduling Intertask Dependencies.” *Proceedings of the 5th International Workshop on Database Programming Languages (DBPL)*. Electronic Workshops in Computing (eWiC). Gubbio, Umbria, Italy: British Computer Society, September 1995, pages 61–75. doi: 10.14236/ewic/DBPL1995.23.
- [363] Munindar P. Singh. “Formalizing Actions in Branching Time: Model-Theoretic Considerations.” *Proceedings of the 2nd International Workshop on Temporal Representation and Reasoning (TIME)*. Melbourne Beach, Florida, April 1995, pages 97–104. URL: <http://www2.cs.uregina.ca/~temporal/time95/time-95-papers.html>.
- [364] Munindar P. Singh and Mona Singh. “A Natural Language Interface to Information Retrieval Systems.” *Proceedings of the 2nd Conference of the Pacific Association for Computational Linguistics (PACLING)*. Brisbane, April 1995, pages 1–9.
- [365] Mona Singh and Munindar Singh. “Structure of Narratives: A Semantic Approach.” *Proceedings of the 2nd Conference of the Pacific Association for Computational Linguistics (PACLING)*. Brisbane, April 1995, pages 1–8.
- [366] Michael N. Huhns and Munindar P. Singh. “A Mediated Approach to Open, Large-scale Information Management.” *Proceedings of the IEEE International Phoenix Conference on Computers and Communications*. Phoenix, March 1995, pages 115–121. doi: 10.1109/PCCC.1995.472502.
- [367] Munindar P. Singh and Christine Tomlinson. “Workflow Execution Through Distributed Events.” *Proceedings of the 6th International Conference on Management of Data*. Bangalore, December 1994, pages 117–132.
- [368] Michael N. Huhns, Munindar P. Singh, and Tomasz Ksiezzyk. “Global Information Management via Local Autonomous Agents.” *Proceedings of the ICOT International Symposium on Fifth Generation Computer Systems: Workshop on Heterogeneous Cooperative Knowledge Bases*. Tokyo: Institute for New Generation Computer Technology (ICOT), December 1994, pages 1–15.
- [369] Munindar P. Singh. “Maintenance and Prevention: Formalization and Fixpoint Characterization.” *Proceedings of the ECAI Workshop on Logic and Change*. Amsterdam, August 1994, pages 1–11.
- [370] Darrell Woelk, Paul Attie, Philip E. Cannata, Greg Meredith, Munindar P. Singh, and Christine Tomlinson. “Task Scheduling Using Intertask Dependencies in Carnot.” *Proceedings of the ACM SIGMOD International Conference on Management of Data*. Industrial track paper. Washington, May 1993, pages 491–494. doi: 10.1145/170035.170150.
- [371] Mona Singh and Munindar P. Singh. “Temporal Adverbials and the Structure of Events.” *Proceedings of the 4th Symposium on Logic and Language*. Organized jointly by the Research Institute for Linguistics of the Hungarian Academy of Sciences, the Department of Symbolic Logic at Eotvos University and its Programme in Theoretical Linguistics. Budapest, August 1992, pages 1–4.

- [372] Michael N. Huhns and Munindar P. Singh. “The Semantic Integration of Information Models.” *Proceedings of the AAAI Workshop on Cooperation among Heterogeneous Intelligent Agents*. Washington, July 1992, pages 1–8.
- [373] Munindar P. Singh. “On the Semantics of Protocols Among Distributed Intelligent Agents.” *Proceedings of the 11th IEEE International Phoenix Conference on Computers and Communications*. Phoenix, April 1992, pages 379–386. doi: 10.1109/PCCC.1992.200581.
- [374] Munindar P. Singh. “Social and Psychological Commitments in Multiagent Systems.” *AAAI Fall Symposium on Knowledge and Action at Social and Organizational Levels*. Monterey, California, November 1991, pages 104–106. URL: <https://www.csc2.ncsu.edu/faculty/mpsingh/papers/mas/fall-symp-91-longer.pdf>.
- [375] Munindar P. Singh. “On the Commitments and Precommitments of Limited Agents.” *Proceedings of the IJCAI Workshop on the Theoretical and Practical Design of Rational Agents*. Sydney, August 1991, pages 1–11.
- [376] Munindar P. Singh. “Towards a Formal Semantics for Speech Acts.” *Proceedings of the 2nd Meeting on the Mathematics of Language (MOL)*. Organized by the Association for Computational Linguistics (through its Special Interest Group on Mathematics of Language). Tarrytown, New York, May 1991, pages 1–6.
- [377] Munindar P. Singh. “Group Intentions.” *Proceedings of the 10th Workshop on Distributed Artificial Intelligence*. Bandera, Texas, October 1990, pages 1–26.
- [378] Munindar P. Singh and Nicholas M. Asher. “Towards a Formal Theory of Intentions.” *Proceedings of the European Workshop on Logics in Artificial Intelligence (JELIA)*. Amsterdam: Springer, September 1990, pages 472–486. doi: 10.1007/BFb0018460.
- [379] Munindar P. Singh. “Planning and Necessity.” *Proceedings of the 3rd Rocky Mountain Conference on Artificial Intelligence*. Denver, June 1988, pages 46–55.

### 3.7 Book Chapters

- [380] Munindar P. Singh and Roger C. Mayer. “Toward a Scorecard (and Roadmap) for Trustworthy AI Implementation in Organizations.” *A Research Agenda for Trust: Interdisciplinary Perspectives*. Edited by Roger C. Mayer and Barbara M. Mayer. London: Edward Elgar Publishing, 2024. Chapter 8, pages 91–104. ISBN: 978 1 80220 093 5. doi: 10.4337/9781802200942.00015.
- [381] Mohammad Sujan Miah, Mu Zhu, Nazia Sharmin, Ruijie Xi, Christopher Kiekintveld, and Munindar P. Singh. “Decoy Traffic Generation and Optimization Techniques to Foil Advanced Attacks.” *Artificial Intelligence for Cybersecurity: The State of the Art*. Edited by Md Kamruzzaman Sarker, Kishor Datta Gupta, and Kaushik Roy. Amsterdam: IOS Press, 2023.
- [382] Mohammad Sujan Miah, Mu Zhu, Alonso Granados, Nazia Sharmin, Iffat Anjum, Anthony Ortiz, Christopher Kiekintveld, William Enck, and Munindar P. Singh. “Optimizing Honey Traffic Using Game Theory and Adversarial Learning.” *Cyber Deception: Techniques, Strategies, and Human Aspects*. Edited by Tiffany Bao, Milind Tambe, and Cliff Wang. Volume 89. Advances in Information Security (ADIS). Cham, Switzerland: Springer Nature, 2023. Chapter 6, pages 97–124. doi: 10.1007/978-3-031-16613-6\_6.

- [383] Mu Zhu and Munindar P. Singh. “Mee: Adaptive Honeyfile System for Insider Attacker Detection.” *Cyber Deception: Techniques, Strategies, and Human Aspects*. Edited by Tiffany Bao, Milind Tambe, and Cliff Wang. Volume 89. Advances in Information Security (ADIS). Cham, Switzerland: Springer Nature, 2023. Chapter 7, pages 125–143. DOI: 10.1007/978-3-031-16613-6\_7.
- [384] Jin-Hee Cho, Mu Zhu, and Munindar P. Singh. “Modeling and Analysis of Deception Games based on Hypergame Theory.” *Autonomous Cyber Deception*. Edited by Ehab Al-Shaer, Jinpeng Wei, Kevin W. Hamlen, and Cliff Wang. Cham, Switzerland: Springer Nature, 2019. Chapter 4, pages 49–74. DOI: 10.1007/978-3-030-02110-8\_4.
- [385] Michael N. Huhns, Munindar P. Singh, and Gregory E. Pitts. “The Environmental Information Mall.” *Artificial Intelligence and The Environment: AI Blueprints for 16 Environmental Projects Pioneering Sustainability*. Edited by Cindy L. Mason. August 2019. Chapter 14, pages 131–136. ISBN: 978-1-7335248-0-3.
- [386] Harko Verhagen, Martin Neumann, and Munindar P. Singh. “Normative Multiagent Systems: Foundations and History.” *Handbook of Normative Multiagent Systems*. Edited by Amit Chopra, Leendert van der Torre, Harko Verhagen, and Serena Villata. London: College Publications, August 2018. Chapter 1, pages 3–25. ISBN: 978-1-84890-285-5. URL: <http://www.collegepublications.co.uk/downloads/handbooks00004.pdf>. Invited.
- [387] Pablo Noriega, Amit K. Chopra, Nicoletta Fornara, Henrique Lopes Cardoso, and Munindar P. Singh. “Regulated MAS: Social Perspective.” *Normative Multi-Agent Systems*. Edited by Giulia Andrighetto, Guido Governatori, Pablo Noriega, and Leendert W. N. van der Torre. Dagstuhl Follow-Ups 4. Wadern, Germany: Schloss Dagstuhl–Leibniz-Zentrum fuer Informatik, 2013. Chapter 4, pages 93–133. ISBN: 978-3-939897-51-4. DOI: 10.4230/DFU.Vol4.12111.93. URL: <http://drops.dagstuhl.de/opus/portals/dfu/index.php?semnr=13003>. Invited.
- [388] Munindar P. Singh, Matthew Arrott, Tina Balke, Amit K. Chopra, Rob Christiaanse, Stephen Crane-field, Frank Dignum, Davide Eynard, Emilia Farcas, Nicoletta Fornara, Fabien Gandon, Guido Governatori, Hoa Khanh Dam, Joris Hulstijn, Ingolf Krüger, Ho-Pun Lam, Michael Meisinger, Pablo Noriega, Bastin Tony Roy Savarimuthu, Kartik Tadanki, Harko Verhagen, and Serena Villata. “The Uses of Norms.” *Normative Multi-Agent Systems*. Edited by Giulia Andrighetto, Guido Governatori, Pablo Noriega, and Leendert W. N. van der Torre. Dagstuhl Follow-Ups 4. Wadern, Germany: Schloss Dagstuhl–Leibniz-Zentrum fuer Informatik, 2013. Chapter 7, pages 191–229. ISBN: 978-3-939897-51-4. DOI: 10.4230/DFU.Vol4.12111.191. URL: <http://drops.dagstuhl.de/opus/portals/dfu/index.php?semnr=13003>. Invited.
- [389] Amit K. Chopra and Munindar P. Singh. “Agent Communication.” *Multiagent Systems*. Edited by Gerhard Weiß. Second edition. Cambridge, Massachusetts: MIT Press, 2013. Chapter 3, pages 101–141. ISBN: 978-0-262-01889-0. Invited.
- [390] Munindar P. Singh. “Commitments in Multiagent Systems: Some History, Some Confusions, Some Controversies, Some Prospects.” *The Goals of Cognition: Essays in Honour of Cristiano Castelfranchi*. Edited by Fabio Paglieri, Luca Tummolini, Rino Falcone, and Maria Miceli. Volume 20. Tributes. London: College Publications, 2012. Chapter 32, pages 613–638. ISBN: 978-1-84890-094-3. URL: <https://www.csc2.ncsu.edu/faculty/mpsingh/papers/mas/Commitments-for-MAS.pdf>. Invited.

- [391] Amal El Fallah Seghrouchni, Jorge J. Gomez-Sanz, and Munindar P. Singh. “Formal Methods in Agent-Oriented Software Engineering.” *Proceedings of the 10th International Workshop on Agent-Oriented Software Engineering (AOSE 2009)*. Lecture Notes in Computer Science 6038. Budapest: Springer, May 2011, pages 213–228. doi: 10.1007/978-3-642-19208-1\_15. Invited.
- [392] Amit K. Chopra, John Mylopoulos, Fabiano Dalpiaz, Paolo Giorgini, and Munindar P. Singh. “Requirements as Goals and Commitments Too.” *Intentional Perspectives on Information Systems Engineering: Essays in the Honor of Colette Rolland*. Edited by Selmin Nurcan, Camille Salinesi, Carine Souveyet, and Jolita Ralyté. Berlin: Springer, 2010, pages 137–152. doi: 10.1007/978-3-642-12544-7\_8. Invited.
- [393] Pankaj R. Telang and Munindar P. Singh. “Enhancing Tropos with Commitments: A Business Metamodel and Methodology.” *Conceptual Modeling: Foundations and Applications*. Edited by Alexander Borgida, Vinay K. Chaudhri, Paolo Giorgini, and Eric S. K. Yu. Lecture Notes in Computer Science 5600. Springer, 2009, pages 417–435. doi: 10.1007/978-3-642-02463-4\_22. Invited.
- [394] Paolo Torroni, Federico Chesani, Pinar Yolum, Marco Gavanelli, Munindar P. Singh, Evelina Lamma, Marco Alberti, and Paola Mello. “Modelling Interactions via Commitments and Expectations.” *Handbook of Research on Multi-Agent Systems: Semantics and Dynamics of Organizational Models*. Edited by Virginia Dignum. Hershey, Pennsylvania: IGI Global, 2009. Chapter 11, pages 263–284. doi: 10.4018/978-1-60566-256-5.ch011.
- [395] Manuel Aparicio IV and Munindar P. Singh. “Concepts and Practice of Personalization.” *Practical Handbook of Internet Computing*. Edited by Munindar P. Singh. Baton Rouge: Chapman Hall & CRC Press, 2005. Chapter 18, pages 1–14. doi: 10.1201/9780203507223.ch18.
- [396] Munindar P. Singh. “Introduction to Web Semantics.” *Practical Handbook of Internet Computing*. Edited by Munindar P. Singh. Baton Rouge: Chapman Hall & CRC Press, 2005. Chapter 29, pages 1–13. doi: 10.1201/9780203507223.ch29.
- [397] Munindar P. Singh. “Agent-Based Abstractions for Software Development: Accommodating Complexity in Open Systems.” *Methodologies and Software Engineering for Agent Systems: The Handbook of Agent-Oriented Software Engineering*. Edited by Federico Bergenti, Marie-Pierre Gleizes, and Franco Zambonelli. Dordrecht, The Netherlands: Kluwer, 2004. Chapter 1, pages 5–19. doi: 10.1007/1-4020-8058-1\_2. Invited.
- [398] Munindar P. Singh. “The Future of Agent Communications.” *Communication in Multiagent Systems: Agent Communication Languages and Conversation Policies*. Edited by Marc-Philippe Huet. Lecture Notes in Artificial Intelligence 2650. Berlin: Springer, 2003, pages 318–322. doi: 10.1007/978-3-540-44972-0\_18. Invited.
- [399] Munindar P. Singh and Michael N. Huhns. “Social Abstractions for Information Agents.” *Intelligent Information Agents: Cooperative, Rational and Adaptive Information Gathering in the Internet*. Edited by Matthias Klusch. Berlin: Springer, 1999. Chapter 2, pages 37–52. doi: 10.1007/978-3-642-60018-0\_3. Invited.
- [400] Munindar P. Singh and Mladen A. Vouk. “Network Computing.” *Encyclopedia of Electrical and Electronics Engineering*. Edited by John G. Webster. Volume 14. New York: John Wiley & Sons, 1999, pages 114–132. doi: 10.1002/047134608X.W1667. Invited.

- [401] Munindar P. Singh, Anand S. Rao, and Michael P. Georgeff. “Formal Methods in DAI: Logic-Based Representation and Reasoning.” *Multiagent Systems: A Modern Approach to Distributed Artificial Intelligence*. Edited by Gerhard Weiß. Cambridge, Massachusetts: MIT Press, 1999. Chapter 8, pages 331–376. ISBN: 978-0-262-23203-6. Invited.
- [402] Munindar P. Singh. “Know-How.” *Foundations of Rational Agency*. Edited by Anand S. Rao and Michael J. Wooldridge. Applied Logic Series. Dordrecht, The Netherlands: Kluwer, 1998. DOI: 10.1007/978-94-015-9204-8\_6. Invited.
- [403] Michael N. Huhns and Munindar P. Singh. “Agents and Multiagent Systems: Themes, Approaches, and Challenges.” *Readings in Agents*. Edited by Michael N. Huhns and Munindar P. Singh. San Francisco: Morgan Kaufmann, 1998. Chapter 1, pages 1–23. ISBN: 9780080515809.
- [404] Mladen A. Vouk and Munindar P. Singh. “Quality of Service and Scientific Workflows.” *Quality of Numerical Software: Assessment and Enhancements*. Edited by Ronald F. Boisvert. IFIP: International Federation for Information Processing. London: Springer, 1997, pages 77–89. DOI: 10.1007/978-1-5041-2940-4\_6.
- [405] Munindar P. Singh. “Semantical Considerations on Some Primitives for Agent Specification.” *Intelligent Agents II: Agent Theories, Architectures, and Languages*. Lecture Notes in Computer Science 1037. Proceedings of the IJCAI Workshop on Agent Theories, Architectures, and Languages (ATAL), Montreal, August 1995. Springer, 1996, pages 49–64. DOI: 10.1007/3540608052\_58.
- [406] Michael N. Huhns and Munindar P. Singh. “Information Management for Cooperative Engineering.” *Cooperative Knowledge Processing for Engineering Design*. Edited by Arthur B. Baskin, George Kovacs, and Gianni Jacucci. Published under the auspices of the International Federation of Information Processing Societies (IFIP). Norwell, Massachusetts: Kluwer, 1999. Chapter 14, pages 237–262. DOI: 10.1007/978-0-387-35357-9\_14.
- [407] Darrell Woelk, Philip Cannata, Michael N. Huhns, Nigel Jacobs, Tomasz Ksiezyk, Greg Lavender, Greg Meredith, Kayliang Ong, Wei-Min Shen, Munindar Singh, and Christine Tomlinson. “Carnot Prototype.” *Object-Oriented Multidatabase Systems: A Solution for Advanced Applications*. Edited by Omran A. Bukhres and Ahmed K. Elmagarmid. Hemel Hempstead, United Kingdom: Prentice-Hall, 1996. Chapter 18, pages 621–648. ISBN: 978-0-13-103813-4.
- [408] Michael N. Huhns, Nigel Jacobs, Tomasz Ksiezyk, Wei-Min Shen, Munindar P. Singh, and Philip E. Cannata. “Enterprise Information Modeling and Model Integration in Carnot.” *Enterprise Integration Modeling: Proceedings of the First International Conference*. Edited by Charles J. Petrie Jr. Hilton Head, South Carolina: MIT Press, October 1992, pages 290–299. DOI: 10.7551/mitpress/2768.003.0036.
- [409] Munindar P. Singh. “Group Ability and Structure.” *Decentralized Artificial Intelligence, Volume 2*. Edited by Yves Demazeau and Jean-Pierre Müller. Revised proceedings of the 2nd European Workshop on Modeling Autonomous Agents in a Multi Agent World (MAAMAW), St. Quentin en Yvelines, France, August 1990. Amsterdam: Elsevier/North-Holland, 1991, pages 127–145. ISBN: 9780444597380.

### 3.8 Technical Columns

**Internet Ethics: Fairness, Accountability, Transparency** The following are articles from the Internet Ethics: Fairness, Accountability, Transparency department, which I coedit for *IEEE Internet Computing*.

- [410] Hoa Khanh Dam, Aditya Ghose, Nigel Gilbert, and Munindar P. Singh. “Understanding Responsible Computing via Project Management for Sustainability.” *IEEE Internet Computing (IC)* 27(6), November 2023, pages 37–42. doi: 10.1109/MIC.2023.3310299.
- [411] Munindar P. Singh and Pradeep K. Murukannaiah. “Toward an Ethical Framework for Smart Cities and the Internet of Things.” *IEEE Internet Computing (IC)* 27(2), March 2023, pages 51–56. doi: 10.1109/MIC.2023.3236826.  
Selected for inclusion in IEEE Computer Society’s ComputingEdge, March 2024 issue: [https://ieeecs-media.computer.org/media/marketing/cedge\\_digital/ce-mar24-final.pdf](https://ieeecs-media.computer.org/media/marketing/cedge_digital/ce-mar24-final.pdf)
- [412] Arnav Jhala, Yang Cheng, Jean Goodwin, Munindar P. Singh, Mohd Anwar, Lauren B. Davis, Steven Jiang, Anna Lee, Seong Younho, Siobahn Day Grady, Deepak Kumar, and Tianduo Zhang. “A Digital Communication Twin for Addressing Misinformation: Vision, Challenges, Opportunities.” *IEEE Internet Computing (IC)* 26(2), March 2022, pages 36–41. doi: 10.1109/MIC.2021.3129547.  
Selected for inclusion in IEEE Computer Society’s ComputingEdge, August 2023 issue: [https://ieeecs-media.computer.org/media/marketing/cedge\\_digital/ce-aug23-final.pdf](https://ieeecs-media.computer.org/media/marketing/cedge_digital/ce-aug23-final.pdf)
- [413] Munindar P. Singh and Xibin Gao. “A Gray Box Conceptual Model for Accountability and Ethics in Business Contracts.” *IEEE Internet Computing (IC)* 25(4), July 2021, pages 13–19. doi: 10.1109/MIC.2021.3083295.
- [414] Eleni Bardaka, Leila Hajibabai, and Munindar P. Singh. “Reimagining Ride Sharing: Efficient, Equitable, Sustainable Public Microtransit.” *IEEE Internet Computing (IC)* 24(5), September 2020, pages 38–44. doi: 10.1109/MIC.2020.3018038.
- [415] Pradeep K. Murukannaiah and Munindar P. Singh. “From Machine Ethics to Internet Ethics: Broadening the Horizon.” *IEEE Internet Computing (IC)* 24(3), May 2020, pages 51–57. doi: 10.1109/MIC.2020.2989935.

**Natural Web Interfaces** The following are articles from the Natural Web Interfaces department, which I edited for *IEEE Internet Computing*.

- [416] Pankaj Telang, Anup Kalia, Maja Vukovic, Rahul Pandita, and Munindar P. Singh. “A Conceptual Framework for Engineering Chatbots.” *IEEE Internet Computing (IC)* 22(6), November 2018, pages 54–59. doi: 10.1109/MIC.2018.2877827.
- [417] Nirav Ajmeri, Hui Guo, Pradeep K. Murukannaiah, and Munindar P. Singh. “Designing Ethical Personal Agents.” *IEEE Internet Computing (IC)* 22(2), March 2018, pages 16–22. doi: 10.1109/MIC.2018.022021658.  
Selected for inclusion in IEEE Computer Society’s ComputingEdge, July 2018 issue on *Artificial Intelligence*.
- [418] Muhammad Shahzad and Munindar P. Singh. “Continuous Authentication and Authorization for the Internet of Things.” *IEEE Internet Computing (IC)* 21(2), March 2017, pages 86–90. doi: 10.1109/MIC.2017.33.  
Selected for inclusion in IEEE Computer Society’s ComputingEdge, July 2017 issue on *IoT*.
- [419] Christopher J. Hazard and Munindar P. Singh. “Privacy Risks in Intelligent User Interfaces.” *IEEE Internet Computing (IC)* 20(6), November 2016, pages 57–61. doi: 10.1109/MIC.2016.116.  
Selected for inclusion in IEEE Computer Society’s ComputingEdge, February 2017 issue on *Security*.

- [420] Pradeep K. Murukannaiah, Nirav Ajmeri, and Munindar P. Singh. “Engineering Privacy in Social Applications.” *IEEE Internet Computing (IC)* 20(2), March 2016, pages 72–76. doi: 10.1109/MIC.2016.30.  
Selected for inclusion in IEEE Computer Society’s ComputingEdge, August 2016 issue on *Social Networking*.
- [421] Pradeep K. Murukannaiah and Munindar P. Singh. “Understanding Location-Based User Experience.” *IEEE Internet Computing (IC)* 18(6), November 2014, pages 72–76. doi: 10.1109/MIC.2014.127.
- [422] Mona Singh and Munindar P. Singh. “Augmented Reality Interfaces.” *IEEE Internet Computing (IC)* 17(6), November 2013, pages 66–70. doi: 10.1109/MIC.2013.107.

**Being Interactive** The following are articles from this bimonthly column, which I wrote while serving as the editor-in-chief of *IEEE Internet Computing* (from January 1999 to December 2002).

- [423] Munindar P. Singh. “Who You Gonna Call?” *IEEE Internet Computing (IC)* 6(6), November 2002. Instance of the column *Being Interactive*, pages 4–5. doi: 10.1109/MIC.2002.10024.
- [424] Munindar P. Singh. “Deep Web Structure.” *IEEE Internet Computing (IC)* 6(5), September 2002. Instance of the column *Being Interactive*, pages 4–5. doi: 10.1109/MIC.2002.1036032.
- [425] Munindar P. Singh. “Treating Health Care.” *IEEE Internet Computing (IC)* 6(4), July 2002. Instance of the column *Being Interactive*, pages 4–5. doi: 10.1109/MIC.2002.1020317.
- [426] Munindar P. Singh. “The Pragmatic Web.” *IEEE Internet Computing (IC)* 6(3), May 2002. Instance of the column *Being Interactive*, pages 4–5. doi: 10.1109/MIC.2002.1003124.
- [427] Munindar P. Singh. “Working the Flow.” *IEEE Internet Computing (IC)* 6(2), March 2002. Instance of the column *Being Interactive*, pages 4–5. doi: 10.1109/MIC.2002.991437.
- [428] Munindar P. Singh. “Privacy for Telecom Services.” *IEEE Internet Computing (IC)* 6(1), January 2002. Instance of the column *Being Interactive*, pages 4–5. doi: 10.1109/MIC.2002.978364.
- [429] Munindar P. Singh. “Privacy and Open Services.” *IEEE Internet Computing (IC)* 5(6), November 2001. Instance of the column *Being Interactive*, pages 4–5. doi: 10.1109/MIC.2001.968826.
- [430] Munindar P. Singh. “Services and Situations.” *IEEE Internet Computing (IC)* 5(5), September 2001. Instance of the column *Being Interactive*, pages 4–5. doi: 10.1109/4236.957890.
- [431] Munindar P. Singh. “The Invisible Wireless Web.” *IEEE Internet Computing (IC)* 5(4), July 2001. Instance of the column *Being Interactive*, pages 6–7. doi: 10.1109/MIC.2001.939445.
- [432] Munindar P. Singh. “Physics of Service Composition.” *IEEE Internet Computing (IC)* 5(3), May 2001. Instance of the column *Being Interactive*, pages 6–7. doi: 10.1109/MIC.2001.10014.
- [433] Munindar P. Singh. “An Evolutionary Look at E-Commerce.” *IEEE Internet Computing (IC)* 5(2), March 2001. Instance of the column *Being Interactive*, pages 4–5. doi: 10.1109/4236.914643.
- [434] Munindar P. Singh. “Peering at Peer-to-Peer Computing.” *IEEE Internet Computing (IC)* 5(1), January 2001. Instance of the column *Being Interactive*, pages 4–5. doi: 10.1109/MIC.2001.10000.

- [435] Munindar P. Singh. "The Intelligence Within." *IEEE Internet Computing (IC)* 4(6), November 2000. Instance of the column *Being Interactive*, pages 6–7. doi: 10.1109/MIC.2000.10035.
- [436] Munindar P. Singh. "Beyond Geography." *IEEE Internet Computing (IC)* 4(5), September 2000. Instance of the column *Being Interactive*, pages 4–5. doi: 10.1109/MIC.2000.10023.
- [437] Munindar P. Singh. "The Service Web." *IEEE Internet Computing (IC)* 4(4), July 2000. Instance of the column *Being Interactive*, pages 4–5. doi: 10.1109/MIC.2000.865082.
- [438] Munindar P. Singh. "Engineering Interoperation." *IEEE Internet Computing (IC)* 4(3), May 2000. Instance of the column *Being Interactive*, pages 4–5. doi: 10.1109/MIC.2000.10014.
- [439] Munindar P. Singh. "Trusting our Personal Assistants." *IEEE Internet Computing (IC)* 4(2), March 2000. Instance of the column *Being Interactive*, pages 4–5.
- [440] Munindar P. Singh. "In the Thick of Things." *IEEE Internet Computing (IC)* 4(1), January 2000. Instance of the column *Being Interactive*, pages 4–5. doi: 10.1109/MIC.2000.10005.
- [441] Munindar P. Singh. "The End of the Supply Chain?" *IEEE Internet Computing (IC)* 3(6), November 1999. Instance of the column *Being Interactive*, pages 4–5. doi: 10.1109/MIC.1999.10030.
- [442] Munindar P. Singh. "The E-Commerce Inversion." *IEEE Internet Computing (IC)* 3(5), September 1999. Instance of the column *Being Interactive*, pages 4–5. doi: 10.1109/MIC.1999.793453.
- [443] Munindar P. Singh. "Degrees of Separation." *IEEE Internet Computing (IC)* 3(4), July 1999. Instance of the column *Being Interactive*, pages 4–5. doi: 10.1109/MIC.1999.10020.
- [444] Munindar P. Singh. "Value-Oriented Electronic Commerce." *IEEE Internet Computing (IC)* 3(3), May 1999. Instance of the column *Being Interactive*, pages 6–7. doi: 10.1109/MIC.1999.10017.
- [445] Munindar P. Singh. "Write Asynchronous, Run Synchronous." *IEEE Internet Computing (IC)* 3(2), March 1999. Instance of the column *Being Interactive*, pages 4–5. doi: 10.1109/MIC.1999.10010.
- [446] Munindar P. Singh. "The True Meaning of Analog." *IEEE Internet Computing (IC)* 3(1), January 1999. Instance of the column *Being Interactive*, pages 6–7. doi: 10.1109/MIC.1999.747316.

**Agents on the Web** The following are articles of this bimonthly column, which I coauthored with Michael N. Huhns from 1997 to 1998.

- [447] Michael N. Huhns and Munindar P. Singh. "Cognitive Agents." *IEEE Internet Computing (IC)* 2(6), November 1998. Instance of the column *Agents on the Web*, pages 87–89. doi: 10.1109/4236.735992.
- [448] Michael N. Huhns and Munindar P. Singh. "Personal Assistants." *IEEE Internet Computing (IC)* 2(5), September 1998. Instance of the column *Agents on the Web*, pages 90–92. doi: 10.1109/4236.722236.
- [449] Michael N. Huhns and Munindar P. Singh. "Workflow Agents." *IEEE Internet Computing (IC)* 2(4), July 1998. Instance of the column *Agents on the Web*, pages 94–96. doi: 10.1109/4236.707813.
- [450] Michael N. Huhns and Munindar P. Singh. "All Agents are not Created Equal." *IEEE Internet Computing (IC)* 2(3), May 1998. Instance of the column *Agents on the Web*, pages 94–96. doi: 10.1109/4236.683806.

- [451] Michael N. Huhns and Munindar P. Singh. “Agent Jurisprudence.” *IEEE Internet Computing (IC)* 2(2), March 1998. Instance of the column *Agents on the Web*, pages 90–91. doi: 10.1109/4236.670692.
- [452] Michael N. Huhns and Munindar P. Singh. “Anthropoid Agents.” *IEEE Internet Computing (IC)* 2(1), January 1998. Instance of the column *Agents on the Web*, pages 94–95. doi: 10.1109/4236.656099.
- [453] Michael N. Huhns and Munindar P. Singh. “Ontologies for Agents.” *IEEE Internet Computing (IC)* 1(6), November 1997. Instance of the column *Agents on the Web*, pages 81–83. doi: 10.1109/4236.643942.
- [454] Michael N. Huhns and Munindar P. Singh. “The Agent Test.” *IEEE Internet Computing (IC)* 1(5), September 1997. Instance of the column *Agents on the Web*, pages 78–79. doi: 10.1109/4236.623972.
- [455] Michael N. Huhns and Munindar P. Singh. “Mobile Agents.” *IEEE Internet Computing (IC)* 1(3), May 1997. Instance of the column *Agents on the Web*, pages 80–82. doi: 10.1109/4236.589200.
- [456] Michael N. Huhns and Munindar P. Singh. “Conversational Agents.” *IEEE Internet Computing (IC)* 1(2), March 1997. Instance of the column *Agents on the Web*, pages 73–75. doi: 10.1109/MIC.1997.10017.
- [457] Michael N. Huhns and Munindar P. Singh. “Agents are Everywhere.” *IEEE Internet Computing (IC)* 1(1), January 1997. Instance of the column *Agents on the Web*, page 87. doi: 10.1109/MIC.1997.585181.

### 3.9 Bulletin and Magazine Articles

These publications are refereed, but not as intensively as journals.

- [458] Hui Guo, Nirav Ajmeri, and Munindar P. Singh. “Teaching Crowdsourcing: An Experience Report.” *IEEE Internet Computing (IC)* 22(6), November 2018, pages 44–52. doi: 10.1109/MIC.2018.2881515.  
Selected for inclusion in IEEE Computer Society’s ComputingEdge of October 2020. Available at [https://ieeecs-media.computer.org/media/marketing/cedge\\_digital/ce-oct20-final.pdf](https://ieeecs-media.computer.org/media/marketing/cedge_digital/ce-oct20-final.pdf)
- [459] Laura Zavala, Pradeep K. Murukannaiah, Nithyananthan Pooamani, Tim Finin, Anupam Joshi, Injong Rhee, and Munindar P. Singh. “Platys: From Position to Place-Oriented Mobile Computing.” *AI Magazine* 36(2), Summer 2015, pages 50–62. doi: 10.1609/aimag.v36i2.2584.
- [460] E. Michael Maximilien and Munindar P. Singh. “Conceptual Model of Web Service Reputation.” *ACM SIGMOD Record* 31(4), December 2002, pages 36–41. doi: 10.1145/637411.637417.
- [461] E. Michael Maximilien and Munindar P. Singh. “Reputation and Endorsement for Web Services.” *ACM SIGecom Exchanges* 3(1), 2002, pages 24–31. doi: 10.1145/844331.844335.
- [462] Christine Tomlinson, Paul Attie, Phil Cannata, Greg Meredith, Amit Sheth, Munindar Singh, and Darrell Woelk. “Workflow Support in Carnot.” *Bulletin of the IEEE Technical Committee on Data Engineering* 16(2), June 1993, pages 33–36. URL: <http://sites.computer.org/debull/93JUN-CD.pdf>.

### 3.10 Short Papers and Demonstration Abstracts

These publications are refereed, but not as intensively as full-length conference articles.

- [463] Amit K. Chopra, Samuel H. Christie V, and Munindar P. Singh. “Interaction-Oriented Programming: Intelligent, Meaning-Based Multiagent Systems.” *Proceedings of the 22nd International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Demonstration. London: IFAAMAS, May 2023, pages 3041–3043. doi: 10.5555/3545946.3599166.
- [464] Shubham Goyal, Nirav Ajmeri, and Munindar P. Singh. “Applying Norms and Sanctions to Promote Cybersecurity Hygiene.” *Proceedings of the 18th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Extended abstract. Montréal: IFAAMAS, May 2019, pages 1991–1993. doi: 10.5555/3306127.3331987.
- [465] Nirav Ajmeri, Hui Guo, Pradeep K. Murukannaiah, and Munindar P. Singh. “Ethics, Values, and Personal Agents: Poster.” *Proceedings of the 5th Annual Symposium and Bootcamp on Hot Topics in the Science of Security (HotSoS)*. Raleigh: ACM, April 2018, 17:1. doi: 10.1145/3190619.3191678.
- [466] Hui Guo, Özgür Kafalı, Anne-Liz Jeukeng, Laurie Williams, and Munindar P. Singh. “Toward Extraction of Security Requirements from Text: Poster.” *Proceedings of the 5th Annual Symposium and Bootcamp on Hot Topics in the Science of Security (HotSoS)*. Raleigh: ACM, April 2018, 27:1. doi: 10.1145/3190619.3191685.
- [467] Pradeep K. Murukannaiah, Nirav Ajmeri, and Munindar P. Singh. “Toward Automating Crowd RE.” *Proceedings of the 25th IEEE International Requirements Engineering Conference (RE)*. Data Track. Lisbon: IEEE Computer Society, September 2017, pages 512–515. doi: 10.1109/RE.2017.74.
- [468] Özgür Kafalı, Nirav Ajmeri, and Munindar P. Singh. “Formal Understanding of Tradeoffs among Liveness and Safety Requirements.” *Proceedings of the 3rd International Workshop on Artificial Intelligence for Requirements Engineering (AIRE)*. Extended abstract. Beijing: IEEE Computer Society, September 2016, pages 17–18. doi: 10.1109/REW.2016.017.
- [469] Özgür Kafalı, Nirav Ajmeri, and Munindar P. Singh. “Normative Requirements in Sociotechnical Systems.” *Proceedings of the 9th International Workshop on Requirements Engineering and Law (RELAW)*. Extended abstract. Beijing: IEEE Computer Society, September 2016, pages 259–260. doi: 10.1109/REW.2016.049.
- [470] Özgür Kafalı, Munindar P. Singh, and Laurie Williams. “Toward a Normative Approach for Forensibility.” *Proceedings of the 3rd International Symposium and Bootcamp on the Science of Security (HotSoS)*. Pittsburgh: ACM, April 2016, pages 65–67. doi: 10.1145/2898375.2898386.
- [471] Jiaming Jiang, Nirav Ajmeri, Rada Y. Chirkova, Jon Doyle, and Munindar P. Singh. “Expressing and Reasoning about Conflicting Norms in Cybersecurity: Poster.” *Proceedings of the 3rd International Symposium and Bootcamp on the Science of Security (HotSoS)*. Pittsburgh: ACM, April 2016, pages 63–64. doi: 10.1145/2898375.2898395.
- [472] Matteo Baldoni, Cristina Baroglio, Amit K. Chopra, and Munindar P. Singh. “Social Contexts and Social Pragmatics.” *Proceedings of the 14th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Extended Abstract. Istanbul: IFAAMAS, May 2015, pages 1739–1740. doi: 10.5555/2772879.2773412.

- [473] Anup K. Kalia, Zhe Zhang, and Munindar P. Singh. “Estimating Trust from Agents’ Interactions via Commitments.” *Proceedings of the 21st European Conference on Artificial Intelligence (ECAI)*. Prague: IOS Press, August 2014, pages 1043–1044. doi: 10.3233/978-1-61499-419-0-1043.
- [474] Pradeep K. Murukannaiah, Ricard López Fogués, and Munindar P. Singh. “Platys: A Framework for Supporting Context-Aware Personal Agents (Demonstration).” *Proceedings of the 13th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Paris: IFAAMAS, May 2014, pages 1689–1690. doi: 10.5555/2615731.2616127.
- [475] Anup K. Kalia, Pankaj R. Telang, and Munindar P. Singh. “Protos: A Cross-Organizational Business Modeling Tool (Demonstration).” *Proceedings of the 11th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Valencia, Spain: IFAAMAS, June 2012, pages 1489–1490. doi: 10.5555/2343896.2344075.
- [476] Yathiraj B. Udipi and Munindar P. Singh. “Formal Aspects of Classifying and Selecting Business Services.” *Proceedings of the 8th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Budapest: IFAAMAS, 2009, pages 1247–1248. doi: 10.5555/1558109.1558235.
- [477] Derek J. Sollenberger and Munindar P. Singh. “Koko: Architecture and Methodology for Engineering Social Affective Applications.” *Proceedings of the 8th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Short paper. Budapest: IFAAMAS, 2009, pages 1137–1138. doi: 10.5555/1558109.1558178.
- [478] Derek J. Sollenberger and Munindar P. Singh. “Koko: Engineering Affective Applications.” *Proceedings of the 8th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Demonstration abstract. Budapest: IFAAMAS, 2009, pages 1423–1424. doi: 10.5555/1558109.1558328.
- [479] Chung-Wei Hang, Yonghong Wang, and Munindar P. Singh. “An Adaptive Probabilistic Trust Model and its Evaluation.” *Proceedings of the 7th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Short paper. Estoril, Portugal: IFAAMAS, May 2008, pages 1485–1488. doi: 10.5555/1402821.1402905.
- [480] Amit K. Chopra and Munindar P. Singh. “Choice and Interoperation in Protocol Enactment.” *Proceedings of the 6th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Honolulu: IFAAMAS, 2007, pages 135–137. doi: 10.1145/1329125.1329161.
- [481] Yathiraj B. Udipi and Munindar P. Singh. “InterPol: A Policy Framework for Managing Trust and Privacy in Referral Networks.” *Proceedings of the 6th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Honolulu: IFAAMAS, 2007, pages 1088–1090. doi: 10.1145/1329125.1329332.
- [482] Yathiraj B. Udipi and Munindar P. Singh. “Dynamics of Contracts-Based Organizations: A Formal Approach Based on Institutions.” *Proceedings of the 6th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Honolulu: IFAAMAS, 2007, pages 82–84. doi: 10.1145/1329125.1329149.
- [483] Payal Chakravarty and Munindar P. Singh. “An Event-Driven Approach for Agent-Based Business Process Enactment.” *Proceedings of the 6th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Honolulu: IFAAMAS, 2007, pages 1261–1263. doi: 10.1145/1329125.1329383.

- [484] Nirmitt Desai, Zhengang Cheng, Amit K. Chopra, and Munindar P. Singh. “Toward Verification of Commitment Protocols and their Compositions.” *Proceedings of the 6th International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Honolulu: IFAAMAS, 2007, pages 144–146. doi: 10.1145/1329125.1329165.
- [485] Nirmitt Desai, Amit K. Chopra, and Munindar P. Singh. “An Overview of Business Process Adaptations via Protocols.” *Proceedings of the 5th International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Hakodate, Japan: IFAAMAS, 2006, pages 1326–1328. doi: 10.1145/1160633.1160879.
- [486] E. Michael Maximilien and Munindar P. Singh. “Self-Adjusting Trust and Selection for Web Services.” *Proceedings of the 2nd International Conference on Autonomic Computing (ICAC)*. Seattle: IEEE Computer Society, June 2005, pages 385–386. doi: 10.1109/ICAC.2005.53.
- [487] Ashok U. Mallya, Nirmitt Desai, Amit K. Chopra, and Munindar P. Singh. “OWL-P: OWL for Protocols and Processes.” *Proceedings of the 4th International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Demonstration abstract. Utrecht, The Netherlands: ACM Press, July 2005, pages 139–140. doi: 10.1145/1082473.1082822.
- [488] Amit K. Chopra and Munindar P. Singh. “Commitments for Flexible Business Processes.” *Proceedings of the 3rd International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Poster paper. New York: ACM Press, July 2004, pages 1362–1363. doi: 10.1109/AAMAS.2004.10211.
- [489] Ashok U. Mallya and Munindar P. Singh. “A Semantic Approach for Designing Commitment Protocols.” *Proceedings of the 3rd International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Poster paper. New York: IEEE Computer Society Press, July 2004, pages 1364–1365. doi: 10.1109/AAMAS.2004.10205.
- [490] Yathiraj B. Udipi, Pinar Yolum, and Munindar P. Singh. “Agent-Based Peer-to-Peer Service Networks: A Study of Effectiveness and Structure Evolution.” *Proceedings of the 3rd International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Poster paper. New York: ACM Press, July 2004, pages 1336–1337. doi: 10.1109/AAMAS.2004.10278.
- [491] Bin Yu, Cuihong Li, Katia Sycara, and Munindar P. Singh. “A Dynamic Pricing Mechanism for P2P Referral Systems.” *Proceedings of the 3rd International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Poster paper. New York: ACM Press, July 2004, pages 1426–1427. doi: 10.5555/1018411.1018970.
- [492] Ashok U. Mallya and Munindar P. Singh. “A Semantic Approach for Designing Business Protocols.” *Proceedings of the 13th International World Wide Web Conference (WWW)*. Poster paper. New York: ACM Press, May 2004, pages 308–309. doi: 10.1145/1013367.1013449.
- [493] Pinar Yolum and Munindar P. Singh. “Ladders of Success: An Empirical Approach to Trust.” *Proceedings of the 2nd International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. Poster paper. Melbourne: ACM Press, July 2003, pages 1168–1169. doi: 10.1145/860575.860849.
- [494] Bin Yu and Munindar P. Singh. “An Agent-Based Approach to Knowledge Management.” *Proceedings of the ACM International Conference on Information and Knowledge Management (CIKM)*. Poster. November 2002, pages 642–644. doi: 10.1145/584792.584906.

- [495] Bin Yu and Munindar P. Singh. “Emergence of Agent-Based Referral Networks.” *Proceedings of First International Joint Conference on Autonomous Agents and Multiagent Systems*. Bologna, July 2002, pages 1268–1269. doi: 10.1145/545056.545113.
- [496] Pınar Yolum and Munindar P. Singh. “Flexible Execution of E-Commerce Protocols.” *Proceedings of the International Conference on Autonomous Agents*. Poster. Montréal, June 2001.
- [497] Mahadevan Venkatraman, Bin Yu, and Munindar P. Singh. “Trust and Reputation Management in a Small-World Network.” *Proceedings of the 4th International Conference on Multi-Agent Systems (ICMAS)*. Poster. Boston: IEEE Computer Society, July 2000, pages 449–450. doi: 10.1109/ICMAS.2000.858519.
- [498] Munindar P. Singh. “Toward Interaction-Oriented Programming.” *Proceedings of the 2nd International Conference on Multi-Agent Systems (ICMAS)*. Poster. Kyoto, December 1996, page 457. URL: <https://aaai.org/papers/icmas96-085-toward-interaction-oriented-programming/>.
- [499] Munindar P. Singh, Christine Tomlinson, and Darrell Woelk. “Relaxed Transaction Processing.” *Proceedings of the 1994 ACM International Conference on Management of Data (SIGMOD)*. Research prototype demonstration description. Minneapolis: ACM Press, May 1994, page 505. doi: 10.1145/191839.191949.

### 3.11 Invited Forewords

- [500] Munindar P. Singh. “Foreword to the Volume.” *Crowdsourcing: Cloud-Based Software Development*. Edited by Wei Li, Michael N. Huhns, Wei-Tek Tsai, and Wenjun Wu. Progress in IS. Berlin: Springer, 2015, pages v–vi. doi: 10.1007/978-3-662-47011-4.
- [501] Munindar P. Singh. “Coordination and the Internet.” *Coordination of Internet Agents: Models, Technologies, and Applications*. Edited by Andrea Omicini, Franco Zambonelli, Matthias Klusch, and Robert Tolksdorf. Foreword. Berlin: Springer, 2001, pages V–VII. doi: 10.1007/978-3-662-04401-8.

### 3.12 Book Reviews

- [502] Munindar P. Singh. “Book review of Michael Schroeder, *Autonomous, Model-Based Diagnosis Agents*.” *ACM Computing Reviews* 39, December 1998.
- [503] Munindar P. Singh. “Agents Misunderstood.” *IEEE Spectrum* 33(2), February 1996. Book review of Peter Wayner, *Agents Unleashed*, Academic Press, 1995, pages 10, 12. doi: 10.1109/MSPEC.1996.482270.
- [504] Munindar P. Singh. “Distributed AI in Action: Book review of Thies Wittig, editor, *ARCHON: An Architecture for Multi-Agent Systems*.” *ACM SIGART Bulletin* 7(1), January 1996, pages 9–10. doi: 10.1145/230062.1066045.

### 3.13 Editorials

- [505] Michael Pflanzner, Veljko Dubljević, William A. Bauer, Darby C. Orcutt, George F. List, and Munindar P. Singh. “Embedding AI in Society: Ethics, Policy, Governance, and Impacts.” *AI & Society: Journal of Knowledge, Culture and Communication* 38(4), August 2023, pages 1267–1271. doi: 10.1007/s00146-023-01704-2.

- [506] Andrei Ciortea, Xiaomin Zhu, Calton Pu, and Munindar P. Singh. “Introduction to the Special Issue on Multiagent Systems and Services in the Internet of Things.” *ACM Transactions on Internet Technology (TOIT)* 22(4), November 2022, pages 1–99:3. doi: 10.1145/3584744.
- [507] Samuel H. Christie V, Lalana Kagal, Alessandro Ricci, and Munindar P. Singh. “Decentralized Systems.” *IEEE Internet Computing (IC)* 26(6), November 2022, pages 5–6. doi: 10.1109/MIC.2022.3216093.
- [508] Nadin Kökciyan, Biplav Srivastava, Michael N. Huhns, and Munindar P. Singh. “Sociotechnical Perspectives on AI Ethics and Accountability.” *IEEE Internet Computing (IC)* 25(6), November 2021, pages 5–6. doi: 10.1109/MIC.2021.3117611.
- [509] Özgür Kafalı and Munindar P. Singh. “Improving Cybersecurity: User Accountability and Sociotechnical Systems.” *IEEE Computing Now*, April 2017. Guest editorial. URL: <https://www.computer.org/publications/tech-news/computing-now/improving-cybersecurity-user-accountability-and-sociotechnical-systems>.
- [510] Munindar P. Singh. “Vision for TOIT.” *ACM Transactions on Internet Technology (TOIT)* 12(4), July 2013. Editor-in-chief’s column, 10:1–10:2. doi: 10.1145/2499926.2499929.
- [511] Rino Falcone and Munindar P. Singh. “Introduction to Special Section on Trust in Multiagent Systems.” *ACM Transactions on Intelligent Systems and Technology (TIST)* 4(2), March 2013. Guest editorial, 23:1–23:2. doi: 10.1145/2438653.2438658.
- [512] Munindar P. Singh. “Toward a Science of Security.” *IEEE Computing Now*, January 2013. Guest editorial. URL: <https://www.computer.org/publications/tech-news/computing-now/toward-a-science-of-security>.
- [513] Munindar P. Singh. “Self-Renewing Applications.” *IEEE Internet Computing (IC)* 15(4), July 2011, pages 3–5. doi: 10.1109/MIC.2011.95.
- [514] Vinton G. Cerf and Munindar P. Singh. “2010 Computing Outlook.” *IEEE Computing Now*, January 2010. Guest editorial. URL: <https://www.computer.org/publications/tech-news/computing-now/2010-computing-outlook>.
- [515] Vinton G. Cerf and Munindar P. Singh. “Internet Predictions.” *IEEE Internet Computing (IC)* 14(1), January 2010. Guest editorial, pages 10–11. doi: 10.1109/MIC.2010.11.
- [516] Guido Boella, Gabriella Pigozzi, Munindar P. Singh, and Harko Verhagen. “Normative Multiagent Systems: Guest Editors’ Introduction.” *Logic Journal of the IGPL* 18(1), 2010, pages 1–3. doi: 10.1093/jigpal/jzp079.
- [517] Matei Ripeanu, Munindar P. Singh, and Sudharshan Vazhkudai. “Virtual Organizations.” *IEEE Internet Computing (IC)* 12(2), March 2008. Guest editorial, pages 10–12. doi: 10.1109/MIC.2008.48.
- [518] Rino Falcone, Munindar P. Singh, and Yao-Hua Tan. “Introduction: Bringing Together Humans and Artificial Agents in Cyber-Societies: A New Field of Trust Research.” *Trust in Cyber-societies, Integrating the Human and Artificial Perspectives [based on a workshop on Deception, Fraud, and Trust in Agent Societies held during the Autonomous Agents Conference in Barcelona, Spain in June 2000]*. Lecture Notes in Computer Science 2246. Barcelona: Springer, June 2001, pages 1–8. doi: 10.1007/3-540-45547-7\_1.

- [519] Anupam Joshi and Munindar P. Singh. “Multiagent Systems on the Net.” *Communications of the ACM (CACM)* 42(3), March 1999. Guest editorial, pages 38–40. DOI: 10.1145/295685.295695.
- [520] Wolfgang Klas and Munindar P. Singh. “Selected Papers from CoopIS-97.” *International Journal of Cooperative Information Systems (IJCIS)* 6(3–4), September 1997. Guest editorial, pages 217–218. DOI: 10.1142/S0218843097000100.
- [521] Munindar P. Singh and Michael N. Huhns. “Internet-Based Agents: Applications and Infrastructure.” *IEEE Internet Computing (IC)* 1(4), July 1997. Introduction to the theme issue on *Agents*, pages 8–9. DOI: 10.1109/MIC.1997.612208.
- [522] Michael N. Huhns and Munindar P. Singh. “Formal Methods in Cooperative Information Systems: Multiagent Systems.” *International Journal of Cooperative Information Systems (IJCIS)* 6(1), January 1997. Guest editorial, pages 1–2. DOI: 10.1142/S0218843097000021.
- [523] Michael N. Huhns and Munindar P. Singh. “Formal Methods in Cooperative Information Systems: Heterogeneous Databases.” *International Journal of Cooperative Information Systems (IJCIS)* 5(4), December 1996. Guest editorial, pages 365–366. DOI: 10.1142/S0218843096000191.

### 3.14 Miscellaneous External Publications

These are position statements, short encyclopedia articles, and such.

- [524] Amit K. Chopra, Samuel H. Christie V, and Munindar P. Singh. “Interaction-Oriented Programming: An Application Semantics Approach for Engineering Decentralized Applications.” *Proceedings of the ACM Symposium on Principles of Distributed Computing (PODC)*. Online: ACM, July 2021, pages 575–576. DOI: 10.1145/3465084.3467486.
- [525] Nirav Ajmeri, Pradeep K. Murukannaiah, and Munindar P. Singh. “Ethics in Self-\* Sociotechnical Systems: (Tutorial Abstract).” *Proceedings of the International IEEE Conference on Autonomic Computing and Self-Organizing Systems (ACSOS), Companion Volume*. Washington, DC: IEEE, August 2020, page 249. DOI: 10.1109/ACSOS-C51401.2020.00070.
- [526] Pradeep K. Murukannaiah, Nirav Ajmeri, Muhammad Fazalul Rahman, and Munindar P. Singh. *A Dataset of Crowdsourced Smarthome Requirements with Creativity Ratings*. Version 1.0.0. Zenodo is an open science data repository created by the European Commission. November 2019. DOI: 10.5281/zenodo.3550721.
- [527] Ricard López Fogués, Pradeep K. Murukannaiah, Jose M. Such, Agustin Espinosa, Ana Garcia-Fornes, and Munindar P. Singh. “Argumentation for Multi-Party Privacy Management.” *Proceedings of the 2nd International Workshop on Agents and CyberSecurity (ACySE)*. Position Paper. Istanbul: Not formally published, May 2015, pages 3–6. URL: <https://core.ac.uk/display/42414741>.
- [528] Chung-Wei Hang, Nirav Ajmeri, Munindar P. Singh, and Simon Parsons. “Argumentation, Evidence, and Schemes: Abstract.” *Proceedings of the 10th International Workshop on Argumentation in Multi-Agent Systems (ArgMAS 2013)*. May 2013, page 37.
- [529] Munindar P. Singh and Nirmal Desai. “Multidisciplinary Views of Business Contracts.” *Proceedings of the 8th International Conference on Service-Oriented Computing (ICSOC)*. Lecture Notes in Computer Science 6470. Springer, 2010, page 730. DOI: 10.1007/978-3-642-17358-5\_76.

- [530] Sven Koenig, Sarit Kraus, Munindar P. Singh, and Michael Wooldridge. “Report on the Fourth International Joint Conference on Autonomous Agents and Multiagent Systems.” *AI Magazine* 27(1), 2006, pages 103–107. doi: 10.1609/aimag.v27i1.1870.
- [531] Michael N. Huhns, Munindar P. Singh, Mark H. Burstein, Keith S. Decker, Edmund H. Durfee, Timothy W. Finin, Les Gasser, Hrishikesh J. Goradia, Nicholas R. Jennings, Kiran Lakkaraju, Hideyuki Nakashima, H. Van Dyke Parunak, Jeffrey S. Rosenschein, Alicia Ruvinsky, Gita Sukthankar, Samarth Swarup, Katia P. Sycara, Milind Tambe, Thomas Wagner, and Rosa Laura Zavala Gutierrez. “Research Directions for Service-Oriented Multiagent Systems.” *IEEE Internet Computing (IC)* 9(6), November 2005, pages 65–70. doi: 10.1109/MIC.2005.132.
- [532] Munindar P. Singh. “Business Process Management: A Killer App for Agents?” *Proceedings of the 3rd International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. New York: ACM Press, July 2004, page 26. doi: 10.1109/AAMAS.2004.10046.
- [533] Munindar P. Singh. “Peer-to-Peer Computing for Information Systems.” *Proceedings of the 1st International Workshop on Agents and Peer-to-Peer Computing (AP2PC 2002)*. Lecture Notes in Computer Science 2530. Springer, July 2003, pages 15–20. doi: 10.1007/3-540-45074-2\_2.
- [534] Munindar P. Singh. “Agents.” *Computer Sciences Encyclopedia*. Edited by Roger R. Flynn. Farmington Hills, Michigan: Macmillan, 2002. ISBN: 978-0028655666.
- [535] Munindar P. Singh. “Embedded Technology (Ubiquitous Computing).” *Computer Sciences Encyclopedia*. Edited by Roger R. Flynn. Farmington Hills, Michigan: Macmillan, 2002. ISBN: 978-0028655666.
- [536] Munindar P. Singh. “Internet Technology.” *IEEE Concurrency* 8(1), January 2000. Part of a *Trend Wars* collection of interviews conducted by Dejan Milojevic that appears on pages 70–81, pages 79–81. doi: 10.1109/MCC.2000.824315.
- [537] Munindar P. Singh and Mona Singh. “Deconstructing the “Any” Key.” *Communications of the ACM (CACM)* 43(4), April 2000, pages 107–108. doi: 10.1145/332051.332081.
- [538] Munindar P. Singh, Daniel G. Bobrow, Michael N. Huhns, Margaret King, Hiroaki Kitano, and Ray Reiter. “The Next Big Thing: Position Statements.” *Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI)*. August 1997, pages 1511–1522. URL: <https://www.ijcai.org/Proceedings/97-2/Papers/103.pdf>.
- [539] Munindar P. Singh. *Principles of Standardization. Foundation of Intelligent Physical Agents (FIPA)*, Palo Alto, position statement. January 1998.
- [540] Munindar P. Singh. “Interaction-Oriented Programming for the Web.” *Proceedings of the 2nd IF-CIS International Conference on Cooperative Information Systems (CoopIS)*. My statement appears as page 75 of a writeup appearing under the name of the panel organizer, doi: 10.1109/COOPIS.1997.613804. Kiawah Island, South Carolina, June 1997.

### 3.15 Tutorial Notes

I list only the latest of the major variants of my tutorial notes, which I hand out to tutorial attendees. These are sometimes cited in the literature.

- [541] (Amit K. Chopra and Munindar P. Singh), “Interaction-Oriented Programming: Abstractions for Engineering Decentralized Multiagent Systems.” Tutorial notes. May 2023.
- [542] (Pradeep K. Murukannaiah, Nirav Ajmeri, and Munindar P. Singh), “Ethics in Sociotechnical Systems.” Tutorial notes. February 2022.
- [543] (Amit K. Chopra and Munindar P. Singh), “Programming for Autonomy.” Tutorial notes. June 2020.
- [544] (Pradeep K. Murukannaiah, Nirav Ajmeri, and Munindar P. Singh), “Ethics in Sociotechnical Systems.” Tutorial notes. May 2020.
- [545] (Amit K. Chopra and Munindar P. Singh), “Engineering Distributed Systems via Protocols and Commitments.” Tutorial notes. January 2019.
- [546] (Munindar P. Singh and Amit K. Chopra), “The Internet of Things and Multiagent Systems.” Tutorial notes. July 2015, July 2016.
- [547] (Amit K. Chopra and Munindar P. Singh), “Decentralized Multiagent Systems.” Tutorial notes. March 2015.
- [548] (Amit K. Chopra and Munindar P. Singh), “Commitments in Software Engineering.” Tutorial notes. May 2013.
- [549] (Munindar P. Singh and Nirmal Desai), “Multidisciplinary Views of Business Contracts.” Tutorial notes. December 2010.
- [550] (Munindar P. Singh and Michael N. Huhns) “Fundamentals of Web Services.” Tutorial notes. 2002.
- [551] (Munindar P. Singh and Michael N. Huhns) “Service Composition Techniques.” Tutorial notes. 2002.
- [552] (Munindar P. Singh and Michael N. Huhns) “Agent Technology and Electronic Commerce.” Tutorial notes. 1999.
- [553] (Munindar P. Singh and Michael N. Huhns) “Principles of Agents and Multiagent Systems: Social, Ethical, and Legal Abstractions and Reasoning.” Tutorial notes. 1999.
- [554] (Munindar P. Singh and Michael N. Huhns) “Agents and Multiagents in Information-Rich Applications.” Tutorial notes. 1997–1998.
- [555] (Michael N. Huhns and Munindar P. Singh) “Cooperative Information Systems.” Tutorial notes. 1994–1996.

### 3.16 Invited Conference and Workshop Presentations

1. “Socially Intelligent Civic Infrastructure and Challenges for AI Ethics.” *Citizen-Centric Multi-Agent Systems (CMAS)*, AAMAS, London, May 2023.
2. “Consent as a Foundation for Responsible Autonomy.” *International Workshop on Coordination, Organizations, Institutions, Norms and Ethics for Governance of Multi-Agent Systems (COINE)*, Online, May 2022.
3. “Interaction-Oriented Programming for Decentralized Service Engagements.” *Twenty-second International Conference on Web Information Systems Engineering (WISE)*, Melbourne, October 2021.

4. “Deserv: Decentralized Serverless Computing.” *Nineteenth IEEE International Conference on Web Services (ICWS)*, Online, September 2021.
5. “Socially Intelligent Infrastructure: Vision and Challenges in a Sociotechnical Systems Perspective.” *South Big Data Hub’s All Hands Meeting*, University of Virginia, Charlottesville (virtually), July 2021.
6. “Autonomous Agents and Ethical Multiagent Systems.” *Nineteenth International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, Auckland (virtually), May 2020.
7. “Engineering Ethical Multiagent Systems.” *International Workshop on Engineering Multiagent Systems (EMAS)*, Montréal, May 2019.
8. “Security, Privacy, and Accountability: Foundations in Sociotechnical Systems.” Joint session of *International Workshop on Engineering Multiagent Systems (EMAS)* and *International Workshop on Coordination, Organization, Institutions and Norms in Agent Systems (COIN)*, Singapore, May 2016.
9. “NoBPM: Supporting Interaction-Oriented Automation via Normative Specifications of Processes.” *Thirteenth International Conference on Business Process Management (BPM)*, Innsbruck, Austria, September 2015.
10. “Accountability as a Foundation for Requirements in Sociotechnical Systems.” *International Workshop on Coordination, Organization, Institutions and Norms in Agent Systems (COIN)*, Buenos Aires, July 2015.
11. “Toward New Foundations for Computational Trust.” *CROSSING: Where Quantum Physics, Cryptography, System Security and Software Engineering Meet*, Darmstadt, Germany, June 2015.
12. “Toward a Science of Security (and Governance) in Service Systems.” *IEEE Services and Big Data Congress*, which combines IEEE Conferences on *Cloud Computing, Big Data, Mobile Services, Service Computing*, and *Web Services*, Anchorage, June 2014.
13. “Honest-to-Goodness Social Computing: Challenges and Opportunities for Multiagent Systems.” *First International Workshop on Multiagent Foundations of Social Computing (MFSC)*, Paris, May 2014.
14. “The Science of Security: Introduction from the Perspective of Secure Collaboration.” *First International Workshop on Agents and CyberSecurity (ACySe)*, Paris, May 2014.
15. “Trust and Emotions.” *Seventeenth International Workshop on Trust in Agent Societies*, Paris, May 2014.
16. “Honest-to-Goodness Social Computing: Critique of Current Research and a Call to Arms.” *Joint Session of Dagstuhl Seminars on Crowdsourcing and Cloud Services*, Wadern, Germany, September 2013.
17. “Bringing Commitments and Other Norms to Practice.” *Invitational Workshop on Norms and Multiagent Systems (NorMAS)*, Leiden, The Netherlands, August 2013.
18. “Can’t We All Just Get Along? Agreement Technologies and the Science of Security.” *International Conference on Agreement Technologies (AT)*, Beijing, August 2013.
19. “Governing Sociotechnical Systems: Combining Norms and Policies.” *Thirteenth IEEE International Symposium on Policies for Distributed Systems and Networks (POLICY)*, Chapel Hill, July 2012.

20. "Governing Sociotechnical Systems." Joint Session of the *International Conferences on Web Intelligence and Intelligent Agent Technologies*, Lyon, August 2011.
21. "Governing Sociotechnical Systems." *Fifth International iStar Workshop*, Trento, Italy, August 2011.
22. "Trust as a Basis for Social Computing." *RE Workshop on Requirements Engineering for Social Computing*, Trento, Italy, August 2011.
23. "Institutions as a Basis for Service Engagements." *AAMAS Workshop on Agent-Oriented Software Engineering (AOSE)*, Taipei, May 2011.
24. "Understanding Identity as a Social Construct: Preliminary Thoughts." *International Conference on Service-Oriented Computing (ICSOC)*, San Francisco, December 2010.
25. "Understanding Identity: Preliminary Thoughts." *Thirteenth International Workshop on Trust in Agent Societies*, Toronto, May 2010.
26. "Programming MAS without Programming Agents." *Seventh International Workshop on Programming Multi-Agent Systems (ProMAS)*, Budapest, May 2009.
27. "Interaction-Oriented Programming: Commitments and Protocols for Business Processes." Invited lecture at *MALLOW: Multi-Agent Logics, Languages, and Organisations—Federated Workshops*, Durham, UK, September 2007.
28. "Commitment-Based SOA." Invited lecture at *Workshop on Agents, Web Services and Ontologies: Integrated Methodologies (Awesome)*, Durham, UK, September 2007.
29. "P2P and Service-Oriented Architectures." *International Workshop on Agents and Peer-to-Peer Computation*, Hawaii, May 2007.
30. "Agent Organizations and Service-Oriented Computing." *International Workshop on Coordination, Organization, Institutions and Norms in Agent Systems (COIN)*, Hawaii, May 2007.
31. "Service-Oriented Computing Roundtable." *International Workshop on Coordination, Organization, Institutions and Norms in Agent Systems (COIN)*, Hawaii, May 2007.
32. "Interaction-Oriented Programming for Organizational Computing." Invited panel presentation in a panel on "Organizational Computing." *Sixth International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*, Hawaii, May 2007.
33. "Interaction-Oriented Programming: Concepts, Theories, and Results on Commitment Protocols." Keynote lecture at *Australian Artificial Intelligence Conference (AI)*, Hobart, Tasmania, December 2006.
34. "Governance of Cyberinfrastructure: Motivation, Concepts, Approach, Call to Arms." Keynote lecture at *Workshop on Service Oriented Computing for e-Science*, Toronto, October 2006.
35. "Agents to Bridge the Business-IT Divide." Invited presentation in a panel on "Will Agent-Oriented Reshape IS Theory and Practice?" *International Workshop on Agent-Oriented Information Systems (AOIS)*, Hakodate, Japan, May 2006.
36. "Business Process Adaptations via Protocols." *International Workshop on Agent-Oriented Information Systems (AOIS)*, Hakodate, Japan, May 2006.

37. "An Overview of Commitment Facets and Visibility for Interorganizational Processes." *First International Workshop on Coordination of Inter-Organizational Workflows: Agent and Semantic Web Based Models (CIOW)*, Hakodate, Japan, May 2006.
38. "Understanding Policies in Commitment Protocols." *International Workshop on Declarative Agent Languages and Technologies (DALT)*, Hakodate, Japan, May 2006.
39. "From Protocols to Processes." *International Workshop on Agent-Oriented Information Systems (AOIS)*, New York, July 2004.
40. "From Protocols to Processes." *Web Services and Agent-Based Engineering*, New York, July 2004, Keynote lecture.
41. "A Pragmatics Perspective on Web Services." Joint panel session of the workshops on *Challenges in Open Agent Systems*, *Ontologies in Agent Systems*, and *Web Services and Agent-Based Engineering*, July 2003.
42. "Referrals for Reputation." *First Interdisciplinary Symposium on Online Reputation Mechanisms*, Cambridge, Massachusetts, April 2003. Sponsored by the National Science Foundation and the MIT Center for e-Business.
43. (Munindar P. Singh and Pinar Yolum) "Trust Roundtable." *International Workshop on Agents and Peer-to-Peer Computation*, Bologna, July 2002.
44. "A Model for P2P Computation." *International Workshop on Agents and Peer-to-Peer Computation*, Bologna, July 2002.
45. "The Pragmatic Web: Preliminary Thoughts." *NSF-OntoWeb Workshop on Database and Information Systems Research for Semantic Web and Enterprises*, Amicalola Falls State Park, Georgia, April 2002.
46. (Pinar Yolum and Munindar P. Singh) "Commitment Machines." *International Workshop on Agent-Oriented Information Systems (AOIS)*, Montréal, June 2001.
47. "Agents and Multiagent Systems: Concepts and Directions." *Fifth International Congress on Computer Science Research*, Aguascalientes, Mexico, November 1998. Sponsored by the Mexican National Academy of Computer Science Research.
48. "The Dialectic of Practical Reasoning." *ECAI Workshop on Practical Reasoning*, Brighton, August 1998.
49. "Agent Mobility Considered Harmful." Invited presentation in a panel on "The Future of Adaptive and Mobile Information Agents-Travelling Bandits on the Information Highway, or Powerful Information Providers?" *Second International Workshop on Cooperative Information Agents (CIA)*, Paris, July 1998.
50. "A Social View of Rationality." Invited presentation in a panel on "Is Rationality an Objective or a Subjective Notion?" *ECAI Workshop on Practical Representation and Reasoning*, Brighton, August 1998.
51. "Challenges in Empirical Studies of Multiagent Systems." Invited presentation in a panel on "Design of Computational Experiments." *ECAI Workshop on Empirical Artificial Intelligence*, Brighton, August 1998.

52. “The Dialectic of Science: Interaction-Oriented Programming Applied.” *Third NSF-CONACyT Computer Science Workshop*, Universidad de las Americas, Puebla, Mexico, June 1998.
53. “Multiagent Systems in Information-Rich Environments.” *Second International Workshop on Cooperative Information Agents (CIA)*, Paris, July 1998. Invited talk.
54. “Conceptual Modeling for Multiagent Systems.” *ER-97 Symposium on Conceptual Modeling: Historical Perspectives and Future Directions*, Los Angeles, November 1997. Invited talk.
55. “Challenges for Mobile Agents.” *Workshop of Mobile Agents and Security (MAAS)*, Maryland Center for Telecommunications Research, University of Maryland Baltimore County, Baltimore, October 1997. Invited talk.
56. “Business Applications of Multiagent Systems.” *IJCAI Workshop on Business Applications of Artificial Intelligence*, Nagoya, Japan, August 1997. Invited talk.
57. “Interaction-Oriented Programming for the Web.” Invited presentation in a panel on “Cooperative Multiagent Systems for the Web.” *Second IFCIS International Conference on Cooperative Information Systems (CoopIS)*, Charleston, June 1997.
58. “Challenges to Machine Learning in Cooperative Information Systems.” *ECAI Workshop on Learning in Distributed Artificial Intelligence Systems*, Budapest, August 1996. Invited talk.
59. *International Conference on Multiagent Systems (ICMAS) Workshop on Norms, Obligations, and Conventions*, Kyoto, December 1996. Invited panel presentation.
60. “Commitments in Multiagent Systems.” *International Conference on Multiagent Systems (ICMAS)*, San Francisco, June 1995. Invited panel presentation.

### 3.17 Other Invited Presentations

1. (with students Zhen Guo and Shrey Anand) “Understanding and Supporting Analytics.” InfoSys, Durham, December 2018.
2. “Honest-to-Goodness Social Computing: Challenges and Opportunities for Multiagent Systems.” Technical University of Delft, Delft, The Netherlands, February 2015.
3. “The Science of Security: Introduction from the Perspective of Secure Collaboration.” Technical University of Delft, Delft, The Netherlands, February 2015.
4. “The Science of Security: Ensuring Secure Collaboration.” Keynote at Annual Research Review, University of Georgia, Athens, April 2014.
5. “The Science of Security: Introduction from the Perspective of Secure Collaboration.” University of Lancaster, Lancaster, UK, February 2014.
6. “Trust (and Commitments) as a Unifying Basis for Social Computing.” INRIA Roquencourt, Paris, August 2013.
7. “Understanding Service Engagements.” Xerox Research Center, Webster, New York, February 2013.
8. “Governing Sociotechnical Systems.” Presentation at the University of Wollongong, Australia, May 2012.

9. "Governing Sociotechnical Systems." Presentation at the University of Trento, Trento, Italy, April 2012.
10. "LoST: Local State Transfer—An Architectural Style for the Distributed Enactment of Business Protocols." Presentation at University of Trento, Trento, Italy, April 2012.
11. "LoST: Local State Transfer—An Architectural Style for the Distributed Enactment of Business Protocols." Presentation at Rochester Institute of Technology, Rochester, New York, October 2012.
12. "Modeling and Analyzing Contracts." Hewlett-Packard Research Laboratories, Palo Alto, March 2010.
13. "Trust as a Unifying Basis for Social Computing." *Interdisciplinary Workshop on Trust*, Paris, December 2010.
14. "Trust as a Basis for Social Computing." *ARO Workshop on Social Computing*, College Park, Maryland, July 2010.
15. "Trust and Reputation in Multiagent Systems: Rational Agents and Dynamics." ARL Network Science Collaborative Technology Alliance Kick Off Meeting, Cambridge, Massachusetts, June 2010.
16. "Community Standards for Agent Communication: A Manifesto." *AAMAS Workshop on Agent Communication*, Toronto, May 2010.
17. "Trust and Reputation in Multiagent Systems: Rational Agents and Dynamics." University of Luxembourg, Luxembourg, April 2010.
18. "Governing Cross-Organizational Service Agreements: A Policy-Based Approach." Invited lecture at *Southampton University*, Southampton, UK, September 2007.
19. "Putting Services Back in Service Orientation: Commitments in Architecture and Governance." Invited lecture at *ChannelAdvisor Inc.*, Morrisville, North Carolina, June 2007.
20. "Interaction-Oriented Programming: Concepts, Theories, and Results on Commitment Protocols." Invited lecture at *IBM TJ Watson Research Laboratory*, Hawthorne, New York, November 2006.
21. "Referral Systems: Applications in Knowledge Management and Emergent Properties." Invited lecture at *Université de Montréal*, Montréal, November 2006.
22. "Referral Systems: Formulation and Emergent Properties." University of Otago, Dunedin, New Zealand, July 2006.
23. "Referral Systems: Formulation and Emergent Properties." Hewlett-Packard Research Laboratories, Palo Alto, March 2006.
24. "Commitments for Business Processes: Overview of Concepts, Protocols, Machines, Compliance." Hewlett-Packard Research Laboratories, Palo Alto, August 2002.
25. "Agents Meet Databases: Steps Toward Interaction-Oriented Programming." Presentation at the Department of Mathematical Sciences, University of North Carolina, Greensboro, April 1998.
26. "Agents Meet Databases: Introduction to Interaction-Oriented Programming." Presentation at the Center for Advanced Computing, University of Southwestern Louisiana, Lafayette, April 1998.

27. “Principles of Standardization for Agent Communication.” Presentation to the 5th Meeting of the Foundation for Intelligent Physical Agents (FIPA), Palo Alto, January 1998.
28. “Steps Toward Interaction-Oriented Programming.” Presentation at the Information Sciences Institute (ISI), University of Southern California, Marina del Rey, November 1997.
29. “Interaction-Oriented Programming: Agent Technology for Virtual Enterprises and Electronic Commerce.” Presentation at the Center for Communication and Information Sciences (CCIS) Lecture Series on Electronic Commerce and High Performance Computing, University of Nebraska, Lincoln, October 1997.
30. “Steps Toward Interaction-Oriented Programming.” Presentation at the NTT Communication Science Laboratories, Kyoto, August 1997.
31. “Comments on Agents and Workflows.” Presentation at IBM, RTP, North Carolina, June 1997.
32. “Considerations on Agent Communication.” Presentation to the 5th Meeting of the Foundation for Intelligent Physical Agents (FIPA), Reston, Virginia, April 1997.
33. “Agent Techniques for Open Information Environments.” Presentation in the Triangle Public Lectures Series. SAS Institute, Cary, North Carolina, February 1996.
34. International Computer Science Institute (ICSI), Berkeley, California, November 1991.
35. University of Erlangen, Nuremberg, Germany, August 1991.
36. German Research Center for Artificial Intelligence (DFKI), Kaiserslautern, Germany, July 1991.
37. German Research Center for Artificial Intelligence (DFKI), Saarbrücken, Germany, July 1991.

### 3.18 Impact of Scholarly Contributions

#### Invitations to Prestigious Events

- NSF “Beyond the Internet” workshop on Software Defined Infrastructure and Software Defined Exchanges, February 2016.
- Microsoft Research’s SemGrail Workshop, June 2007.
- Google Faculty Summit, July 2007.
- Microsoft Faculty Summit, July 2005, 2006 (declined), 2007, 2011 (declined), 2012 (declined).
- NSF IIS/GENI Workshop, November 2006.
- NSF-OntoWeb Workshop on Database and Information Systems Research for Semantic Web and Enterprises, April 2002.
- NSF Workshop on Workflow and Process Automation in Information Systems: State-of-the-art and Future Directions, April 1996.

**Inclusion in Collection** The following book consists of reprints of three “crucial” papers and several new contributed chapters. My paper [105] is one of the three reprinted papers.

- Marc-Philippe Huget, editor, *Communication in Multiagent Systems*, Lecture Notes in Artificial Intelligence 2650, Springer-Verlag, Berlin, 2003.

**Reviews** These are published reviews of my works.

1. José M. Vidal, “Review of Gerhard Weiß (editor), *Multiagent Systems: A Modern Approach to Distributed Artificial Intelligence.*” *Autonomous Agents and Multi-Agent Systems*, volume 2, number 4, December 1999, pages 403–408. I contributed a chapter [401] to the reviewed book; this chapter is discussed on page 407 of the review.
2. Jeff White, “Review of Readings in Agents” (my book [3]). *Journal of the American Society for Information Science*, 49(14):1330–1332, December 1998.
3. Hyacinth S. Nwana, “Review of Readings in Agents” (my book [3]). *Journal of Logic and Computation*, 8(3):448–450, June 1998.

## 4 Patents

In 2017, Facebook acquired a company that had acquired my startup, Ektimisi Semiotics. The main part of the acquisition was a portfolio of 35 patents of which I am the sole or lead inventor. This information is available in an industry report from the business intelligence firm, Relecura (see [https://relecura.com/wp-content/uploads/2017/12/Facebook\\_Relecura\\_Report\\_20171221.pdf](https://relecura.com/wp-content/uploads/2017/12/Facebook_Relecura_Report_20171221.pdf), Table “Key Acquisitions” on Page 5.)

The following patents demonstrate practical applications of agents and policies and concern middleware for location and context to enable intelligent mobile apps.

1. Munindar P. Singh and Mona Singh. “System and Method for Identifying a Location of Interest to be Named by a User.” US Patent #10,200,821. Awarded February 2019.
2. Munindar P. Singh and Mona Singh. “Method, System, and Computer Program Product for Delivering Smart Services.” US Patent #10,154,099. Awarded December 2018.
3. Munindar P. Singh and Mona Singh. “System and Method for Providing a Descriptor for a Location to a Recipient.” US Patent #9,992,629. Awarded June 2018.
4. Munindar P. Singh and Mona Singh. “Apparatus and method for Providing a Task Reminder based on User Location.” US Patent #9,990,833. Awarded June 2018.
5. Munindar P. Singh and Mona Singh. “System and Method for Naming a Location Based on User-Specific Information.” US Patent #9,846,045. Awarded December 2017.
6. Munindar P. Singh and Mona Singh. “System and Method for Identifying a Location of Interest to be Named by a User.” US Patent #9,635,511. Awarded April 2017.
7. Munindar P. Singh and Mona Singh. “System and Method for Providing a Descriptor for a Location to a Recipient.” US Patent #9,538,324. Awarded January 2017.
8. Munindar P. Singh and Mona Singh. “Apparatus and Method for Providing a Task Reminder based on User Location.” US Patent #9,449,489. Awarded September 2016.
9. Munindar P. Singh and Mona Singh. “Method and Apparatus for Providing a Contextual Description of an Object.” US Patent #9,396,185. Awarded July 2016.
10. Munindar P. Singh. “Automatic Generation of Metadata for a Digital Image based on Meteorological Conditions.” US Patent #9,342,534. Awarded May 2016.
11. Munindar P. Singh and Mona Singh. “System and Method for Naming a Location based on User-Specific Information.” US Patent #9,338,240. Awarded May 2016.
12. Munindar P. Singh and Mona Singh. “System and Method for Providing Notification of a Task.” US Patent #9,189,947. Awarded November 2015.
13. Munindar P. Singh and Mona Singh. “System and Method for Providing a Descriptor for a Location to a Recipient.” US Patent #9,055,109. Awarded June 2015.
14. Munindar P. Singh and Mona Singh. “System and Method for Identifying a Location of Interest to be Named by a User.” US Patent #8,935,244. Awarded January 2015.
15. Munindar P. Singh. “Automatic Generation of Metadata for a Digital Image Based on Ambient Conditions.” US Patent #8,842,197. Awarded September 2014.

16. Munindar P. Singh and Mona Singh. "System and Method for Naming a Location Based on User-Specific Information." US Patent #8,750,892. Awarded June 2014.
17. Munindar P. Singh and Mona Singh. "Methods, Systems, and Computer Program Products for Role- and Locale-Based Mobile User Device Feature Control." US Patent #8,738,029. Awarded May 2014.
18. Munindar P. Singh and Mona Singh. "System and Method for Providing a Descriptor for a Location to a Recipient." US Patent #8,737,969. Awarded May 2014.
19. Munindar P. Singh and Mona Singh. "Policy Based Controls for Wireless Cameras." US Patent #8,660,534. Awarded February 2014.
20. Munindar P. Singh and Mona Singh. "Apparatus and Method for Providing a Task Reminder based on Travel History." US Patent #8,648,715. Awarded February 2014.
21. Munindar P. Singh and Mona Singh. "System and Method for Providing a Task Reminder." US Patent #8,614,628. Awarded December 2013.
22. Munindar P. Singh and Mona Singh. "Method, System, and Computer Program Product for Delivering Smart Services." US Patent #8,611,870. Awarded December 2013.
23. Munindar P. Singh and Mona Singh. "System and Method for Identifying a Location of Interest to be Named by a User." US Patent #8,554,765. Awarded October 2013.
24. Munindar P. Singh and Mona Singh. "System and Method for Providing a Task Reminder." US Patent #8,471,696. Awarded June 2013.
25. Munindar P. Singh and Mona Singh. "System and Method for Identifying a Location of Interest to be Named by a User." US Patent #8,407,213. Awarded March 2013.
26. Munindar P. Singh and Mona Singh. "Apparatus and Method for Providing a Task Reminder based on Travel History." US Patent #8,400,293. Awarded March 2013.
27. Munindar P. Singh and Mona Singh. "Method, System, and Computer Program Product for Creating Smart Services." US Patent #8,311,525. Awarded November 2012.
28. Munindar P. Singh and Mona Singh. "Policy-Based Controls for Wireless Cameras." US Patent #8,238,879. Awarded August 2012.
29. Munindar P. Singh and Mona Singh. "System and Method for Providing a Task Reminder." US Patent #8,188,856. Awarded May 2012.
30. Munindar P. Singh and Mona Singh. "Method, System, and Computer Program Product for Delivering Smart Services." US Patent #8,145,581. Awarded March 2012.
31. Munindar P. Singh and Mona Singh. "Methods, Systems, and Computer Program Products for Role- and Locale-Based Mobile User Device Feature Control." US Patent #8,145,241. Awarded March 2012.
32. Munindar P. Singh and Mona Singh. "Apparatus and Method for Providing a Task Reminder based on Travel History." US Patent #8,138,912. Awarded March 2012.

33. Munindar P. Singh and Mona Singh. "System and Method for Providing a Descriptor for a Location to a Recipient." US Patent #8,099,086. Awarded January 2012.
34. Munindar P. Singh and Mona Singh. "Method, System, and Computer Program Product for Creating Smart Services." US Patent #8,099,084. Awarded January 2012.
35. Munindar P. Singh and Mona Singh. "Method, System, and Computer Program Product for Adaptively Learning User Preferences for Smart Services." US Patent #8,041,658. Awarded October 2011.
36. Munindar P. Singh and Mona Singh. "System and Method for Providing a Task Reminder based on Historical Travel Information." US Patent #7,999,669. Awarded August 2011.
37. Munindar P. Singh and Mona Singh. "Method, System, and Computer Program Product for Delivering Smart Services." US Patent #7,991,711. Awarded August 2011.
38. Munindar P. Singh and Mona Singh. "Policy-Based Controls for Wireless Cameras." US Patent #7,869,790. Awarded January 2011.
39. Munindar P. Singh and Mona Singh. "Method, System, and Computer Program Product for Delivering Smart Services." US Patent #7,765,173. Awarded July 2010.
40. Munindar P. Singh and Mona Singh. "System and Method for Providing a Task Reminder Based on Historical Travel Information." US Patent #7,649,454. Awarded January 2010.
41. Munindar P. Singh and Mona Singh. "Method, System, and Computer Program Product for Adaptively Learning User Preferences for Smart Services." US Patent #7,647,283. Awarded January 2010.
42. Munindar P. Singh and Mona Singh. "Methods, Systems, and Computer Program Products for Presenting Topical Information Referenced during a Communication." "US Patent #7,606,856. Awarded October 2009.
43. Munindar P. Singh and Mona Singh. "Apparatus and Method for Providing a Task Reminder Based on Travel History." US Patent #7,528,713. Awarded May 2009.
44. Munindar P. Singh and Billy G. Moon. "Stored Data Object Management and Archive Control." US Patent #6,490,597. Awarded December 2002.
45. Munindar P. Singh. "Lazy Updates of Profiles in a System of Communication Devices." US Patent #6,298,228. Awarded October 2001.

## 5 Research Sponsorship

Tables 1, 2, and 3 summarize my funding record to help see how much of my funding is external and how much would be my prorated share for grants with multiple investigators.

Table 1: Funding by type.

<b>External cash</b>	<b>External equipment</b>	<b>Internal cash</b>	<b>Total</b>
\$21,797,689	\$26,500	\$148,272	\$21,972,461

Table 2: Funding by role.

<b>Role</b>	<b>Amount</b>
As principal investigator	\$8,157,778
As co-principal investigator	\$13,814,683
<b>Total</b>	\$21,972,461

Table 3: Prorated share of funding.

	<b>Aggregate</b>	<b>Prorated share</b>
As sole investigator	\$6,951,345	\$6,951,345
As one of two investigators	\$10,535,076	\$5,267,538
As one of three investigators	\$430,310	\$143,437
As one of four investigators	\$2,056,174	\$514,044
As one of five investigators	\$1,999,556	\$399,911
<b>Totals</b>	\$21,972,461	\$13,276,275

### 5.1 Ongoing Research Activities

1. (co-PI with Dr. Eleni Bardaka of CCEE) “SCC-IRG Track 1: Empathy and AI: Towards Equitable Microtransit.” National Science Foundation. Funded October 2023–September 2026 for \$49,556. Supplement.
2. (co-PI with Dr. Eleni Bardaka of CCEE) “SCC-IRG Track 1: Empathy and AI: Towards Equitable Microtransit.” National Science Foundation. Funded October 2023–September 2026 for \$1,800,000.
3. (sole PI) “RI: Small: Principles of Normative Multiagent Systems for Decentralized Applications.” National Science Foundation. Funded October 2019–September 2024 for \$8,000. Supplement.

4. (sole PI) “RI: Small: Foundations of Ethics for Multiagent Systems.” National Science Foundation. Funded October 2021–September 2024 for \$500,000.
5. (co-PI with Dr. Julie S. Ivy of ISE) “SCC: Serving Households in AREas with food Insecurity with a Network for Good: SHARING.” National Science Foundation. Funded October 2021–September 2025 for \$2,018,000.
6. (sole PI) “RI: Small: Principles of Normative Multiagent Systems for Decentralized Applications.” National Science Foundation. Funded October 2019–September 2024 for \$450,000.
7. (sole PI) “Realizing Cyber Inception: Toward a Science of Personalized Deception for Cyber Defense.” Army Research Office. Funded June 2017–August 2024 for \$618,720.

## 5.2 Past Research Activities

1. (co-PI with Dr. Eleni Bardaka of CCEE) “SCC-PG: Empathy and AI: Towards Equitable Microtransit.” National Science Foundation. Funded October 2021–September 2022 for \$150,000.
2. (co-PI with Dr. Laurie Williams) “Science of Security Lablet: Impact Through Research, Scientific Methods, and Community Development.” National Security Agency. Funded January 2021–March 2023 for \$836,477. Continuation.
3. (sole PI) “Achieving Resilience Against Cyber Threats in IT/OT Networks via Defensive Deception.” Texas Engineering Experiment Station (Texas A&M). Funded January 2021–December 2021 for \$225,000.
4. (sole PI) “Odbody: An Ethics and Privacy Guardian Angel for Social Media Users.” Award under the RFP *Agent-based User Interaction Simulation to Find and Fix Integrity and Privacy Issues*. Facebook. Funded January 2021–December 2021 for \$54,800.
5. (sole PI) “Cyber Defensive Deception based on Hypergame Theory for Tactical Networks.” Army Research Office. Funded December 2020–April 2023 for \$95,000.
6. (sole PI) “Understanding the Emotional Impact of COVID-19 Coverage in Popular Media, and its Implications.” University Global Partnership Network (UGPN). Funded July 2020–June 2021 for \$10,000.
7. (co-PI with Dr. Laurie Williams) “Science of Security Lablet: Impact Through Research, Scientific Methods, and Community Development.” National Security Agency. Funded January 2020–January 2021 for \$847,601. Continuation.
8. (sole PI) “Data Access and Governance over a Shared Ledger.” Center of Hybrid Multicore Productivity Research (CHMPR)–NCSU Research Site. Funded January 2020–June 2020 for \$37,149.
9. (sole PI) “Human-Machine Collaboration: Adaptive Declarative Workflows for Analytic Computing and Text Analytics.” National Security Agency through the Laboratory for Analytic Sciences. Funded January 2020–December 2020 for \$107,154.
10. (sole PI) “Artificial Intelligence for Sustainable Project Management.” University Global Partnership Network (UGPN). Funded July 2019–June 2020 for \$9,999.

11. (co-PI with Veljko Dubljević, William A. Bauer, George F. List) “Sociotechnical Principles for Computational Ethics of AV Systems and Other AI Technologies.” NC State’s Research and Innovation Seed Funding (RISF). Funded July 2019–June 2020 for \$38,174.
12. (sole PI) “Human-Machine Collaboration: Adaptive Declarative Workflows for Analytic Computing and Text Analytics.” National Security Agency through the Laboratory for Analytic Sciences. Funded January 2019–December 2019 for \$103,252.
13. (co-PI with Dr. Laurie Williams) “Science of Security Lablet: Impact Through Research, Scientific Methods, and Community Development.” National Security Agency. Funded January 2019–January 2020 for \$875,544. Continuation.
14. (sole PI) “Blockchain for Streamlining Multiparty Approval Processes and Infrastructure Support Engagement.” Shared University Research project. IBM. Funded November 2018–December 2019 for \$75,000.
15. (co-PI with Dr. Laurie Williams) “Science of Security Lablet: Impact Through Research, Scientific Methods, and Community Development.” National Security Agency. Funded January 2018–January 2019 for \$467,750.
16. (sole PI) “Creativity in Cybersecurity Analysis; and Adaptive Declarative Workflows for Analytic Computing.” National Security Agency through the Laboratory for Analytic Sciences. Funded January 2018–December 2018 for \$161,784.
17. (sole PI) “Analytic Component System.” National Security Agency through the Laboratory for Analytic Sciences. Funded January 2017–December 2017 for \$97,257.
18. (sole PI) “Contracts in Blockchains: Abstractions and Techniques.” IBM. Funded November 2016–December 2017 for \$30,000.
19. (sole PI) “User Experience (Tools for Intelligence Analytics).” National Security Agency through the Laboratory for Analytic Sciences. Funded January 2016–December 2016 for \$96,341.
20. (co-PI with Dr. Laurie Williams) “Growing the Science of Security through Analytics.” National Security Agency. Funded March 2016–March 2017 for \$2,207,905. Continuation.
21. (sole PI) “Informatics for Analytics.” National Security Agency through the Laboratory for Analytic Sciences. Funded April 2015–December 2015 for \$128,002.
22. (co-PI with Dr. Laurie Williams) “Growing the Science of Security through Analytics.” National Security Agency. Funded March 2015–March 2016 for \$2,224,102. Continuation.
23. (sole PI) “Mission Enabling.” National Security Agency through the Laboratory for Analytic Sciences. Funded May 2014–May 2015 for \$271,901.
24. (sole PI) “Knowledge Representation and Management.” National Security Agency through the Laboratory for Analytic Sciences. Funded May 2014–May 2015 for \$80,116.
25. (sole PI) “Analytic Workflow.” National Security Agency through the Laboratory for Analytic Sciences. Funded May 2014–May 2015 for \$61,570.
26. (co-PI with Dr. Laurie Williams) “Growing the Science of Security through Analytics.” National Security Agency. Funded February 2014–March 2015 for \$2,255,237.

27. (sole PI) “Analytic Workflow.” National Security Agency through the Laboratory for Analytic Sciences. Funded September 2013–September 2014 for \$43,889.
28. (sole PI) “Quality of Information-Aware Networks for Tactical Applications (QUANTA).” Army Research Laboratory under the Network Science Collaborative Technology Alliance. Funded October 2009–September 2014 for \$577,847.
29. (sole PI) “Policy-Based Governance for the OOI Cyberinfrastructure.” Joint Oceanographic Institutions. Funded September 2009–November 2013 for \$471,430.
30. (sole PI) “Social Media Relationship Analytics.” Whodini Inc. Funded March 2013–May 2013 for \$4,026.
31. (PI: John P. Streck) “Business Process Reengineering.” NC Division of Employment Security. Funded December 2012–February 2013 for \$30,000.
32. (sole PI) “Social Computing and Community Engagements for Collaborative Service Marketplace.” Xerox Corporation. Funded December 2012–November 2013 for \$55,000.
33. (sole PI) “On the Influence of Norms and Sanctions on Socio-Technical Systems Governance-An Agent-Based Simulation Approach.” University Global Partnership Network (UGPN). Funded March 2013–February 2014 for \$10,000.
34. (sole PI) “Normative Trust: Toward a Principled Basis for Enabling Trustworthy Decision Making.” National Security Agency. Funded May 2012–May 2013 for (NCSU’s share) \$101,410.
35. (sole PI with external subcontractor) “Argumentation as a Basis for Reasoning about Security.” National Security Agency. Funded May 2012–May 2015 for (NCSU’s share for the first year) \$120,682.
36. (sole PI) “Social Computing and Services.” Xerox Corporation. Funded October 2011–September 2012 for \$55,000.
37. (PI with Dr. Injong Rhee) “Platys: From Position to Place in Next Generation Networks.” National Science Foundation under the Network Science and Engineering Program. Funded September 2009–August 2013 for \$706,167.
38. (sole PI) “Policy-Based Governance for the OOI Cyberinfrastructure.” Joint Oceanographic Institutions. Funded January 2009–September 2009 for \$83,161.
39. (sole PI) “Policy-Based Governance for the OOI Cyberinfrastructure.” Joint Oceanographic Institutions. Funded June 2008–December 2008 for \$44,345.
40. (sole PI) “Policy-Based Governance for Virtual Computing.” Center for Advanced Computing and Communication. Funded July 2008–June 2009 for \$40,000.
41. (sole PI) “Policy-Based Governance for the OOI Cyberinfrastructure.” Joint Oceanographic Institutions. Funded September 2007–May 2008 for \$63,600.
42. (sole PI) “Service-Oriented Computing in Managed IT Environments.” IBM. Funded July 2007–June 2008 for \$30,000.
43. (sole PI) “Collaborative Argumentation System for Business Process Development.” Intel Research Council. Funded June 2007–December 2007 for \$20,000.

44. (sole PI) “Agent-Based Conceptual Model and Policy Architecture for Virtual Organizations.” Center for Advanced Computing and Communication. Funded July 2006–June 2007 for \$40,000.
45. (sole PI) “Protocols for Processes.” Defense Advanced Research Projects Agency Information Exploitation Office. Funded July 2005–September 2005 for \$60,000.
46. (sole PI) “Computational Principles of Trust.” National Science Foundation Information Technology Research Program. Funded September 2004–August 2006 for \$90,900.
47. (sole PI) “Computational Principles of Trust.” National Science Foundation Information Technology Research Program. Research Experiences for Undergraduates supplement. Funded September 2004–May 2005 for \$6,000.
48. (sole PI) “Protocols for Processes.” Defense Advanced Research Projects Agency Information Exploitation Office. Funded February 2004–December 2004 for \$160,000.
49. (PI: Mladen A. Vouk; co-PI: Munindar P. Singh) “Construction of Context-Based Services.” Center for Advanced Computing and Communication. Funded July 2002–June 2003 for \$44,337.
50. (sole PI) “Principles of Commitment Protocols.” National Science Foundation under the Digital Society and Technologies Program. Funded May 2002–May 2005 for \$345,000.
51. (sole PI) “Multiagent Systems for Networking and Telecommunications.” Cisco University Research Grant. Funded January 2001–December 2001 for \$68,000.
52. (sole PI) “Computational Principles of Trust.” National Science Foundation under the Information Technology Research Program. Funded September 2000–August 2006 for \$476,574.
53. (sole PI) “Multiagent Referral Systems for Knowledge Management.” IBM Partnership Award. Funded October 2000–September 2001 for \$40,000.
54. (PI: Munindar P. Singh; co-PIs: Robert A. St. Amant and Alan L. Tharp) “Intelligent Support for On-line Shopping.” O3C, Inc. Supplement to previous grant. Funded January 2000–May 2000 for \$66,789 (\$56,789 external plus \$10,000 (estimated) in cost sharing from NCSU).
55. (PI: Munindar P. Singh; co-PIs: Robert A. St. Amant and Alan L. Tharp) “Intelligent Support for On-line Shopping.” Lichtin Corporation and Centennial Venture Partners. Supplement to previous grant. Funded October 1999–December 1999 for \$38,250 (\$30,000 external plus \$8,250 in cost sharing from NCSU).
56. (PI: Munindar P. Singh; co-PIs: Robert A. St. Amant and Alan L. Tharp) “Intelligent Support for On-line Shopping.” Lichtin Corporation and Centennial Venture Partners. Supplement and extension to previous grant. Funded September 1999–June 2000 for \$87,613 (\$68,662 external plus \$18,951 in cost sharing from NCSU).
57. (sole PI) “Cooperative Information Systems.” National Science Foundation Computational and Social Systems (CSS) program. Supplement to Career Award. Funded August 1999–July 2000 for \$21,950.
58. (PI: Munindar P. Singh; co-PIs: Robert A. St. Amant and Alan L. Tharp) “Intelligent Support for On-line Shopping.” Lichtin Corporation and Centennial Venture Partners. Funded June 1999–December 1999. \$207,658 (\$169,760 external plus \$37,898 in cost sharing from NCSU).
59. (sole PI) “Multiagent Workflow Management.” Rational Software Corporation. Equipment (commercial software) grant for \$11,000.

60. (sole PI) “Multiagent Systems for a Network of Mobile Communicators.” Ericsson. Funded August 1998–May 1999 for a budget of \$66,424.
61. (sole PI) “Cooperative Agent-Based Systems.” IBM Partnership Award. Funded October 1998–September 1999 for \$24,500 (\$20,000 cash plus equipment, whose university price is about \$4,500).
62. (sole PI) “Healthcare Enterprise Information Management: Temporal and Modal Queries.” MCC (a subcontract awarded from a National Institute for Standards and Technology (NIST) contract). Funded January 1997–February 1998 for a budget of \$47,339.
63. (sole PI) “Cooperative Agent-Based Systems.” IBM Partnership Award. Funded October 1997–September 1998 for \$40,000.
64. (sole PI) “Cooperative Information Systems.” National Science Foundation Information Technology and Organizations (ITO) program. Supplement to Career Award. Funded August 1996–July 1997 for \$24,959.
65. (sole PI) “Cooperative Agent-Based Systems.” IBM Partnership Award. Funded October 1996–September 1997 for \$51,000 (\$40,000 cash plus equipment, whose university price is about \$11,000).
66. (sole PI) “Cooperative Information Systems.” National Science Foundation Information Technology and Organizations (ITO) program. Funded August 1996–July 2000 for a total budget of \$214,276.
67. (sole PI) “Principles of Semantic Interoperation.” National Science Foundation Database and Expert Systems (DBES) program. Funded May 1996–May 1999 for a total budget of \$216,988.
68. (sole PI) “Information Search via Intelligent Agents.” NCSU Faculty Research and Professional Development (FRPD) Award. Funded January 1996–May 1996 for a budget of \$5,000.
69. (PI: Munindar P. Singh; co-PI: Mona Singh) “Healthcare Enterprise Information Modeling.” MCC (a subcontract awarded from a National Institute for Standards and Technology (NIST) contract). Funded December 1995–December 1996 for a budget of \$69,956.

### 5.3 Research Sponsorship Obtained Prior to Joining NCSU

1. “Scalable Information Management via Intelligent Mediation.” Proposal in response to ARPA Broad Area Announcement (BAA) 94-01 *Advanced Computing Systems: Intelligent Integration of Information*. Accepted, February 1994. Funded at MCC, August 1995 (effective after I left MCC).
2. “Clinical Associate Consortium (CAC).” Proposal in response to ARPA BAA 94-13 *Health Information Infrastructure*. Accepted, April 1994.
3. “Intelligent, Scalable Interoperation for NIE.” White paper in response to ARPA BAA 94-28 *National-Scale Information Enterprises (NIE)*. Accepted, July 1994. Merged with the ARPA 94-01 proposal above.
4. The Carnot Project at MCC (January 1991–December 1994) was sponsored by ATT-GIS, Bellcore, Andersen Consulting, Eastman Chemical, DoD, Motorola, ARPA, and EPA.
5. The InfoSleuth Project at MCC (January 1995–June 1997) was sponsored by Eastman Chemical, DoD, Texas Instruments, Motorola, Hughes, ARPA, and EPA.

### 5.3.1 Other Service

- Conducted *AI in Society* seminar series, Fall 2022–present.

## 6 Professional Activities

### 6.1 Advisory Boards of Research Projects

- *CROSSING Collaborative Research Center on CyberSecurity*, Johannes Buchmann, Principal Investigator, Technische Universität Darmstadt, Germany (and affiliated schools), 2016–present. This is a ten-year, multimillion Euro project funded by the German Research Foundation (Deutsche Forschungsgemeinschaft DFG).
- *Turtles: Protocol-Based Foundations for Distributed Multiagent Systems*, Nobuko Yoshida (Imperial College London) and Amit K. Chopra (Lancaster University), Principal Investigators, 2016–2023. This was a multiyear, million Pound Sterling project funded by the Engineering and Physical Sciences Research Council of UK.
- *Lucretius: Foundations for Software Evolution*, John Mylopoulos, Principal Investigator, University of Trento, Italy, 2011–2016. This was a European Research Council “advanced” (for senior researchers) grant.
- *Liquid Publications: Scientific Publications meet the Web (LiquidPub)*, Fabio Casati, Carles Sierra, and others, Principal Investigators, 2010–2012. This was a multiinstitution, multimillion Euro project funded by the European Union.

### 6.2 Service on Expert Panels

- Vice Chair, IEEE Computer Society Fellows Evaluation Committee: 2024.
- ACM’s Heidelberg Laureate Forum Young Researcher Selection Committee: 2022, 2023, 2024.
- Member, Strategy Planning Workshop, ARO Military Information Science (MIS) Division: March 2024.
- Member, IEEE Computer Society Fellows Evaluation Committee: 2018, 2022, 2023.
- External reviewer, proposed Ph.D. program on Artificial Intelligence, University System of Georgia: 2022.
- Member, Strategy Workshop, ARO Computing Sciences Division: May 2011, November 2017.
- Member, Science Foundation Ireland’s progress review of *Lero—The Irish Software Research Centre*: May 2017.
- Member, expert panel on *Ensuring Cross-Enterprise Semantic Interoperability in Synoptic (Templated) Clinical Reporting*: 2008–2009.

This effort was sponsored by the Office of the Assistant Secretary for Planning & Evaluation (ASPE) (US Department of Health and Human Services) and the Pathology Electronic Reporting Committee of the College of American Pathologists.

### 6.3 Editorships and Editorial Boards

1. Editor-in-Chief, *ACM Transactions on Internet Technology (TOIT)*, December 2012–November 2018.
2. Charter Member of the Editorial Board, *Journal of Trust Management*, December 2013–December 2016. Published by Springer.
3. Member of the Editorial Board, *IEEE Transactions on Services Computing (TSC)*, September 2012–present.
4. Member of the Editorial Board, *ACM Transactions on Intelligent Systems and Technology (TIST)*, March 2012–present.
5. Member of the Editorial Board, *Journal of Artificial Intelligence Research (JAIR)*, July 2011–present. Published by the AI Access Foundation.
6. Charter Member of the Editorial Board, *Journal of Service Oriented Computing and Applications (SOCA)*, June 2006–December 2010. Published by Springer.
7. Charter Member of the Editorial Board, *International Journal of Agent-Oriented Software Engineering (IJAOSE)*, March 2005–February 2011. Published from 2006 by Inderscience.
8. Charter Member of the Editorial Board, *Journal of Web Semantics: Science, Services and Agents on the World Wide Web*, October 2002–October 2010 (began publication in 2003). Published by Elsevier.
9. Editor-in-Chief, *IEEE Internet Computing*, January 1999–December 2002. Associate Editor-in-Chief, *IEEE Internet Computing*, January 1998–December 1998. Charter Member of the Editorial Board, December 1996–December 1997 (first published January 1997) and January 2003–present. URL: <http://www.computer.org/internet/>
10. Charter Member of the Editorial Board, *Journal of Autonomous Agents and Multiagent Systems*, November 1997–present (first appeared July 1998). Published by Springer.

### 6.4 Guest Editorships

1. (with Christie V, Samuel H., Lalana Kagal, and Alessandro Ricci) *IEEE Internet Computing*, special issue on *Decentralized Systems*, volume 26, number 6, November–December 2022.
2. (with William A. Bauer, Veljko Dubljević, George F. List, Darby Orcutt) *AI & Society: Journal of Knowledge, Culture and Communication*, special issue on *Embedding AI in Society*; submissions due in 2021, publication scheduled for 2022.
3. (with Andrei Ciortea, Xiaomin Zhu, and Calton Pu) *ACM Transactions on Internet Technology*, special issue on *Multiagent Systems and Services in the Internet of Things*; submissions due in 2021, publication scheduled for 2022.
4. (with Nadin Kökcayan, Biplav Srivastava, and Michael N. Huhns) *IEEE Internet Computing*, special issue on *Sociotechnical Perspectives on AI Ethics and Accountability*, volume 25, number 6, November–December 2021.
5. (with Pradeep K. Murukannaiah) *IEEE Internet Computing*, the *Internet Ethics: Fairness, Accountability, Transparency* department, 2020–present. This department consists of an article in every other issue that introduces new work on ethics from the standpoint of Internet applications.

6. *IEEE Internet Computing*, the *Natural Web Interfaces* department, 2013–2018. This department consists of an article in every other issue that introduces new work on emerging user interfaces.
7. (with Rino Falcone) *ACM Transactions on Intelligent Systems and Technology*, special theme on *Trust in Multiagent Systems*, volume 4, number 2, March 2013.
8. (with Vinton G. Cerf) *IEEE Internet Computing*, special theme on *Internet Predictions*, volume 14, number 1, January-February 2010, pages 10–42.
9. (with Matei Ripeanu and Sudharshan Vazhkudai) *IEEE Internet Computing*, special theme on *Virtual Organizations*, volume 12, number 2, March-April 2008, pages 10–36.
10. *IEEE Internet Computing*, the *Spotlight* department, volumes 11 and 12, 2007–2008. This department consists of an article in each issue that introduces a relevant Internet computing technology.
11. *IEEE Internet Computing*, track on *Service-Oriented Computing*, volume 9, 2005. The track consisted of an article in each issue of this volume.
12. (with Michael Fisher, Diana Spears, Michael Wooldridge) *Journal of Applied Logic*, special issue on *Logics for Multiagent Systems*, volume 5, number 2, June 2007, pages 193–388.
13. *Communications of the ACM (CACM)*, special section on *Multiagent Systems on the Net*, volume 42, number 3, March 1999.
14. *International Journal of Cooperative Information Systems (IJCIS)*, special issue on *Selected Papers from CoopIS-97*, volume 6, numbers 3 and 4, September and December 1997.
15. *IEEE Internet Computing*, theme issue on *Agents*, volume 1, number 4, August 1997.
16. *International Journal of Cooperative Information Systems (IJCIS)*, special issues on *Formal Methods in Cooperative Information Systems* with the following themes: *Heterogeneous Databases*, volume 5, number 4, December 1996; *Multiagent Systems*, volume 6, number 1, January 1997.

## 6.5 Events Organized or Chaired

1. General Cochair, *IEEE International Conference on Services Computing (SCC)*, Barcelona, July 2022.
2. Track Cochair, *Fairness, Transparency, Accountability, and Privacy*, 30th ACM International Conference on User Modeling, Adaptation and Personalization (UMAP), Barcelona, July 2022.
3. Track Chair, *Social Networks and Crowdsourcing*, 37th IEEE International Conference on Distributed Computing Systems (ICDCS), Atlanta, June 2017.
4. General Cochair, *International Conference on Service-Oriented Computing (ICSOC)*, Banff, Alberta, Canada, 2016.
5. Program Cochair, International Symposium and Bootcamp on the Science of Security (HotSoS): 2014.
6. Chair, Challenges and Visions track, International Conference on Autonomous Agents and Multiagent Systems (AAMAS): 2014.
7. Program Cochair, Second International Conference on Mobile Services (MS), Santa Clara, California, 2013.

8. Member, Organizing Committee, International Workshop on Trust, Privacy, Deception, and Fraud, 2001–2004, 2006–2012.
9. Program Cochair, Sixth IEEE International Conference on Web Services (ICWS), Beijing, 2008.
10. Program Cochair, Third International Workshop on Normative Multiagent Systems (NorMAS), Luxembourg, 2008.
11. General Cochair, Fourth International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS), Utrecht, The Netherlands, July 2005.
12. Program Vice Chair, *Internet and Web Computing*, 25th IEEE International Conference on Distributed Computing Systems (ICDCS), Columbus, Ohio, June 2005.
13. Finance Chair, Third International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS), New York, July 2004.
14. Program Cochair, Second International Workshop on Agents and Peer-to-Peer Computing (AP2PC), Melbourne, 2003.
15. Member, Organizing International Workshop on Regulated Agent-Based Social Systems: Theories and Applications (RASTA), 2002.
16. Program Cochair, Autonomous Agents Workshop on Deception, Fraud and Trust in Agent Societies, June 2000.
17. Tutorial Program Chair, Fourth International Conference on Multiagent Systems (ICMAS), July 2000.
18. Program Chair (Americas), Fifth International Workshop on Agent Theories, Architectures, and Languages (ATAL), July 1998.
19. General Chair and Americas Program Chair, Fourth International Workshop on Agent Theories, Architectures, and Languages (ATAL), July 1997.
20. Program Chair (Americas), Second IFCIS International Conference on Cooperative Information Systems (CoopIS), June 1997.

## 6.6 Steering Committee Memberships

1. Member, Steering Committee for Normative Multi-Agent Systems (NorMAS), 2012–present.
2. Member, Steering Committee for PRIMA and Advisory Committee of PRIMA 2010.
3. Member, Board of Directors, International Foundation for Autonomous Agents and Multiagent Systems (IFAAMAS), 2007–2012.
4. Member, Board of Directors, International Foundation for Multiagent Systems (IFMAS), 2004–2006.
5. Chair, Editor-in-Chief Search Committee, *IEEE Internet Computing*, 2003–2004.
6. Member, Steering Committee, *IEEE Transactions on Mobile Computing*, 2001–2004.
7. Steering Committee, International Workshop on Agent Theories, Architectures, and Languages (ATAL), 1999–2007. ATAL was dissolved and merged into IFAAMAS, which was constituted at the same time. I joined the founding IFAAMAS Board of Directors.

8. IEEE Computer Society Magazine Operations Committee, 1999–2002.
9. IEEE Computer Society Publications Board, 1999–2002.

## 6.7 Tenure and Promotion Reviewing

1. A promotion case for a research institute in France: 2022.
2. The promotion case of a faculty member at a university in Singapore: 2022.
3. The promotion case of a faculty member at a university in New York: 2021.
4. The promotion case of a faculty member at a university in Texas: 2021.
5. The promotion case of a faculty member at a university in Singapore: 2020.
6. The promotion and tenure case of a faculty member at a university in Louisiana: 2019.
7. The promotion and tenure case of a faculty member at a university in New Jersey: 2019.
8. The tenure case of a faculty member at a university in Korea: 2019.
9. The promotion case of a faculty member at a university in United Kingdom: 2018.
10. The promotion case of a faculty member at a university in Victoria, Australia: 2017.
11. The promotion case of a faculty member at one of the universities in Saskatchewan, Canada: 2017.
12. The promotion case of a faculty member at a university in Arizona: 2017.
13. A promotion case for a research institute in France: 2016, 2017.
14. The promotion case of a faculty member at a university in New South Wales, Australia: 2015.
15. The promotion case of a faculty member at a university in Georgia: 2015.
16. The promotion case of a faculty member at a university in California: 2015.
17. The promotion case of a faculty member at a university in Singapore: 2015.
18. The promotion case of a faculty member at a university in Alabama: 2015.
19. The promotion case of a faculty member at a university in Turkey: 2014.
20. The promotion case of a faculty member at a university in New York: 2014.
21. The tenure and promotion case of a faculty member at a university in New York: 2014.
22. The promotion case of a faculty member at a university in Victoria, Australia: 2014.
23. The promotion case of a faculty member at a university in Scotland: 2014.
24. The promotion case of a faculty member at a university in New South Wales, Australia: 2014.
25. The tenure and promotion case of a faculty member at a university in New York: 2013.
26. A directorship case for a research institute in Italy: 2012.

27. The promotion case of a faculty member at a university in Canada: 2012.
28. The reappointment case of a faculty member at a university in New York: 2011.
29. The promotion case of a faculty member at a university in Greece: 2010.
30. The tenure and promotion case of a faculty member at a university in Arizona: 2008, 2010, 2016.
31. The professorship case of a faculty member at a university in Kansas: 2010.
32. The professorship case of a faculty member at a university in Maryland: 2010.
33. The tenure and professorship case of a faculty member at a university in Michigan: 2008, 2009, 2015.
34. A Deanship candidate at a university in North Carolina: 2009.
35. The tenure and promotion case of a faculty member at a major liberals arts college in the Northeast: 2009.
36. The tenure and promotion case of a faculty member at a university in North Carolina: 2008.
37. The professorship case of a faculty member at a university in the Washington, DC area: 2008.
38. The tenure case of a faculty member at one of the universities in Saskatchewan, Canada: 2007.
39. A full professor appointment at a university in Scotland: 2007.
40. The tenure and promotion case of a faculty member at a university in New York: 2007.
41. The tenure and promotion case of a faculty member at a university in the Washington, DC area: 2005.
42. The tenure and promotion case of a faculty member at a university in Arkansas: 2004.
43. The professorship case of a faculty member at a university in Oklahoma: 2003.
44. The tenure and promotion case of a faculty member at a university in South Carolina: 2003.
45. A scientist at the Research Institute for Advanced Computer Science (RIACS), NASA Ames Research Center, California: 2000, 2002.
46. A Cisco Fellow promotion case, Cisco: 2001.
47. The tenure case of a faculty member at one of the universities in Pennsylvania: 2000.
48. The tenure case of a faculty member at one of the universities in Ontario, Canada: 1999.
49. The reappointment case of a faculty member at one of the campuses of the University of North Carolina System: 1998.

## 6.8 Research Proposal Reviewing

**Foreign Agencies** The following include my reviewing activities for research funding agencies abroad.

1. Research Grants Council, University Grants Committee, Hong Kong, 1998, 2000–2024.
2. Qatar National Research Fund (QNRF): 2014, 2015, 2019, 2020, 2021.
3. Austrian Science Fund, Austria: 1999, 2003, 2011, 2017.
4. Natural Sciences and Engineering Research Council, Canada: 2003, 2004, 2005, 2007, 2009, 2010, 2015, 2016, 2017, 2018.
5. ERC: European Research Council: 2018.
6. The Netherlands Organisation for Scientific Research (NWO): 2005, 2013, 2017.
7. Swiss Natural Science Foundation: 2007, 2008.
8. European Science Foundation: 2007, 2009.
9. Israel Science Foundation: 2007.
10. US-Israeli Bi-national Science Foundation (BSF): 2005.
11. Australian Research Council, Australia: 2001.

**Domestic Agencies** The following include my reviewing activities for the National Science Foundation and other domestic agencies.

1. Member of a site-review committee (of an industry-university research center) for the Division of Engineering Education and Centers, a division in the Directorate for Engineering, National Science Foundation: 1995.
2. Membership in National Science Foundation proposal-review panels.
  - (a) Division of Civil, Mechanical and Manufacturing Innovation (ENG/CMMI): 2023.
  - (b) Division of Information and Intelligent Systems (and its precursor division): 1996, 1998, 1999, 2001, 2002, 2004, 2007, 2008, 2017, 2019, 2020.
  - (c) National Robotics Initiative: 2019.
  - (d) Division of Information and Intelligent System, CISE Research Infrastructure (CRI) program: 2017.
  - (e) Division of Computer and Network Systems: 2008.
  - (f) Information Technology Research Program: 2001 (preproposals and proposals), 2002 (two).
3. Reviewing for National Science Foundation.
  - (a) Division of Civil, Mechanical and Manufacturing Innovation: 2021.
  - (b) Division of Information and Intelligent Systems: 2006, 2013.
  - (c) Small Business Innovation Research (SBIR) grants program: 2002, 2004.

- (d) Directorate for Biological Sciences (a part of the database activities of the Division for Biological Instrumentation and Resources): 1997.
  - (e) Office of International Science and Engineering (OISE): 1996, 2012.
4. Army Research Office (ARO): 2006, 2018.
  5. Kansas First Award program, administered by the American Association for the Advancement of Science: 2002.

## 6.9 Dissertation Reviewing

1. External member of the Ph.D. committee for Mohammad Sujan Miah, Department of Computer Science, University of Texas at El Paso, El Paso, Texas, 2021–2022. *Advisors:* Dr. Christopher D. Kiekintveld.
2. External member of the Ph.D. committee for Davide Della'Anna, Department of Intelligent Systems, Utrecht University, Utrecht, The Netherlands, 2020–2021. *Advisors:* Dr. Fabiano Dalpiaz and Professor Mehdi Dastani.
3. External member of the Ph.D. committee for Fatma Başak Aydemir, Department of Information Engineering and Computer Science, University of Trento, Italy, 2016. *Advisor:* Dr. Paolo Giorgini.
4. External member of the Ph.D. committee for Jie Jiang, Faculty of Technology Policy and Management, Technical University of Delft, Netherlands, 2014–2015. *Advisor:* Dr. Virginia Dignum.
5. External member of the Ph.D. committee for Hongying Du, Department of Computer Science and Engineering, University of South Carolina, Columbia, 2012–2014. *Advisor:* Dr. Michael N. Huhns.
6. External member of the Ph.D. committee for Weimao Ke, School of Information and Library Science, University of North Carolina, Chapel Hill, 2009–2011. *Advisor:* Dr. Javed Mostafa.
7. External member of the Ph.D. committee for Jie Zhang, Department of Computer Science, University of Waterloo, Waterloo, Canada, 2009. *Advisor:* Dr. Robin Cohen.
8. External examiner for the Ph.D. dissertation of Manish Malhotra, Department of Computer Science, Royal Melbourne Institute of Technology, Melbourne, 2009. *Advisor:* Dr. Andrew Jennings.
9. External member of the Ph.D. committee for Viji Avali, Department of Computer Science and Engineering, University of South Carolina, Columbia, 2008–2012. *Advisor:* Dr. Michael N. Huhns.
10. External member of the Ph.D. committee for Li Xiong, College of Computing, Georgia Institute of Technology, Atlanta, 2004–2005. *Advisor:* Dr. Ling Liu.
11. External examiner for the Ph.D. dissertation of Elizabeth Ogston, Vrije Universiteit, Amsterdam, 2004–2005. *Advisors:* Dr. Frances Brazier and Dr. Maarten van Steen.
12. External examiner for the Ph.D. dissertation of Gil Tidhar, *Organization-Oriented Systems: Theory and Practice*, Department of Computer Science, University of Melbourne, Melbourne, 1998. *Advisors:* Dr. Elizabeth A. Sonenberg and Dr. Anand S. Rao.
13. External member of the Ph.D. committee for Marlene D. Morris, *Turning Browsers Into Buyers: Influencing Consumers—Preference Construction and Timing of Product Purchase*, Fuqua School of Business, Duke University, Durham, NC, 1998. *Advisors:* Dr. James Bettman and Dr. John Payne.

## 6.10 Panels Chaired

1. “Context-Aware Mobile Services.” *IEEE International Conference on Mobile Services (MS)*, Santa Clara, California, June 2013.
2. “Service Ecosystems: Computing from the Human and Organizational Angles.” *IEEE International Conference on Web Services (ICWS)*, Honolulu, June 2012.
3. “Business Process Management: A Killer App for Agents?” *Third International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*, New York, July 2004.
4. “Mind Your P’s: Processes, Policies, and Protocols.” *Thirteenth International Conference on the World-Wide Web (WWW)*, New York, May 2004.
5. “Conducting Business using Peer-to-Peer Computing.” *Third International Workshop on Agents and Peer-to-Peer Computing (AP2PC)*, New York, July 2004.
6. “Future of Multiagent Systems.” *Third International Conference on Multiagent Systems (ICMAS)*, Boston, July 2000.
7. “Standards.” *Third International Conference on Multiagent Systems (ICMAS)*, Paris, July 1998.
8. “The Next Big Thing.” *International Joint Conference on Artificial Intelligence (IJCAI)*, Nagoya, Japan, August 1997.

## 6.11 Participation as Invited Panelist

1. (Xiaofei Xu and Quan Z. Sheng, chairs) “Metaverse Services: The Way of Services Towards the Future.” *IEEE International Conference on Web Services (ICWS)*, Chicago, July 2023.
2. (Juan Antonio Rodriguez and Alessandro Ricci, chairs) “Autonomous Agents and MultiAgent Systems in 2030: Perspectives.” *International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*, Auckland, May 2020.
3. (Tim Norman, chair) “Trust Modeling and Trusted AI.” *International Workshop on Trust in Society*, Stockholm, July 2018.
4. (Catherine Pelachaud, chair) “Opportunities and Challenges for Emotion-Aware Multi Agent Systems.” *Second International Workshop on Emotion and Sentiment in Social and Expressive Media (ESSEM@AAMAS)*, Istanbul, May 2015.
5. (John Morgan, chair) “Incorporating Emotions in Trust and Social Relationships: A Call to Arms.” *UNC-Army Human Domain Analysis Workshop*, Fayetteville, NC, November 2012.
6. (Claudio Bartolini, chair) “Web Service Integration in the Context of Social Systems.” *Eighth International Conference on Service-Oriented Computing (ICSOC)*, San Francisco, December 2010.
7. (K. Suzanne Barber, chair) “Identity and Trust from Different Points of View.” *International Workshop on Trust in Agent Societies*, Toronto, May 2010.
8. (Rino Falcone, chair) “Challenges and Trends in Trust Research.” *International Workshop on Trust in Agent Societies*, Budapest, May 2009.

9. (Carl Hewitt, chair) “Organizational Computing.” *Sixth International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*, Hawaii, May 2007.
10. (Aditya Ghose, chair) “Will Agent-Orientation Reshape IS Theory and Practice?” *International Workshop on Agent-Oriented Information Systems (AOIS)*, Hakodate, Japan, May 2006.
11. (K. Suzanne Barber, chair) “Trust Competition Testbed Panel.” *AAMAS Trust Workshop*, New York, July 2004. My talk was on “The Trust Competition Testbed: Some Key Requirements.”
12. (David Martin, chair) “Agent Technology and Web Services Standards.” Joint panel session of the workshops on *Challenges in Open Agent Systems*, *Ontologies in Agent Systems*, and *Web Services and Agent-Based Engineering*, July 2003.
13. (Aris Ousksel, chair) “Agents and Peer-to-Peer Computing.” *AAMAS Workshop on Agents and Peer-to-Peer Computing*, Bologna, July 2002.
14. (John Bell, chair) “Is Rationality an Objective or a Subjective Notion?” *ECAI Workshop on Practical Representation and Reasoning*, Brighton, August 1998.
15. (Ian Gent, chair) “Design of Computational Experiments.” *ECAI Workshop on Empirical Artificial Intelligence*, Brighton, August 1998.
16. (Gerhard Weiß, chair) “The Future of Adaptive and Mobile Information Agents-Traveling Bandits on the Information Highway, or Powerful Information Providers?” *Second International Workshop on Cooperative Information Agents (CIA)*, Paris, July 1998.
17. (Anupam Joshi, chair) “Cooperative Multiagent Systems for the Web.” *Second IFCIS International Conference on Cooperative Information Systems (CoopIS)*, Kiawah Island, South Carolina, June 1997.
18. (Nick Jennings and Rosaria Conte, chairs) “Agents and Norms.” *International Conference on Multi-agent Systems (ICMAS) Workshop on Norms, Obligations, and Conventions*, Kyoto, December 1996.
19. (Cristiano Castelfranchi, chair) “Agents and Commitments.” *International Conference on Multiagent Systems (ICMAS)*, San Francisco, June 1995.

## 6.12 Magazine Columns

1. (Munindar P. Singh) “Being Interactive.” Bimonthly column, *IEEE Internet Computing*, January 1999–December 2002.
2. (Michael N. Huhns and Munindar P. Singh) “Agents on the Web.” Bimonthly column, *IEEE Internet Computing*, 1997–1998.

## 6.13 Summer School Lectures

1. “Service-Oriented Computing.” International Summer School on Multiagent Systems, Hyderabad, India, July 2005.
2. “Service-Oriented Computing.” University of Trento International Doctoral School, Trento, Italy, June 2004.

## 6.14 Conference Tutorials

1. (Amit K. Chopra, Samuel H. Christie V, and Munindar P. Singh) “Interaction-Oriented Programming: Abstractions for Engineering Decentralized Multiagent Systems.” *Twent-second International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, London, May 2023.
2. (Pradeep K. Murukannaiah, Nirav Ajmeri, and Munindar P. Singh) “Ethics in Sociotechnical Systems.” *36th Conference on Artificial Intelligence (AAAI)*, Vancouver, February 2022.
3. (Amit K. Chopra, Samuel H. Christie V, and Munindar P. Singh) “Interaction-Oriented Programming: An Application Semantics Approach for Engineering Decentralized Applications.” *40th ACM Symposium on Principles of Distributed Computing (PODC)*, Salerno, Italy, July 2021.
4. (Pradeep K. Murukannaiah, Nirav Ajmeri, and Munindar P. Singh) “Ethics in Sociotechnical Systems.” *20th International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, London, May 2021.
5. (Pradeep K. Murukannaiah, Nirav Ajmeri, and Munindar P. Singh) “Ethics in Sociotechnical Systems.” *29th International Joint Conference on Artificial Intelligence (IJCAI)*, Yokohama, July 2020. This conference was postponed to January 2021.
6. (Amit K. Chopra and Munindar P. Singh) “Programming for Autonomy.” *41st ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI)*, London, June 2020.
7. (Pradeep K. Murukannaiah, Nirav Ajmeri, and Munindar P. Singh) “Ethics in Sociotechnical Systems.” *19th International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, Auckland, May 2020.
8. (Amit K. Chopra and Munindar P. Singh) “Engineering Distributed Systems via Protocols and Commitments.” *46th ACM Symposium on Principles of Programming Languages (POPL)*, Cascais, Portugal, January 2019.
9. (Munindar P. Singh and Amit K. Chopra) “The Internet of Things and Multiagent Systems.” *25th International Joint Conference on Artificial Intelligence (IJCAI)*, New York, July 2016.
10. (Munindar P. Singh and Amit K. Chopra) “The Internet of Things and Multiagent Systems.” *15th International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, Singapore, May 2016.
11. (Amit K. Chopra and Munindar P. Singh) “Decentralized Multiagent Systems.” *Fifteenth International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, Singapore, May 2016.
12. (Munindar P. Singh and Amit K. Chopra) “The Internet of Things and Multiagent Systems.” *14th International Joint Conference on Artificial Intelligence (IJCAI)*, Buenos Aires, July 2015.
13. (Munindar P. Singh and Amit K. Chopra) “The Internet of Things and Multiagent Systems.” *9th IEEE International Conference on Research Challenges in Information Science (RCIS)*, Athens, May 2015.
14. (Amit K. Chopra and Munindar P. Singh) “Decentralized Multiagent Systems.” *14th International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, Istanbul, May 2015.
15. (Munindar P. Singh), “Policy-Governed Secure Collaboration.” *2nd Symposium and Bootcamp on the Science of Security (HotSoS)*, April 2015.

16. (Munindar P. Singh and Nirmal Desai), "Multidisciplinary Views of Business Contracts." *8th International Conference on Service-Oriented Computing (ICSOC)*, December 2010.
17. (Munindar P. Singh and Michael N. Huhns) "Agents for Web Services." *20th International Joint Conference on Artificial Intelligence (IJCAI)*, Hyderabad, January 2007.
18. (Munindar P. Singh and Michael N. Huhns) "Service-Oriented Computing." *19th Annual ACM Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA)*, Vancouver, October 2004.
19. (Munindar P. Singh and Michael N. Huhns) "Agents for Web Services." *3rd International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, New York, July 2004.
20. (Munindar P. Singh and Michael N. Huhns) "Foundations of Web Services: Architectures, Description and Engagement." *13th International World Wide Web Conference (WWW)*, New York, May 2004.
21. (Munindar P. Singh and Michael N. Huhns) "Foundations of Web Services: Engagement, Discovery and Composition." *13th International World Wide Web Conference (WWW)*, New York, May 2004.
22. (Munindar P. Singh and Michael N. Huhns) "Web Service Composition and Service Composition Techniques." *2nd International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, Melbourne, July 2003.
23. (Munindar P. Singh and Michael N. Huhns) "Fundamentals of Web Services." *1st International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, Bologna, July 2002.
24. (Munindar P. Singh and Michael N. Huhns) "Web Service Composition." *11th International World Wide Web Conference (WWW)*, Honolulu, May 2002.
25. (Munindar P. Singh and Michael N. Huhns) "Service Composition Techniques." *11th International World Wide Web Conference (WWW)*, Honolulu, May 2002.
26. (Munindar P. Singh and Michael N. Huhns) "Principles of Agents and Multiagent Systems: Social, Ethical, and Legal Abstractions and Reasoning." *16th International Joint Conference on Artificial Intelligence (IJCAI)*, Stockholm, July 1999.
27. (Michael N. Huhns and Munindar P. Singh) "Agents and Multiagents in the Internet and Intranets." *16th International Joint Conference on Artificial Intelligence (IJCAI)*, Stockholm, July 1999.
28. (Munindar P. Singh and Michael N. Huhns) "Agents and Multiagents in Information-Rich Applications." *2nd International Conference on Multiagent Systems (ICMAS)*, Paris, July 1998.
29. (Munindar P. Singh and Michael N. Huhns) "Cooperative Information Systems: Agents Meet Databases." *15th International Joint Conference on Artificial Intelligence (IJCAI)*, Nagoya, Japan, August 1997.
30. (Munindar P. Singh and Michael N. Huhns) "Cooperative Information Systems." *12th European Conference on Artificial Intelligence (ECAI)*, Budapest, August 1996.
31. (Munindar P. Singh and Michael N. Huhns) "Agents at Work: Promises, Paradigms, Problems." *12th IEEE International Conference on Data Engineering (ICDE)*, New Orleans, February 1996.
32. (Michael N. Huhns and Munindar P. Singh) "Cooperative Information Systems." *14th International Joint Conference on Artificial Intelligence (IJCAI)*, Montréal, August 1995.

33. (Munindar P. Singh and Michael N. Huhns) “Cooperative Information Systems.” *15th IEEE International Conference on Distributed Computing Systems (ICDCS)*, Vancouver, May 1995.
34. (Munindar P. Singh and Michael N. Huhns) “Cooperative Information Systems.” *6th International Conference on Management of Data (COMAD)*, Bangalore, December 1994.
35. (Michael N. Huhns and Munindar P. Singh) “Distributed Artificial Intelligence.” *2nd International Conference on Cooperative Information Systems (CoopIS)*, Toronto, May 1994.

### **6.15 Conference Senior Program Committee Memberships**

1. International Joint Conference on Artificial Intelligence (IJCAI): 2009, 2016, 2017, 2018, 2021, 2023, 2024.
2. International Conference on Autonomous Agents and Multiagent Systems (AAMAS): 2002, 2003, 2007, 2008, 2011, 2018, 2022, 2023, 2024.
3. The Web Conference (previously World Wide Web Conference): 2022.
4. Blue Sky (née Vision and Challenges) Track, International Conference on Autonomous Agents and Multiagent Systems (AAMAS): 2012, 2013, 2015, 2016, 2017, 2018, 2019, 2020, 2021.
5. AAAI Conference on Artificial Intelligence (AAAI): 2012, 2013.
6. International Conference on Principles and Practice of Multi-Agent Systems, 2010, 2011.
7. Area Chair for *Internet Technology and Informatics*, International Symposium on Parallel Architectures, Algorithms, and Networks (ISPAN), Melbourne: 2008.
8. Area Coordinator for *Service Assembly*, Fourth International Conference on Service Oriented Computing (ICSOC): 2006.

### **6.16 Conference Program Committee Memberships**

1. AAAI/ACM Conference on Artificial Intelligence, Ethics, and Society (AIES): 2019, 2022, 2023.
2. International Joint Conference on Artificial Intelligence (IJCAI): 2009, 2016, 2017, 2018, 2021, 2022.
3. Blue Sky Track, International Conference on Autonomous Agents and Multiagent Systems (AAMAS): 2022.
4. The Web Conference (previously World Wide Web Conference): 2008, 2009, 2019.
5. International Joint Conference on Artificial Intelligence (IJCAI): 2017, 2019, 2020, 2021.
6. International Conference on Autonomous Agents and Multiagent Systems (AAMAS): 2009, 2021.
7. International Conference on Artificial Intelligence and Law (ICAIL): 2017, 2019.
8. AAAI Conference on Artificial Intelligence (AAAI): 1994, 2007, 2008, 2019.
9. IFIP International Conference on Coordination Models and Languages: 2016.
10. International Symposium and Bootcamp on the Science of Security (HotSoS): 2015, 2016.

11. International Conference on Service Oriented Computing (ICSOC): 2004, 2008, 2010, 2012.
12. IEEE International Conference on Web Services (ICWS): 2004, 2006, 2007, 2010, 2011, 2012.
13. IEEE Conference on Commerce and Enterprise Computing (CEC), 2011.
14. International Conference on Semantic Systems (ISEM): 2010.
15. International Conference on Business Information Systems (BIS): 2010.
16. International Conference on Electronic Commerce (ICEC): 2007, 2008, 2010.
17. International Conference on Knowledge Representation (KR): 2010.
18. European Semantic Web Conference (ESWC): 2007, 2008, 2009.
19. IEEE International Conference on High Performance Computing and Communications (HPCC): 2009.
20. International Semantic Web Conference (ISWC): 2003, 2006, 2008.
21. AAAI Conference on Artificial Intelligence, Nectar Papers Program Committee, (AAAI): 2006, 2007, 2008.
22. AAAI Conference on Artificial Intelligence (AAAI): 1994, 2007, 2008.
23. IEEE/WIC International Conference on Intelligent Agent Technology (IAT): 2003, 2007.
24. International Conference on Autonomous Agents (AA): 1997, 1998, 1999, 2001.
25. Third International and Interdisciplinary Conference on Modeling and Using Context (CONTEXT): 1999, 2001.
26. International Conference on Multiagent Systems (ICMAS): 1996, 1998, 2000.
27. IEEE International Conference on Distributed Computing Systems (ICDCS): 1998.
28. Third IFCIS International Conference on Cooperative Information Systems (CoopIS): 1996, 1998.
29. Fourteenth IEEE International Conference on Data Engineering (ICDE): 1998.
30. Third International Conference on Cooperating Knowledge-Based Systems: 1994.

### **6.17 Symposia and Workshop Program Committee Memberships**

1. All The Agents Challenge. In conjunction with the International Semantic Web Conference (ISWC): 2021.
2. International Workshop on Deceptive AI: 2020.
3. International Workshop on Responsible Artificial Intelligence Agents (RAIA): 2019.
4. Workshop on Distributed Analytics InfraStructure and Algorithms for Multi-Organization Federations (DAIS): 2019.
5. International Workshop on AI and Data Mining for Services (ADMS): 2018.
6. International Workshop on Blockchain Technologies for Multi-Agent Systems (BCT4MAS): 2018.

7. International Workshop on Policy-based Autonomic Data Governance (PADG): 2017, 2018.
8. International workshop on Socio-Cognitive Systems (SCS): 2018.
9. International Workshop on Crowd-Based Requirements Engineering: 2017.
10. SPLASH Workshop on Programming Systems, Languages, and Applications based on Agents, Actors, and Decentralized Control (AGERE!): 2011, 2012.
11. ECAI Workshop on Rights and Duties of Autonomous Agents (RDA2), 2012.
12. Informatik Workshop on Protocol based Modelling of Business Interactions (PMBI), 2011.
13. International Workshop on Programming Multiagent Systems (ProMAS): 2010, 2011.
14. International Workshop on Coordination, Organization, Institutions and Norms in Agent Systems (COIN): 2010, 2011.
15. International Workshop on Multi-Agent Systems and Collaborative Technologies: 2011, 2011.
16. International Pragmatic Web Conference Track at I-SEMANTICS (PragWEB): 2010.
17. International Workshop on Agent Communication (AC): 2010.
18. International Workshop on Service-Oriented Computing: Agents, Semantics, and Engineering (SO-CASE): 2010.
19. International Conference on the Virtual Computing Initiative, (ICVCI): 2007, 2008, 2009.
20. International Workshop on Agents, Web Services and Ontologies, Integrated Methodologies (AWE-SOME) as part of Multi-Agent Logics, Languages, and Organisations Federated Workshops (MAL-LOW): 2009.
21. IEEE International Workshop on Scientific Workflows (SWF): 2008, 2009.
22. International Workshop on Agents for Autonomic Computing (AAC): 2008, 2009.
23. International Conference on Practical Applications of Agents and Multi-Agent Systems (PAAMS): 2009.
24. International Conference on Reputation (ICORE): 2009.
25. International Conference on Computer Mediated Social Networking (ICCMSN): 2008.
26. Workshop on Community-Based Evolution of Knowledge-intensive Systems (COMBEK): 2008.
27. European Workshop on Multi-Agent Systems (EUMAS): 2007.
28. International Workshop on Declarative Agent Languages and Technologies (DALT): 2007.
29. Workshop on Global Service Delivery Platforms at the Conference on Electronic Commerce: 2006.
30. International Workshop on Coordination of Inter-Organizational Workflow: Agent and Semantic Web Based Models (CIOW): 2006.
31. International Workshop on Artificial Intelligence and Service-Oriented Computing: 2006.

32. First Workshop on Semantics Enabled Networks and Services (SeNS): 2006.
33. Fifth International Workshop on Engineering Societies in the Agents' World (ESAW): 2001, 2003, 2004.
34. VLDB Workshop on Semantic Web and Databases: 2003.
35. First International Workshop on Computational Autonomy– Potential, Risks, Solutions (AUTONOMY): 2003.
36. Third International Symposium on Electronic Commerce (ISEC): October 2002.
37. First International Workshop on Internet Computing and E-Commerce (ICEC): 2001.
38. FORTE/PSTV Workshop on Interaction Protocol Engineering: 2002.
39. Third IEEE/IPSJ Symposium on Applications and the Internet (SAINT): 2003. Sponsored by the IEEE Computer Society and the Information Processing Society of Japan.
40. Agent Communication Languages and Conversation Policies, Autonomous Agents and Multi-Agent Systems Conference: 2002.
41. ECAI Workshop on Model Checking and Artificial Intelligence (MoChArt): 2002.
42. Sixth International Workshop on Cooperative Information Agents (CIA): 2001, 2002.
43. Seventh International Workshop on Agent Theories, Architectures, and Languages (ATAL): 1994, 1999, 2000, 2001.
44. Autonomous Agents Workshop on Agent Communication: 2000.
45. Autonomous Agents Workshop on Norms and Institutions in Multi-Agent Systems: 2000.
46. AAI Workshop on Negotiation: Settling Conflicts and Identifying Opportunities: 1999.
47. AAI Workshop on Agents' Conflicts: 1999.
48. Third Workshop on the Semantics and Pragmatics of Dialogue (Amstelogue): 1999.
49. IJCAI Workshop on Agent Communication Languages: 1999.
50. International Conference on Autonomous Agents Workshop on Deception, Fraud and Trust in Agent Societies: 1998, 1999, 2019.
51. International Conference on Autonomous Agents Workshop on Specifying and Implementing Conversation Policies: 1999.
52. International Workshop on Intelligent Agents for Telecommunications Applications (IATA): 1998.
53. International Workshop on Intelligent Agents on the Internet and Web: 1998.
54. Second International Workshop on Cooperative Information Agents (CIA): 1998.
55. Workshop on Theoretical and Practical Foundations of Intelligent Agents: 1997.
56. International Conference on Multiagent Systems Workshop on Norms, Obligations, and Conventions: 1996.

57. First Workshop on Theoretical and Practical Foundations of Intelligent Agents: 1996.
58. European Conference on Artificial Intelligence Workshop on Agent Theories, Architectures, and Languages (ATAL): 1996.
59. International Joint Conference on Artificial Intelligence Workshop on Agent Theories, Architectures, and Languages (ATAL): 1995.
60. European Conference on Artificial Intelligence Workshop on Agent Theories, Architectures, and Languages (ATAL): 1994.

## 6.18 Other Peer Reviewing

### Of Book Proposals

1. Edited research collection proposal on cybersecurity and psychology, Elsevier, 2020.
2. Edited research collection proposal on humans and AI, Elsevier, 2020.
3. Undergraduate textbook proposal on agent programming, Wiley, 2005.
4. Research monograph proposal on multiagent systems, Wiley, 2005.
5. Undergraduate textbook manuscript on databases, Addison Wesley, 2004.
6. Undergraduate textbook manuscript on databases, Addison Wesley Longman, 2001.
7. Undergraduate textbook manuscript on databases, Prentice Hall, 2001.
8. Edited research collection proposal, John Wiley & Sons, 2000.
9. Undergraduate textbook proposal on data structures, Addison Wesley Longman, 2000.
10. Undergraduate textbook manuscript on databases, Addison Wesley Longman, 2000.
11. Proposed undergraduate textbook on databases, Addison Wesley Longman, 2000.
12. Proposed undergraduate textbook on data structures, McGraw-Hill, 1999.
13. Proposed undergraduate textbook on data structures, Prentice Hall, 1999.
14. Proposed undergraduate textbook on databases, Addison Wesley Longman, 1999.
15. *The Encyclopedia of Electrical and Electronics Engineering*, John Wiley & Sons, 1998.
16. Proposed 2nd edition of an undergraduate textbook on databases, Addison Wesley Longman, 1998.
17. Book proposal for the *International Series on Advances in Database Systems*, Kluwer, 1997.

**Of Journal Submissions** Excluding reviews I completed while an editorial board member.

1. *Minds and Machines*, Springer: 2010, 2021, 2023.
2. *Digital Society*, Springer: 2021, 2022.
3. *ACM Journal on Responsible Computing*: 2022.
4. *Artificial Intelligence*, Elsevier: 2010–2012, 2017, 2019.
5. *ACM Transactions on Software Engineering and Methodology*: 2019.
6. *Ethics and Information Technology*, special issue on Ethics and Artificial Intelligence, Springer: 2017.
7. *Journal of AI Research*, JAIR Foundation: 2006, 2007, 2010.
8. *Synthese*, Springer: 2016.
9. *Frontiers in Psychology*, Springer: 2014.
10. *Science of Computer Programming*, Elsevier: 2013.
11. *IEEE Computer*, IEEE: 2007, 2010, 2012, 2018.
12. *ACM Transactions on Autonomous and Adaptive Systems (TAAS)*, ACM, 2010, 2012.
13. *Computational Intelligence (CI)*, Basil Blackwell. Founded by the National Research Council of Canada (NRCC): 2004, 2008, 2011.
14. *ACM Transactions on the Web (TWEB)*, ACM: 2007, 2008, 2010.
15. *IEEE Transactions on Dependable and Secure Computing (TDSC)*, IEEE: 2010, 2011.
16. *MIS Quarterly*: 2009, 2010.
17. *Decision-Support Systems*: 2009, 2010.
18. *International Journal of Parallel, Emergent and Distributed Systems*, Taylor & Francis, 2010.
19. *ACM Transactions on Internet Technology (TOIT)*, ACM: 2006, 2009.
20. *IEEE Transactions on Services Computing (TSC)*, IEEE: 2008, 2009.
21. *IEEE Transactions on Software Engineering (TSE)*, IEEE: 2004, 2009.
22. *WWW Journal*, Springer: 2008, 2009.
23. *IEEE Transactions on Knowledge and Data Engineering*, IEEE: 2003, 2004, 2008.
24. *IEEE Transactions on Systems, Man, and Cybernetics, Part A (TSMC-A)*: 2008.
25. *IEEE Transactions on Systems, Man, and Cybernetics, Part C (TSMC-C)*: 2006, 2008.
26. *Multi-Agent and Grid Systems*, IOS Press: 2008.
27. *Journal of Computer Security*, IOS Press: 2008.
28. *Communications of the ACM (CACM)*, ACM: 2002, 2004, 2006, 2008.

29. *Frontiers of Computer Science in China*, Springer: 2007.
30. *IEEE Software*, IEEE: 2007.
31. *ACM Computing Surveys*: 2007.
32. *IBM Systems Journal*: 2007.
33. *AI Journal*, Elsevier: 2007.
34. *VLDB Journal*, VLDB Foundation: 2007.
35. *Web Intelligence and Agent Systems*: 2007.
36. *ACM Transactions on Computational Logic*, ACM: 2005, 2006.
37. *IEEE Transactions on Parallel and Distributed Systems*, IEEE.
38. *Theoretical Computer Science*, Elsevier.
39. *IEE Proceedings—Software*: 2001. IEE is the Institute of Electrical Engineers.
40. *Information Technology and Management*, Baltzer.
41. *IBM Systems Journal*, IBM.
42. *Information Systems—Databases: Their Creation, Management and Utilization*, Pergamon.
43. *Computers and Artificial Intelligence*, Slovak Academy of Sciences.
44. *Journal of Intelligent Information Systems*, Kluwer.
45. *Knowledge and Information Systems (KAIS): An International Journal*, Springer-Verlag.
46. *Applied Artificial Intelligence: An International Journal*, Taylor & Francis.
47. *IEEE Transactions on Pattern Analysis and Machine Intelligence (IEEE-PAMI)*, Institute of Electrical and Electronics Engineers Computer Society.
48. *Journal of Logic and Computation*, Oxford University Press.
49. *Trends in Cognitive Science*, Elsevier.
50. *Machine Learning*, Kluwer.
51. *Journal of Computing and Information Technology (CIT)*, University of Zagreb, Croatia. ISSN 1330-1136.
52. *Journal of Experimental and Theoretical Artificial Intelligence (JETAI)*, Taylor & Francis.
53. *Distributed and Parallel Databases (DAPD)*, Kluwer.
54. *Computers and Mathematics with Applications (CAM)*, Pergamon Press.
55. *ACM Transactions on Information Systems (TOIS)*, ACM.
56. *IEEE Expert: Intelligent Systems & Their Applications*, Institute of Electrical and Electronics Engineers Computer Society.

57. *International Journal of Cooperative Information Systems (IJCIS)*, World Scientific.
58. *IEEE Transactions on Systems, Man, and Cybernetics (IEEE-SMC)*, Institute of Electrical and Electronics Engineers Computer Society.
59. *International Journal of Intelligent Systems (IJIS)*, John Wiley.
60. *Journal of Organizational Computing (JOC)*, Ablex.
61. *Journal of Applied Intelligence (APIN)*, Kluwer.

**Of Conference Submissions** Excluding conferences for which I was a program committee member.

1. International ACM Conference on Electronic Commerce (EC): 1999, 2008.
2. International Joint Conference on Artificial Intelligence (IJCAI): 1991, 1993, 1995, 1997, 1999, 2001, and 2003.
3. ACM Symposium on the Principles of Distributed Computing, 2000.
4. 7th CSLI Workshop on Logic, Language and Computation (LLC): 1998.
5. IEEE Symposium on Logic in Computer Science (LICS): 1995.
6. International Conference on Database Systems for Advanced Applications (DASFAA): 1995.
7. Conference of the American Association for Artificial Intelligence (AAAI): 1990.
8. International Conference on Data Engineering (ICDE): 1994.
9. International Conference on Intelligent and Cooperative Information Systems (ICICIS): 1993.
10. International Conference on Distributed Artificial Intelligence (DAI): 1990 and 1992.
11. International Conference on Logic Programming Workshop on Deductive Databases: 1993.
12. International Workshop on Cooperation Among Knowledge-Based Systems (CKBS): 1990.
13. International Conference on Industrial and Engineering Applications of Artificial Intelligence and Expert Systems (IEA/AIE): 1991.
14. American Association for Artificial Intelligence Workshop on Cooperation Among Heterogeneous Intelligent Systems (CHIS): 1991 and 1992.