VITA Sandip Sen

Address: Computer Sciences Department

University of Tulsa

600 South College Avenue Tulsa, OK 74104-3189

Phone: 918-631-2985 FAX: 918-631-3077 e-mail: sandip@utulsa

e-mail: sandip@utulsa.edu

URL: http://www.mcs.utulsa.edu/~sandip/

Degrees Earned

Ph.D. in Computer Science and Engineering, The University of Michigan, Ann Arbor, MI, December, 1993.

M.S. in Electrical Engineering, The University of Alabama, Tuscaloosa, AL, December, 1988.

B.S. in Electronics & Tele-Communications Engineering, Jadavpur University, Calcutta, India, June, 1986.

Area(s) of specialization:

Artificial Intelligence, Multiagent Systems, Intelligent Agents, Electronic Commerce, Machine Learning, Genetic Algorithms, Classifier Systems, Adaptive Systems.

Professional Experience (Teaching, research and administration):

Professor, Tandy School of Computer Science, The University of Tulsa, Tulsa, OK (Jan, 2012 – now)

Professor, Department of Mathematical & Computer Sciences, The University of Tulsa, Tulsa, OK (September, 2004 – Dec, 2011)

Associate Professor, Department of Mathematical & Computer Sciences, The University of Tulsa, Tulsa, OK (September, 1998 – August, 2004)

Assistant Professor, Department of Mathematical & Computer Sciences, The University of Tulsa, Tulsa, OK (August, 1993 – August, 1998)

Research assistant in EECS Department, The University of Michigan, Ann Arbor, MI (May, 1990 – August, 1993)

Teaching assistant in EECS Department, The University of Michigan, Ann Arbor, MI (September, 1989 – April, 1990)

Teaching assistant in EE Department, The University of Alabama, Tuscaloosa, Al September, (1987 – May, 1989)

Research Associate, The Rowland Institute for Science, Cambridge, Massachussets, (May, 1988–August, 1988)

Research & Development Engineer, Hindustan Computer Limited, New Delhi, India, (May, 1986–September, 1986)

Professional Memberships:

Life Member of American Association for Artificial Intelligence, Associate Member of Association for Computing Machinery.

Honors and Awards:

 $Senior\ Member,$ Association for the Advancement of Artificial Intelligence, July, 2014.

Tulsa Undergraduate Research Challenge Mentor of the Year, The University of Tulsa, March, 2014.

Outstanding Researcher Award, College of Engineering and Natural Sciences, The University of Tulsa, 1999.

CAREER Award, National Science Foundation, April, 1997.

Outstanding Professor Award, Tau-Beta-Pi, The University of Tulsa, November 1996.

Research Initiation Award, National Science Foundation, July, 1994.

Graduate School Fellowship, University of Alabama, August, 1988.

National Merit Scholarship, Government of India, April, 1980.

Funded Proposals

- AAAI-15 Support for Robotic Activities, \$26K, National Science Foundation, Award # 1449029 (awarded August, 2014).
- Automated Negotiation of Crew Operations, NASA EPSCoR, (awarded September, 2010).
- An Instructional Tool to Foster Creativity in the Software Engineering Process, \$200K, National Science Foundation, IIS-0757434. (awarded March, 2008; Co-PI).
- AAMAS-2007 Student Travel Grant. National Science Foundation, IIS-0610527, \$26,250 for 1 year. (awarded April, 2007)
- Secure Sensor Infrastructure for Communications and Surveillance. Defense University Research Instrumentation Program, ARO. \$70,050 for 1 year (awarded March, 2006); co-PI with Johnson Thomas. DOD-Army W911NF-06-1-0136
- AAMAS-2006 Student Travel Grant. National Science Foundation, IIS-0610527, \$65,000 for 1 year. (awarded February, 2006)
- Coordinating spacecrafts, rovers, and ground-based stations to rapidly respond to emerging situations. NASA EPSCoR Research Initiation Grant, NCC5-586, \$22,000 for 6 months. (awarded January, 2006)
- AAMAS-2005 Student Travel Grant. National Science Foundation, IIS-0532590, \$56,250 for 1 year. (awarded May, 2005)
- Co-PI on Secure Framework for Sensor Networks, \$202,440, Army Research Office/OSRHE for 3 years (awarded April, 2005). DOD-Army W911NF-05-1-0285.

- Scalable Mechanisms for Coherent Group Activities in Agent Communities. NASA, \$156,530 for 2 years. (awarded July, 2004.)
- Co-PI on Developing Programs and Research Expertise in Intelligent Information Networks. Department of Education – FIPSE, \$198,700 for 1 year (awarded September, 2003).
- Agent Based Bidding in Electronic Auctions. National Science Foundation, \$351,123 for 3 years. (awarded June, 2002)
- Learning agents for robust, scalable applications. NASA EPSCoR Research Initiation Grant, \$21,022 for 6 months. (awarded January, 2002)
- ICMAS-2000 Student Travel Grant. National Science Foundation, \$24,375 for 1 year. (awarded June, 2000)
- ICMAS/Agents World Travel Grant. National Science Foundation, \$27,375 for 1 year. (awarded June, 1998)
- CAREER: Learning to Cooperate and Compete. Faculty Early Career Development Award. National Science Foundation. \$250,000 for 5 years, starting August, 1997.
- An introduction to Science and Engineering for Early High School Students. Oklahoma State Regents for Higher Education, \$72,000, for 1 year (awarded December, 1996).
- Designing and Implementing a Distributed Meeting Scheduler: Research Experience for Undergraduates Supplement. National Science Foundation, \$20,000 for 2 years.
- CAETI: Advanced Methodologies for Verifying Heterogeneous Systems, ARPA, \$125,000 for 2 years (awarded June, 1995); co-PI with Rose Gamble.
- RIA: Designing and Implementing a Distributed Meeting Scheduler. Research Initiation Award, National Science Foundation, \$100,000 for 3 years (awarded July, 1994).

PUBLICATIONS

Book(s)

- 1. I. Rahwan, W. Wobcke, S. Sen, T. Sugawara (Editors), "PRIMA 2012: Principles and Practice of Multi-Agent Systems 15th International Conference, Kuching, Sarawak, Malaysia, September 3-7, 2012. Proceedings." Lecture Notes in Computer Science 7455, Springer, 2012, isbn 978-3-642-32728-5.
- 2. W. van der Hoek, G.A. Kaminka, Y. Lesperance, M. Luck, and S. Sen (Editors), "Proceedings of the 9th International Conference on Autonomous Agents and Multiagent Systems," IFAAMAS, 2010.
- 3. K. Tuyls and P.J. Hoen and K. Verbeeck and S. Sen (Editors), "Learning and Adaption in Multi-Agent Systems, First International Workshop LAMAS: Revised Selected Papers", Lecture Notes in Computer Science, volume 3898, Springer, Berliln, 2006.

- 4. J. Müller, E. Andre, S. Sen, and C. Frasson (Editors), "Proceedings of the Fifth International Conference on Autonomous Agents," ACM Press, New York: NY, 2001.
- L. Spector, E. Goodman, A. Wu, W. Langdon, H-M. Voigt, M. Gen, S. Sen, M. Dorigo, S. Pezeshk, M. Garzon, and E. Burke (Editors), "GECCO-2001: Proceedings of the Genetic and Evolutionary Computation Conference," Morgan Kaufmann, San Francisco, CA, 2001.
- 6. G. Weiss and S. Sen (Editors), "Adaption and Learning in Multiagent Systems," Series: Lecture Notes in Computer Science; Subseries: Lecture Notes in Artificial Intelligence, Volume No. 1042. Springer-Verlag: New York, NY. 1996.

Journal Articles (published or accepted)

- 1. L. Yuan, B. An, S. Sen, & J. Zhang, "A Simulation Framework for Measuring Robustness of Incentive Mechanisms and Its Implementation in Reputation Systems" in *Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS)*, volume 30, No. 4, pages 581-600, 2016.
- 2. O. Yucel, C. Crawford, & S. Sen, "Evolving Effective Behaviors to Interact with Tage-Based Populations," in *Connection Science*, Vol. 27, No. 3, pages 288-304, 2015.
- 3. S. Airiau, D. Villatoro, & S. Sen, "Emergence of Conventions through Social Learning: Heterogeneous learners in complex networks," in *Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS)*, Vol. 28, No. 5, pages 779-804, 2014.
- 4. J. Olsen & S. Sen, "On the rationality of cycling in the Theory of Moves framework" Connection Science, Vol. 26, No. 2, pages 141-160, 2014.
- 5. J. Olsen & S. Sen, "Discovery, utilization and analysis of credible threats for 2 X 2 incomplete information games in the Theory of Moves framework," *Connection Science*, Vol. 26, No. 2, pages 123-140, 2014.
- 6. A. Bajaj and S. Sen, "Simulating the Effect of Social Network Structure on Workflow Efficiency Performance," *Social Networking*, Vol. 3, No. 1, pages 32–40, January 2014.
- 7. D. Chakraborty & S. Sen, "Computing effective communication policies for plan maintenance in cooperative groups," in *Multiagent and Grid Systems (MAGS)* (accepted).
- 8. D. Villatoro, J. Sabter-Mir, and S. Sen, "Robust convention emergene in social networks through self-reinforcing structures dissolution," in *ACM Transactions on Autonomous and Adaptive Systems (TAAS)*, Vol. 8, No. 1, Article No. 2, April, 2013. DOI: http://dx.doi.org/10.1145/
- 9. O. Mistry, S. Sen, "Tag recommendation for social bookmarking: Probabilistic approaches." *Multiagent and Grid Systems*, Vol. 8, No. 2, pages 143-163, 2012.
- 10. D. Villatoro, S. Sen, and J. Sabater-Mir, "Exploring the Dimensions of Convention Emergence in Multiagent Systems," in *Advances in Complex Systems*, Vol. 14, No. 2, pages 201-227, 2011.

- 11. P. Mukherjee and S. Sen, "Comparing Reputation Schemes for Detecting Malicious Nodes in Sensor Networks," in *The Computer Journal* Vol. 54, No. 3, pages 482–489, 2011.
- 12. S. Sen, "Using agent model to find efficient envy-free allocation of a continuously divisible good between two agents," in *International Journal of AI*, Vol. 4 (Spring), pages 21–34, 2010.
- 13. D. Villatoro, S. Sen, and J. Sabater-Mir, "Of Social Norms and Sanctioning: A Game Theoretical Overview," in *International Journal of Agent Technologies and Systems (IJATS)*, vol. 2, No. 1, pages 1–15, January-March, 2010.
- 14. S. Basak and S. Sen, "Using Distributed Reputation Management to Preserve Data Integrity in Sensor Networks," in *Journal of Autonomic and Trusted Computing* (accepted).
- 15. P. Mukherjee, S. Sen, and S. Airiau, "Norm Emergence with Biased Agents," in *International Journal of Agent Technologies and Systems (IJATS)* vol. 1, No. 2, pages 71–83, April-June, 2009.
- 16. S. Airiau, L. Padgham, S. Sardina, and S. Sen, "Enhancing the Adaptation of BDI Agents Using Learning Techniques," in *International Journal of Agent Technologies and Systems* (*IJATS*), vol. 1, No. 2, pages 1–18, April-June, 2009.
- 17. A. Gursel, S. Sen, and T. Candale, "Stability in Referral Systems," in *Multiagent and Grid Systems (MAGS)* (Special issue on "Engineering environments for multi-agent systems"), vol. 5, No. 1, pages 19–36, 2009.
- 18. D. Banerjee and S. Sen, "Reaching Pareto Optimality in Prisoner's Dilemma Using Conditional Joint Action Learning," in *Journal of Autonomous Agents and Multiagent Systems*, Volume 15, Number 1, pages 91-108, August, 2007.
- 19. S. Sen, S. Saha, and K. Hernandez, A Prototype "Buyer Agent" to Enhance Consumer Awareness, in Electronic Commerce Research and Applications, Volume 6, Issue 2, Summer 2007, Pages 209-218.
- 20. S. Airiau and S. Sen, "Evolutionary tournament-based comparison of learning and non-learning algorithms for iterated games," in *Journal of Artificial Societies and Social Simulation* Volume 10, Issue 3, June, 2007.
- 21. T. Candale and S. Sen, "A Comparison of Bidding Strategies for Simultaneous Auctions," in *SIGecomm Exchange*, Volume 5, Number 5, pages 41–48, January, 2006.
- 22. M. McGlohon and S. Sen, "Learning to cooperate in multi-agent systems by combining Q-learning and evolutionary strategy," in *International Journal on Lateral Computing*, Volume 1, Number 2, pages 58–64, August, 2005.
- 23. S. Saha and S. Sen, "Aggressive Pricing to Exploit Market Niches in Supply Chains," *IEEE Intelligent Systems*, Volume 20, Number 1, pages 36–41, January/February, 2005.
- 24. S. Sen, P.S. Dutta, and S. Debnath, "CHAYANI: A Shopper's Assistant," *Journal of Intelligent Systems*, Volume 14, Number 1, pages 3–23, 2005.

- 25. S. Saha and S. Sen, "Opportunistic scheduling and pricing in supply chains," in "KI- Zeitschrift fr Knstliche Intelligenz (AI Journal of Artificial Intelligence)" Volume 18(2), pages 17–24, 2004.
- 26. B. Banerjee, S. Sen, and J. Peng, "On-Policy Concurrent Reinforcement Learning," *Journal of Experimental & Theoretical Artificial Intelligence (JETAI)*, Volume 16, Number 4, pages 245 260, 2004.
- 27. S. Airiau and S. Sen, "Strategic bidding for multiple units in simultaneous and sequential auctions", *Group Decision and Negotiation*, Vol. 12, pages 397–413, 2003 (Special Issue on "Theory and Practice of Computational Coordination Mechanisms in Multi-Agent Systems").
- 28. P.S. Dutta and S. Sen, "Forming Stable Partnerships," *Cognitive Systems Research*, Volume 4, No. 3, pages 211–221, 2003 (special issue on "Cognitive Agents and Multiagent Interactions").
- 29. R. Mukherjee, N. Sajja and S. Sen, "A Movie Recommendation System: An Application of Voting Theory" *User Modeling and User-adapted Interaction*, Vol. 13, nos. 1-2, pages 5-33, 2003 (special issue on "Intelligent Agents").
- 30. S. Sen, "Believing Others: Pros and Cons," *Artificial Intelligence*, vol 142/2, pages 179-203, 2002.
- 31. P.P. Kar, S. Sen, and P.S. Dutta, "Effect of individual Opinions on Group Interactions", *Connection Science*, Vol. 14, No. 4, pages 335–344, December 2002 (special issue on "Agent Autonomy and Groups").
- 32. S. Debnath, S. Sen, and B. Blackstock, "LawBOT: an assistant for legal research," *IEEE Internet Computing*, Volume 4, Number 6, pages 32–37, November/December, 2000.
- 33. B. Banerjee, A. Biswas, M. Mundhe, S. Debnath & S. Sen, "Using Bayesian Networks to Model Agent Relationships," *Applied Artificial Intelligence Journal*, Volume 14, Number 9, pages 867–880, 2000 (Special issue on "Deception, Fraud and Trust in Agent Societies").
- 34. A. Biswas, S. Sen & S. Debnath, "Limiting Deception in Groups of Social Agents," *Applied Artificial Intelligence Journal*, Volume 14, Number 8, pages 785–797, 2000 (Special issue on "Deception, Fraud and Trust in Agent Societies").
- 35. N. Puppala and S. Sen, "Evolving cooperative groups using shared memory", *Journal of Advanced Computational Intelligence*, vol 3, no. 6, pages 457–461, 1999 (special issue on "Learning in Intelligent Algorithms and Systems Design").
- 36. S. Sen, "Multiagent Systems: Milestones and New Horizons," *Trends in Cognitive Science*, vol. 1, no. 9, pages 334–339, 1997.
- 37. S. Sen and M. Sekaran, "Individual learning of coordination knowledge," *Journal of Experimental & Theoretical Artificial Intelligence*, 10, pages 333–356, 1998 (special issue on Learning in Distributed Artificial Intelligence Systems).

- 38. S. Sen, T. Haynes, and N. Arora, "Satisfying User Preferences while Negotiating Meetings" *International Journal of Human-Computer Studies*, vol. 47, pages 407–427, 1997 (special issue on Group Support Systems).
- 39. T. Haynes & S. Sen, "Co-adaptation in a team," accepted for publication in *International Journal of Computation Intelligence and Organizations*, vol 1, no. 4.
- 40. S. Sen, "Evolution and learning in multiagent systems," *International Journal of Human-Computer Studies*, vol. 48, no. 1, pages 1–7, 1998 (special issue on Learning and Evolution in Multiagent Systems).
- 41. T. Haynes and S. Sen, "Learning Cases to resolve conflicts and improve group behavior," *International Journal of Human-Computer Studies*, vol. 48, no. 1, pages 31–49, 1998 (special issue on Learning and Evolution in Multiagent Systems).
- 42. S. Sen, N. Arora, and S. Roychowdhury, "Using limited information to enhance group stability," *International Journal of Human-Computer Studies*, vol. 48, no. 1, pages 69–82, 1998 (special issue on Learning and Evolution in Multiagent Systems).
- 43. S. Sen and S. Ghosh, "A Vision of Organization-wide Information Sharing with Proactive Agents," International Journal of Information & Computing Science (IJICS), Volume 1, Number 1, Pages 11-23, 1998.
- 44. S. Sen and E.H. Durfee, "A Formal Study of Ditributed Meeting Scheduling," *Group Decision and Negotiation*, volume 7, pages 265-289, 1998.
- 45. S. Sen, "Developing an automated distributed meeting scheduler," *IEEE Expert*, vol. 12, no. 4, pages 41–45, July/August 1997.
- 46. S. Sen and E.H. Durfee, "A Contracting Model for Flexible Distributed Scheduling," *Annals of Operations Research*, volume 65, pages 195-222, 1996.
- 47. Rajani Nadella, Neeraj Arora and Sandip Sen, "A testbed for studying coordination in autonomous agents," *International Journal of Micro-Computer Applications*, vol. 18, no. 2, pages 49–53, 1999.
- 48. S. Sen, "IJCAI-95 Workshop on Adaptation and Learning in Multiagent Systems", *AI Magazine*, Volume 17, No. 1, pages 87-89, Spring 1996.
- 49. S. Sen and E.H. Durfee, "The role of commitment in cooperative negotiation," *International Journal on Intelligent & Cooperative Information Systems*, vol. 3, no. 1, pages 67-81, 1994.
- 50. S. Sen, J. Janakiraman, and S. Paul. "Genetic Utility Optimizer", *Journal of Information Science and Technology*, vol. 1, no. 4, pp. 253-261, July, 1992.

Book chapters

1. Osman Yücel, Jon Hoffman, and Sandip Sen, "A Mediating Approach to Multilateral Negotiations," in *Modern Approaches to Agent-based Complex Automated Negotiation*, Fujita, K., Bai, Q., Ito, T., Zhang, M., Ren, F., Aydogan, R., and Hadfi, R. (Eds.), Springer, 2017.

- 2. C. Crawford, Z. Rahaman, & S. Sen, "Evaluating the Efficiency of Robust Team Formation Algorithms." in AAMAS Workshops (Selected Papers), pages 14-29, 2016.
- 3. F.M. Hafizoglu & S. Sen, "Analysis of Fairness and Incentives of Profit Sharing Schemes in Group Buying," in *Agent-mediated Electronic Commerce*, *Designing Trading Strategies and Mechanisms for Electronic Markets*, Vol:187, pages 70–83, Springer, 2014.
- 4. F. Grove, N. Jorgenson, B.Brummel, S. Sen, and R. Gamble, "Adapting Rewards to Encourage Creativity," in *Multiagent Systems for Education and Interactive Entertainment: Design, Use and Experience*, Martin Beer (Editor), (to appear).
- 5. John Porter, Kuheli Chakraborty and Sandip Sen, "Learning to Locate Trading Partners in Agent Networks," in *Adaptive Agents and Multi-Agent Systems IV*, Matthew E. Taylor and Karl Tuyls (Editors), Lecture Notes in Computer Science, Volume 5924, Springer-Verlag, 2010.
- 6. S. Sen, "Finding Useful Items and Links in Social and Agent Networks," in *Agents & Data Mining*, 2010, Page 3, 2010.
- 7. Onkur Sen and Sandip Sen, "Effects of Social Network Topology and Options on Norm Emergence." in COINAAMAS&IJCAI&MALLOW 2009, pages 211–222.
- 8. D. Villatoro, J. Sabater-Mir, S. Sen, "Interaction, observance or both? Study of the effects on convention emergence," in *CCIA* 2009, pages 189-196.
- 9. S. Sen, S. Saha, S. Airiau, T. Candale, D. Banerjee, D. Chakraborty, P. Mukherjee, and A. Gursel, "Robust Agent Communities," in *Autonomous Intelligent Systems: Agents and Data Mining*, V. Gorodetsky, C. Zhang, V.A. Skormin, and L. Cao (Editors), pages 28–45, Lecture Notes in Artificial Intelligence, volume 4476, Springer, 2007.
- 10. T. Candale and S. Sen, "Learing to Use Referrals to Select Satisficing Service Providers," in Innovative Concepts for Autonomic and Agent-Based Systems: Second International Workshop on Radical Agent Concepts, WRAC 2005, Lecture Notes in Artificial Intelligence vol. 2825, M.G. Hinchey et al. (Editors), pages 13-22, 2006.
- 11. T. Candale, I. Erete, and S. Sen, "Using inertia and referrals to facilitate satisficing distributions," in *Distributed Computing IWDC 2005*, A. Pal, A. D. Kshemkalyani, R. Kumar and A. Gupta (editors), pages 572–577, Springer, 2005.
- 12. A. McDonald and S. Sen, "The Success and Failure of Tag-Mediated Evolution of Cooperation," in , K. Tuyls and P.J. Hoen and K. Verbeeck and S. Sen (Eds.), pages 155–164, Lecture Notes in Artificial Intelligence, volume 3898, Springer, 2005.
- 13. S. Saha and S. Sen: "A Bayes Net Approach to Argumentation-Based Negotiation," in *Argumentation in Multi-Agent Systems*, I. Rahwan, P. Moraitis, and C. Reed (editors), pages 208-222, Springer, 2005.
- 14. A. Ghosh and S. Sen, "Agent-Based Distributed Intrustion Alert System," in *Distributed Computing IWDC 2004*, A.Sen, N. Das, S.K. Das *et al.* (editors), pages 240–251, Springer, 2004.

- 15. S. Saha and S. Sen, "Local decision procedures for avoiding the Tragedy of Commons," in *Distributed Computing IWDC 2003*, pages 311-320, Samir R. Das and Sajal K. Das (Editors), Springer: New York, NY, 2004.
- 16. S. Airiau, S. Sen, D.H. Wolpert and K. Tumer, "Providing effective access to shared resources: a COIN approach", in *Engineering Self-Organising Systems: Nature-Inspired Approaches to Software Engineering*, pages 249–264, Giovanna Di Marzo Sergendo, Anthony Karageorgos, Omer F. Rana and Franco Zambonelli (Eds.), Springer: New York, NY, 2004.
- 17. S. Sen, P.S. Dutta, and S. Saha "Emergence and stability of cooperation among rational agents," in "Cooperative Information Agents VII," pages 192–205, Mathias Klusch, Andrea Omicini, Sascha Ossowski, and Heimo Laamanen (Eds.), Springer: New York, NY. 2003.
- 18. S. Saha and S. Sen, "Scheduling to be competitive in supply chains," in "Intelligent Systems Design and Applications," pages 459–468, Ajith Abraham, Katrin Franke and Mario Köppen (Eds.), Springer: New York, NY. 2003.
- 19. S. Sen, S. Debnath, and M. Mundhe, "Evolving coordinated agents" in "THEORY AND APPLICATION OF EVOLUTIONARY COMPUTATION: RECENT TRENDS", A. Ghosh and S. Tsutsui (Editors), Springer-Verlag, pages 559–577, 2003.
- 20. B. Banerjee and S. Sen, "Selecting partners," in "Game theory and decision theory in agent-based systems", Simon Parsons, Piotr Gmytrasiewicz, & Michael Wooldridge (Editors), pages 29–42, Kluwer, 2002.
- 21. S.W. Nuchia and S. Sen, "Improving Optimality of *n*-agent Envy-Free Divisions," in "Intelligent Agents VIII", John-Jules Ch. Meyer & Milind Tambe (Editors), pages 277–289, Springer-Verlag, New York, NY, 2002.
- 22. R. Mukherjee, S. Sen and B. Banerjee, "Learning Mutual Trust," in *Trust in Cyber-Societies: Integrating the Human and Artificial Perspectives*, Rino Falcone, Munindar Singh, & Yao-Hua Tan (Editors), pages 145–157, Springer-Verlag, New York, NY, 2001.
- 23. S. Sen and A. Biswas and S. Ghosh, "Adaptive Choice of Information Sources," in "Intelligent Information Agents," Matthias Klusch (Editor), pages 258-278, Springer-Verlag: New York, 1999.
- 24. S.Sen and G. Weiss, "Learning in DAI Systems," chapter 6, in "Multiagent Systems: A Modern Approach to DAI," G. Weiss (Editor), MIT Press, Cambridge, MA, 1999.
- 25. S. Sen, M. Sekaran, and J. Hale, "Learning to coordinate without sharing information," in "Readings in AGENTS," Michael N. Huhns & Munindar P. Singh (Editors), Morgan Kaufmann: San Francisco, CA, 1998.
- S. Sen, "Adaptive choice of information sources," in "Cooperative Information Agents II," pages 190–194, Mathias Klusch and Gerhard Weiss (Eds.), Springer-Verlag: New York, NY. 1998.

- 27. R. Nadella and S. Sen, "Correlating internal parameters and external performance: learning Soccer agents," in "DAI meets ML," Gerhard Weiß(Editor), pages 137–150, Springer-Verlag: New York, 1997.
- 28. S. Sen, L. Knight, K. Legg, "Prototype based supervised concept learning using genetic algorithms" in "Evolutionary Algorithms in Engineering Applications" (D. Dasgupta and Z. Michalewicz, eds.), pages 223-239, Springer-Verlag: New York, 1997.
- 29. T. Haynes and S. Sen, "Evolving Behavioral Strategies in Predators and Prey", in ADAPTION AND LEARNING IN MULTIAGENT SYSTEMS, G. Weiss and S. Sen (eds.), Springer-Verlag Lecture Notes in Artificial Intelligence, Volume No. 1042. Springer-Verlag: New York, NY. 1996.
- 30. S. Sen and M. Sekaran, "Multiagent coordination with learning classifier system", in ADAPTION AND LEARNING IN MULTIAGENT SYSTEMS, G. Weiss and S. Sen (eds.), Springer-Verlag Lecture Notes in Artificial Intelligence, Volume No. 1042. Springer-Verlag: New York, NY. 1996.
- 31. S. Sen and M. Sekaran, "Using reciprocity to adapt to others", in ADAPTION AND LEARN-ING IN MULTIAGENT SYSTEMS (G. Weiss and S. Sen (eds.), Springer-Verlag Lecture Notes in Artificial Intelligence, Volume No. 1042. Springer-Verlag: New York, NY. 1996.
- 32. E.H. Durfee, D. Damouth, M. Huber, T.A. Montgomery, and S. Sen, "The Search for Coordination: Knowledge-guided abstraction and search in a hierarchical behavior space," in ARTIFICIAL SOCIAL SYSTEMS (Castelfranchi and Werner, eds.), Springer-Verlag Lecture Notes in Artificial Intelligence, pages 187-206, 1994.

Refereed conference publications

- 1. Tianpei Yang, Zhaopeng Meng, Jianye Hao, Sandip Sen, Chao Yu, "Accelerating Norm Emergence Through Hierarchical Heuristic Learning." in Proceedings of European Conference on Artificial Intelligence (PRICAI-2016), pages 1344-1352, 2016.
- 2. Chao Yu, Hongtao Lv, Sandip Sen, Jianye Hao, Fenghui Ren, & Rui Liu, "An Adaptive Learning Framework for Efficient Emergence of Social Norms (Extended Abstract)", *Proceedings of the Fourteenth International Conference on Autonomous Agents and Multiagent Systems*, pages 1307–1308, Singapore, May 2016.
- 3. Chao Yu, Hongtao Lv, Sandip Sen, Fenghui Ren, & Guozhen Tan, "Adaptive Learning for Efficient Emergence of Social Norms in Networked Multiagent Systems." *Proc. of 14th Pacific Rim International Conference on Artificial Intelligence (PRICAI 2016)*, pages 805-818, 2016.
- 4. Sandip Sen, Anton Ridgway, & Michael Ripley: "Adaptive Budgeted Bandit Algorithms for Trust Development in a Supply-Chain," *Proceedings of the Fourteenth International Conference on Autonomous Agents and Multiagent Systems*, pages 137-144, Istanbul, Turkey, 2015.
- 5. Logan Brooks & Sandip Sen, "Improving scalability and dependability of stochastic MAS analyses," *Proceedings of the Thirteenth International Conference on Autonomous Agents and Multiagent Systems*, pages 709-716, Paris, France, 2014.

- 6. Yuan Liu, Jie Zhang, Bo An, & Sandip Sen, "A Simulation Framework for Measuring Robustness of Incentive Mechanisms" (extended abstract) *Proceedings of the Thirteenth International Conference on Autonomous Agents and Multiagent Systems*, pages 1379-1380, Paris, France, 2014.
- 7. Sandip Sen, "A comprehensive approach to trust management." Proceedings of the Twelfth International Conference on Autonomous Agents and Multiagent Systems, pages 797-800, St. Paul, USA, 2013.
- 8. Jolie Olsen & Sandip Sen, "Discovery, utilization, and analysis of credible threats for 2X2 incomplete information games in TOM." *Proceedings of the Twelfth International Conference on Autonomous Agents and Multiagent Systems*, pages 1179-1180,St. Paul, USA, 2013.
- 9. Jolie Olsen & Sandip Sen, "On the rationality of cycling in the theory of moves framework." Proceedings of the Twelfth International Conference on Autonomous Agents and Multiagent Systems, pages 1235-1236, St. Paul, USA, 2013.
- 10. Chad Crawford, Logan Brooks, & Sandip Sen, "Opposites repel: the effect of incorporating repulsion on opinion dynamics in the bounded confidence model." *Proceedings of the Twelfth International Conference on Autonomous Agents and Multiagent Systems*, pages 1225-1226, St. Paul, USA, 2013.
- 11. Sreerupa Chatterjee, Feyza Merve Hafizoglu & Sandip Sen, "Predicting migration and opinion adoption patterns in agent communities." *Proceedings of the Twelfth International Conference on Autonomous Agents and Multiagent Systems*, pages 1287-1288, St. Paul, USA, 2013.
- 12. Sreerupa Chatterjee, Alexander Ruff, and Sandip Sen, "Opinion convergence in agent networks." Proceedings of the Eleventh International Conference on Autonomous Agents and Multiagent Systems, pages 1333-1334, Valencia, Spain, 2012.
- 13. Feyza Merve Hafizoglu, Sandip Sen, "Patterns of migration and adoption of choices by agents in communities." *Proceedings of the Eleventh International Conference on Autonomous Agents and Multiagent Systems*, pages 1349-1350, Valencia, Spain, 2012.
- 14. Feyza Merve Hafizoglu, Sandip Sen, "Analysis of Opinion Spread through Migration and Adoption in Agent Communities." *Proceedings of Principles and Practices of Multiagent Systems (PRIMA 2012)*, pages 153-167, Kuching, Malaysia, 2012.
- 15. L. Brooks, W. Iba and S. Sen, "Modeling the Emergence and Convergence of Norms," *Proceedings of the Twenty-Second International Joint Conference on Artificial Intelligence*, pages 97–102, Barcelona, Spain, July 2011.
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- 16. John Porter, Kuheli Chakraborty and Sandip Sen, "Learning to Locate Trading Partners in Agent Networks," in the Working Notes of the Adaptive and Learning Agents Workshop held in association with AAMAS-2009, pages 43–46.

- 17. Sandip Sen, Nick Malone and Kuheli Chakraborty, "Comprehensive Trust Management," in the Working Notes of *Workshop on Trust in Agent Societies*, held in association with AAMAS-2009, pages 129–146.
- 18. Frank Grove, Oly Mistry and Sandip Sen, "Selecting Interaction Protocols and Adapting Behavior," in the Working Notes of the 2nd International Workshop on Agent-based Complex Automated Negotiations, held in association with AAMAS-2009, pages 46–53.
- 19. Daniel Villatoro, Nick Malone and Sandip Sen, "Effects of interaction history and network topology on rate of convention emergence," in the Working Notes of *The Third International Workshop on Emergent Intelligence on Networked Agents*, held in association with AAMAS-2009, pages 13–19.
- 20. Rose Gamble, Sandip Sen, Bradley Brummel, et al, "The SEREBRO Project: Fostering Creativity through Collaboration and Rewards," in the Working Notes of Workshop On Educational Uses of Multi-Agent Systems, held in association with AAMAS-2009.
- 21. Stphane Airiau and Sandip Sen, "A fair payoff distribution for myopic rational agents," in *Proc. of 2nd International Workshop on Computational Social Choice*, Liverpool, England, September 2008.
- 22. A. Gursel, O. Mistry, and S. Sen, "Robust Trust Mechanisms for Monitoring Aggregator Nodes in Sensor Networks," in *Proceeding of the workshop on Agent technology for Sensor Network (ATSN-08)*, (pages 49–55), Estoril, Portugal, 2008.
- 23. P. Mukherjee and S. Sen, "Comparing reputation schemes for detecting malicious nodes in sensor networks," in *Proceeding of the workshop on Agent technology for Sensor Network* (ATSN-08), (pages 57–64), Estoril, Portugal, 2008.
- 24. P. Mukherjee, S. Sen, and S. Airiau, "Norm Emergence with Biased Agents," in *Proceeding of the workshop on Adaptive and Learning Agents and Multi-Agent Systems*, (pages 49–56), Estoril, Portugal, 2008.
- 25. S. Airiau, L. Padgham, S. Sardina, and S. Sen, "Incorporating Learning in BDI Agents," in *Proceeding of the workshop on Adaptive and Learning Agents and Multi-Agent Systems*, (pages 81–87), Estoril, Portugal, 2008.
- 26. J Porter and S. Sen, "Searching for Collaborators," in *Proc. Agent Networks. Web Intelligence/IAT Workshops 2007* (pages 508-511), Fremont, California, 2007.
- 27. P. Mukherjee, S. Sen, S. Airiau, "Emergence of Norms with Biased Interactions in Heterogeneous Agent Societies," in *Proc. Web Intelligence/IAT Workshops 2007*, (pages 512-515), Fremont, California, 2007.
- 28. S. Sen, A. Gursel and S. Airiau, "Learning to Identify Beneficial Partners," in the Working Notes of the AAMAS-2007 Workshop on Adaptive and Learning Agents (ALAg-07) (pages 47–52), Honolulu, HI, 2007.

- 29. P. Mukherjee, S. Sen and S. Airiau, "Norm emergence in spatially constrained interactions," in the Working Notes of the AAMAS-2007 Workshop on Adaptive and Learning Agents (ALAg-07) (pages 79–83), Honolulu, HI, 2007.
- 30. P. Mukherjee and S. Sen, "Detecting Malicious Sensor Nodes from Learned data Patterns," in *Proceeding of the workshop on Agent technology for Sensor Network (ATSN-07)*, Honolulu, HI, 2007.
- 31. D. Banerjee and S. Sen, "Convergence to Pareto Optimality in General Sum Games via Learning Opponent's Preference," in the Working Notes of Adaptation and Learning in Autonmous Agents and Multiagent Systems (ALAAMAS) (pages 43–49), held in association with AAMAS-06, Hakodate, Japan, May 8, 2006.
- 32. S. Airiau and S. Sen, "Learning to Commit in Repeated Games," in the Working Notes of Adaptation and Learning in Autonomus Agents and Multiagent Systems (ALAAMAS) (pages 50–56), held in association with AAMAS-06, Hakodate, Japan, May 8, 2006.
- 33. S. Sen, I. Goswami, and S. Airiau, "Expertise and Trust-based formation of effective coalitions: an evaluation of the ART testbed," in the *Working Notes of TRUST 2006: Trust in Agent Societies*" (9th edition) (pages 71–78), held in association with AAMAS-06, Hakodate, Japan, May 9, 2006.
- 34. S. Basak and S. Sen, "Preserving Data Integrity in Sensor Network using Reputation Management," in the Working Notes of the First International Workshop on Privacy and Security in Agent-based Collaborative Environments (PSACE 2006), held in association with AAMAS-06, Hakodate, Japan, May 9, 2006.
- 35. D. Chakraborty, S. Saha, S. Sen and B. Clement, "Negotiating Assignment Of Disaster Monitoring Tasks," in the Working Notes of the First International Workshop on Agent Technology And Disaster management (ATDM) (pages 10–17), held in association with AAMAS-06, Hakodate, Japan, May 8, 2006.
- 36. Sabyasachi Saha and Sandip Sen: "Towards Efficient Outcomes in Multi-issue Negotiation," in the Working Notes of the 5th Business Agents and the Semantic Web Workshop (pages 17–25), held in association with AAMAS-06, Hakodate, Japan, May 8, 2006.
- 37. S. Sen, S. Saha, S. Airiau, D. Banerjee, and T. Candale, "Sustainable Agent Communities," in the *Proceedings of the Third European Workshop on Multiagent Systems (EUMAS 2005)*, pages 3–19, 2005.
- 38. D. Banerjee and S. Sen, "Reaching Pareto Optimality in Prisoner's Dilemma Using Conditional Joint Action Learning," in the Working Notes of the AAAI-05 Workshop on Multiagent Learning, 2005.
- 39. A. McDonald and S. Sen, "The Success and Failure of Tag-Mediated Evolution of Cooperation," in the Working Notes of the AAMAS-05 Workshop on Learning and Adaptation in MAS (LAMAS), 2005.

- 40. S. Airiau and S. Sen, "Learning Pareto-optimal solutions in 2x2 conflict games," in the Working Notes of the AAMAS-05 Workshop on Learning and Adaptation in MAS (LAMAS), 2005.
- 41. T. Candale and S. Sen, "Fast convergence to satisfying distributions," in the Working Notes of the AAMAS-05 Workshop on Challenges in the coordination of large scale multi-agent systems, 2005.
- 42. A. McDonald and S. Sen, "Analyzing the Effects of Tags on Promoting Cooperation in Prisoner's Dilemma," in the Working Notes of the 2004 AAAI Fall Symposium on Artificial Multiagent Learning (pages 9–14).
- 43. S. Airiau, S. Saha and S. Sen, "Dynamics of Strategy Distribution in Iterated Games," in the Working Notes of the 2004 AAAI Fall Symposium on Artificial Multiagent Learning (pages 35–42).
- 44. A. Ghosh and S. Sen, "Learning TOMs: Towards Non-Myopic Equilibria," in the Working Notes of the 2004 AAAI Fall Symposium on Artificial Multiagent Learning (pages 66–72).
- 45. D. Banerjee, S. Saha and S. Sen, "Expertise Selection by Predicting Mutually Beneficial Partnerships" in the Working Notes of the AAAI-2004 workshop on Forming and Maintaining Coalitions in Adaptive Multiagent Systems, July, 2004.
- 46. T. Candale and S. Sen, "Choosing satisficing service providers by learning referrals," in the Working Notes of the AAMAS-04 Workshop on Learning and Evolution in Multiagent Systems (pages 6–11), 2004.
- 47. S. Airiau and N. Ganguly, S. Sen and S. Saha, "Evolutionary tournament-based comparison of learning and non-learning strategies for iterated games," in the Working Notes of the AAMAS-04 Workshop on Learning and Evolution in Multiagent Systems (pages 1–5), 2004.
- 48. S. Saha and S. Sen, "Predicting Agent Strategy Mix in Heterogeneous Populations" in the Working Notes of the AAMAS-2004 workshop on Game Theoretic and Decision Theoretic Agents (GTDT-2004), July, 2004.
- 49. S. Saha and S. Sen, "Agent Based Framework for Content Based Image Retrieval" in the Working Notes of the AAAI-04 Spring Symposium on Interaction between Humans and Autonomous Systems over Extended Operation, March, 2004.
- 50. S. Airiau, S. Sen, D.H. Wolpert and K. Tumer, "Providing effective access to shared resources: a COIN approach", in the *Working Notes of The First International Workshop on Engineering Self-Organising Applications (ESOA 2003)*, 2003.
- 51. S. Airiau and S. Sen, "Tournament-based comparison of learning and non-learning strategies in iterated single-stage games," in the *Working Notes of the FIFTH WORKSHOP ON GAME THEORETIC AND DECISION THEORETIC AGENTS*, 2003.
- 52. A. Ghosh and S. Sen, "Learning TOMs: Convergence to non-myopic equilibria" in the Working Notes of FIFTH WORKSHOP ON GAME THEORETIC AND DECISION THEORETIC AGENTS (Special Session on Evolutionary Game Theory).

- 53. S. Airiau, S. Sen, and G. Richard, "Strategic Bidding for Multiple Units in Simultaneous and Sequential Auctions," in the Working Notes of AAAI-02 Workshop on "Multi-Agent Modeling and Simulation of Economic Systems", 2002.
- 54. S. Sen and N. Sajja, "Selecting Service Providers based on Reputation," in the Working Notes of AAAI-02 Workshop on "Multi-Agent Modeling and Simulation of Economic Systems", 2002.
- 55. P.P. Kar, P.S. Dutta, and S. Sen, "Group Interactions Based on Agent Opinion," in the Working Notes of AAAI-02 Workshop on "Autonomy, Delegation and Control: From Inter-Agent to Groups", 2002.
- 56. P.S. Dutta and S. Sen, "Emergence of Stable Coalitions via Negotiation of Task Exchanges," in the Working Notes of AAAI-02 Workshop on "Coalition Formation in Dynamic Multiagent Environments", 2002.
- 57. S. Sen and P.P. Kar, "Sharing a Concept," in the Working notes of the AAAI-02 Spring Symposium on Collaborative Learning Agents, pages 55-60. (Symposium Notes available as AAAI Technical Report SS-02-02).
- 58. S. Sen and R. Mukherjee, "Negotiating Efficient Envy-Free Divisions," in the Working notes of the AAAI-01 Fall Symposium on Negotiation Methods for Autonomous Cooperative Systems, pages 149-154. (Symposium Notes available as AAAI Technical Report SS-02-02).
- 59. P.S. Dutta and S. Sen, "Emergence of Stable Coalitions via Negotiation of Task Exchanges," in the Working notes of the AAAI-01 Fall Symposium on Negotiation Methods for Autonomous Cooperative Systems, pages 155-160. (Symposium Notes available as AAAI Technical Report SS-02-02).
- 60. P.S. Dutta, S. Sen and R. Mukherjee, "Scheduling to be competitive in supply chains", in the Working Notes of the IJCAI 2001 workshop on "E-Business and the Intelligent Web", August 4 10, 2001 in Seattle, WA.
- 61. P.S. Dutta, S. Sen and J. Peng, "Applying Bayesian mixed-initiative agents in real-world reasoning," in the Working Notes of the IJCAI, 2001 workshop on Autonomy, Delegation and Control: Interacting with Autonomous Agents, August 4 10, 2001 in Seattle, WA.
- 62. R. Mukherjee, S. Sen and P.S. Dutta, "Movies2go A new approach to online movie recommendation," in the Working Notes of the IJCAI 2001 workshop on Intelligent Techniques for Web Personalisation, August 4 10, 2001 in Seattle, WA.
- 63. R. Mukherjee and S. Sen, "Towards a pareto-optimal solution in general-sum games," in the Working Notes of the Agents 2001 Workshop on Learning Agents, May 28 June 01, 2001 in Montreal, Canada.
- 64. S. Sen and P.S. Dutta, "Envy and spite-free divisions," in the Working Notes of the Autonomous Agents 2001 workshop on Deception, Fraud and Trust in Agent societies, May 28 June 01, 2001 in Montreal, Canada.

- 65. S. Sen, P.S. Dutta, R. Mukherjee, "Agents that represent Buyer's interest in E-commerce," in the Working Notes of the AAAI-2000 Workshop on Knowledge Based Electronic Markets.
- 66. R. Mukherjee, P.S. Dutta, S. Sen, "Analysis of domain-specific ontologies for agent-oriented information retrieval," in the Working Notes of the AAAI-2000 Workshop on Agent-Oriented Information Systems.
- 67. B. Banerjee and S. Sen, "Selecting Partners", in the Working Notes of the 2nd Workshop on Decision Theoretic and Game Theoretic Agents (held in association with ICMAS-2000), pages 1-12, 2000.
- 68. B. Banerjee, S. Debnath, and S. Sen, "Combining Multiple Perspectives," in the Working Notes of AGENTS-00/ECML-00 Workshop on Learning Agents, pages 27-32, 2000.
- 69. B. Banerjee, S. Sen, and J. Peng, "Evaluating Competitive Learners," in the Working Notes of AGENTS-00/ECML-00 Workshop on Learning Agents, pages 48-52, 2000.
- 70. B. Banerjee, R. Mukherjee, and S. Sen, "Learning Mutual Trust," in the Working Notes of AGENTS-00 Workshop on Deception, Fraud and Trust in Agent Societies, pages 9-14, 2000.
- 71. A. Biswas, S. Debnath and S. Sen, "Believing Others: Pros and Cons," in the Working Notes of the IJCAI-99 workshop on Agents that Learn About, From and With Other Agents, 1999.
- 72. M. Mundhe and S. Sen, "Evaluating Concurrent Reinforcement Learners," in the Working Notes of the IJCAI-99 workshop on Agents that Learn About, From and With Other Agents, 1999.
- 73. S. Sen and A. Biswas, "More than Envy-Free", in the Working Notes of the AAAI-99 Workshop on Negotiation: Settling Conflicts and Identifying Opportunities (also available as AAAI Technical Report WS-99-12), pages 44-49, 1999.
- 74. B. Banerjee, S. Debnath and S. Sen, "Using Bayesian Network to aid Negotiations among Agents", in the Working Notes of the AAAI-99 Workshop on Negotiation: Settling Conflicts and Identifying Opportunities (also available as AAAI Technical Report WS-99-12), pages 44-49, 1999.
- 75. A. Biswas, M. Mundhe, S. Debnath, and S. Sen, "A Bayesian Network based approach for modeling agent relationships," in the Working Notes of the AGENTS99 workshop on Deception Fraud and Trust in Agent Societies, pages 17–19, 1999.
- 76. A. Biswas, S. Sen and S. Debnath, "Limiting Deception in Social Agent-Groups," in the Working Notes of the AGENTS99 workshop on Deception Fraud and Trust in Agent Societies, pages 21–28, 1999.
- 77. M. Mundhe and S. Sen, "Use of voting schemes to tradeoff user preferences," in the Working Notes of the AAAI-98 workshop on *Recommender Systems*.
- 78. M. Gordin and S. Sen, "Using Observation to Select Complementary Goals," in the Working notes of the AAAI-98 Spring Symposium on Satisficing Models, pages 31-38. (Symposium Notes available as AAAI Technical Report SS-98-05).

- 79. A. Biswas and S. Sen, "Reciprocating with Learned Models," in the Working notes of the AAAI-98 Spring Symposium on Satisficing Models, pages 15-18. (Symposium Notes available as AAAI Technical Report SS-98-05).
- 80. M. Gordin, S. Sen, and N. Puppala, "Evolving Cooperative Groups: Preliminary Results," in the *Working Notes of the AAAI-97 Workshop on Multiagent Learning*, pages 31-35. (Workshop Notes available as AAAI Technical Report WS-97-03).
- 81. S. Sen and N. Arora, "Learning to take risks," in the Working Notes of AAAI-97 workshop on Multiagent Learning, pages 59-64. (Workshop Notes available as AAAI Technical Report WS-97-03).
- 82. S. Sen, "Modeling human categorization by a simple classifier system," in *Proc. of the 1st Online Workshop on Soft Computing*, held between Aug 19-30, 1996.
- 83. R. Nadella, N. Arora, and S. Sen, "A testbed for studying coordination of autonomous agents: a Java based robotic soccer simulator," in *Proc. of the 10th Annual Mid-America Symposium on Emerging Computer Technologies'96*, Norman, Oklahoma, 1996.
- 84. T. Haynes and S. Sen, "Adaptation using cases in cooperative groups," in the Working Notes of the AAAI-96 Workshop on Intelligent Adaptive Agents, Portland, OR, August 1996.
- 85. T. Haynes and S. Sen, "Learning Cases to resolve conflicts and improve group behavior," in the Working Notes of the AAAI-96 Workshop on Agent Modeling, Portland, OR, August 1996.
- 86. N. Arora and S. Sen, "Resolving Social Dilemmas Using Genetic Algorithms", in the Working notes of the AAAI Spring Symposium on Adaptation, Coevolution, and Learning in Multiagent Systems, Stanford, CA, March 25-27, 1996.
- 87. T. Haynes, K. Lau, and S. Sen, "Learning Cases to Compliment Rules for Conflict Resolution in Multiagent Systems", in the Working notes of the AAAI Spring Symposium on Adaptation, Coevolution, and Learning in Multiagent Systems, Stanford, CA, March 25-27, 1996.
- 88. T. Haynes, S. Sen, D. Schoenefeld, and R. Wainwright, "Evolving a Team", in *Working notes of the AAAI Fall Symposium on Genetic Programming*, Cambridge, November, 1995.
- 89. R. Gamble and S. Sen, "Using Formal Specification to Resolve Conflicts between Contracting Agents," in *Proc. AAAI-94 Workshop on Conflict Management in Cooperative Problem Solving*, Seattle, Washington, August, 1994.
- 90. S. Sen and E.H. Durfee, "Adaptive Surrogate Agents," in *Proc. 13th International Distributed AI workshop*, Lake Quinault Lodge, Washington, July 28-30, 1994.
- 91. S. Sen, "Contract-based distributed meeting scheduling," in Working Notes of CAIA-94 Workshop on Coordinated Design and Planning, San Antonio, Texas, March 1994.
- 92. S. Sen and E.H. Durfee, "Avoiding and resolving conflicts among cooperative scheduling agents," in *Proc. IJCAI Workshop on Computational Models of Conflict Management in Cooperative Problem Solving*, Chambery, France, August 30, 1993.

- 93. S. Sen and E.H. Durfee, "Dependent Subtask Processing in a Contract-Net for Manufacturing" in *Proc. AAAI Workshop on Intelligent Manufacturing Technology*, Washington D.C. July, 1993.
- 94. S. Sen and E.H. Durfee, "The Effects of Search Bias on Flexibility in Distributed Scheduling," in *Proc. 12th Intl Workshop on Distributed Artificial Intelligence*, Hidden Valley Resort, Hidden Valley, Pennsylvania, May 19-21, 1993.
- 95. S. Sen and E.H. Durfee. "Automated Meeting Scheduling among Heterogeneous Agents," in Working Papers of the AAAI-92 Workshop on Cooperation among Heterogeneous Intelligent Agents (pages 116-120), San Jose, California, July 1992.
- 96. S. Sen. "Noise sensitivity in a simple classifier system," in *Proc. 5th Conf. on Neural Networks & Parallel Distributed Processing*, Ft Wayne, Indiana, April 1992.
- 97. S. Sen and E.H. Durfee. "A Formal Analysis of Communication and Commitment in Distributed Meeting Scheduling," in *Proc. Eleventh Intl. Distributed Artificial Intelligence Workshop* (pages 333-344), Glen Arbor, Michigan, February 1992.

Thesis & Dissertation:

- 1. S. Sen. "Predicting Tradeoffs in Contract-Based Distributed Scheduling," PhD Dissertation, Department of Computer Science & Engineering, University of Michigan, Ann Arbor, Michigan, December 1993.
- 2. S. Sen. "Distributed Parallel Genetic Algorithms (DIPGAL)", Master's Thesis, Dept. of Electrical Engg., Univ. of Alabama, Tuscaloosa, Alabama, Dec, 1988.

PROFESSIONAL ACTIVITIES

Proposal Reviews

Reviewed proposals in panels for several programs, including those for CAREER awards, for the following National Science Foundation directorate: Information Technology & Organizations (ITO), Knowledge Models & Cognitive Systems (KMCS), Computation & Social Systems (CSS), Digital Society & Technology (DST). Reviewed proposals for the Israeli Science Foundation and The Netherlands Organisation for Scientific Research (NWO).

Conference Chair

- General Co-Chair of the Ninth International Conference on Autonomous Agents and Multiagent Systems (AAMAS-2010) held in Toronto, Canada between May 10-14, 2010.
- General Co-Chair of *The 15th International Conference on Principles and Practice of Multi-*Agent Systems (PRIMA-2012) held in Kuching, Sarawak, Malaysia between September 3 - 7, 2012.

Conference Program Chair

• Program Co-Chair of the Fifth International Conference on Autonomous Agents (AGENTS-2001) held in Montreal, Canada between May 28 – June 1, 2001.

• Chair of the Special Program Committee on ALife, Artificial Agents, and Adaptive Behavior ("AAA") of the 2001 Genetic and Evolutionary Computation Conference (GECCO) held in San Francisco, CA between July 17-21, 2001.

Other Conference Organizational Committee Roles:

- Sponsorship Chair, Thirtieth International Conference on Artificial Intelligence, Phoenix, USA, February, 2016.
- Sponsorship Co-Chair, Twenty-Ninth International Conference on Artificial Intelligence, Austin, USA, January, 2015.
- Student Travel Scholarships Chair, Fourth International Conference on Multiagent Systems, Boston, MA, 2000.
- Doctoral Mentoring Chair, Second International Conference on Autonomous Agents and Multiagent Systems, Melbourne, Australia, 2003.
- Finance Chair, Fourth International Conference on Autonomous Agents and Multiagent Systems, Utrecht, Netherlands, 2005.
- Publicity Co-Chair, Seventh International Workshop on Distributed Computing (IWDC-2005)
- Student Scholarships Co-Chair, Fifth International Conference on Autonomous Agents and Multiagent Systems, Hakodate, Japan, 2006.
- Student Scholarships Co-Chair, Sixth International Conference on Autonomous Agents and Multiagent Systems, Honululu, Hawaii, USA, 2007.
- Chair, Victor Lesser Distinguished Dissertation Award Committee (in association with AA-MAS'08), 2008.
- Member, Victor Lesser Distinguished Dissertation Award Committee in association with AA-MAS'09 and AAMAS'16.

Board Membership

• Board Member, International Foundation for Autonomous Agents and Multiagent Systems (IFAAMAS), 2010-2016. Chair of Awards Committee (2012-present).

Organizer of international workshops/symposia

- Co-Chair, "International Workshop on Adaptive and Learning Agents and Multiagent Systems" (held in association with AAMAS-08) held on May 12, 2008 in Estoril, Portugal.
- Co-Chair, "First International Workshop on Adaptive and Learning Agents (ALAg)" (held in association with AAMAS-07) held on May 14, 2007 in Honolulu, Hawaii.
- Co-Chair, AAMAS-06 workshop on "Adaptation and Learning in Autonomous Agents and Multiagent Systems" held on May 8, 2006 in Hakodate, Japan.

- Chair, AAMAS-04 workshop on "Learning and Evolution in Agent Based Systems" held on July 20, 2004 in New York, NY.
- Co-Chair, Autonomous Agents'2000/ECML'2000 workshop on "Learning Agents" held on June 3, 2000 in Barcelona, Spain.
- Co-Chair, IJCAI-99 Workshop on "Agents Learning About, From and With Other Agents" held on August 2, 1999 in Stockholm, Sweden.
- Chair, AAAI-99 Workshop on "Negotiation: Settling conflicts and identifying opportunities" held on July 19, 1999.
- Chair, AAAI-98 Spring Symposium on *Satisficing Models* held between March 23-25, 1998 in Stanford University, California.
- Chair, AAAI-97 workshop on *Multiagent Learning* held on July 28, 1997 in Providence, Rhode Island.
- Chair, AAAI-96 Spring Symposium on Adaptation, Co-evolution and Learning in Multiagent Systems held between March 25-27, 1996 in Stanford University, California.
- Chair, IJCAI-95 workshop on Adaptation and Learning in Multiagent Systems held on August 21, 1995 in Montreal.

Editing journal issues

Guest editor, International Journal of Human-Computer Studies, special issue on Learing and Evolution in Multiagent Systems.

Journal Editorial boards Currently serving on the Editorial Boards of the following journals:

- Member, Editorial Board, AI Magazine (2010-present)
- Member, Editorial Board, Knowledge Engineering Review.

Served on the Editorial Boards of the following journals in the past:

- Member, Editorial Board, Journal of Autonomous Agents and Multi-agent Systems (JAA-MAS) (2004-2010)
- Member, Editorial Board, International Journal of Computational Intelligence & Organizations.
- Member, Editorial Board, Cognitive Systems Research.

Tutorial presentations

1. "Trust and Reputaion in Multiagent Systems," 13th International Conference on Principles and Practices of Multi-Agent Systems (PRIMA-2010) held in Kolkata, India on November 12, 2010.

- 2. "Trust mechanisms for agent systems," presented at the *IEEE International Conference on Web Intelligence & Intelligent Agent Technologies* held in Silicon Valley, California, on November 2, 2007.
- 3. "Learning and Evolution in Agent Based Systems" presented in association with the Fifth International Conference on Autonomous Agent and Multiagent Systems held in Hakodate, Japan on May 9, 2006.
- 4. "Intelligent Agents," presented in association with the First International Congress on Lateral Computing, held on December 19, 2004 in Bangalore, India.
- 5. "Learning and Evolution in Agent Based Systems" presented in association with the Third International Conference on Autonomous Agent and Multiagent Systems held in New York, USA on May 9, 2004.
- 6. "Genetic Algorithms for Learning Agents and Adaptive Societies" presented in association with FIFTH INTERNATIONAL CONFERENCE ON ADVANCES IN PATTERN RECOGNITION (ICAPR-2003) held on December 10, 2003 in Kolkata, India.
- 7. "Intelligent Agents" presented in association with 1st Indian International Conference on Artificial Intelligence (IICAI-03) held on December 20, 2003 in Hyderabad, India.
- 8. "Learning and Evolution in Agent Based Systems" presented in association with the Autonomous Agent and Multiagent Systems conference held in New York, NY on July 19, 2004.
- 9. "Intelligent Agents," presented on December 18, 2002 in association with the Knowledge-Based Computer System'02 conference held in Mumbai, India.
- 10. "Learning and Evolution in Multiagent Systems," presented on July 9, 2000 in association with the Fourth International Conference on Multiagent Systems held in Boston, MA.
- 11. "Learning Agents," presented on June 4, 2000 in association with the Fourth International Conference on Autonomous Agents (Agents'00) held in Barcelona, Spain.
- 12. "Learning and Evolution in Multiagent Systems," presented on July 3, 1998 in association with the Third International Conference on Multiagent Systems held in Paris, France.
- 13. "Learning Agents," presented on February 5, 1997 in association with the First International Conference on Autonomous Agents (Agents'97) held in Marina del Ray, CA. Co-presented with Claude Touzet.
- 14. "Learning in Multiagent Systems," presented on December 10, 1996 in association with the Second International Conference on Multiagent Systems held in Nara, Japan.
- 15. "Distributed Artificial Intelligence: Directions & Applications," in the 7th Oklahoma Symposium on Artificial Intelligence, November, 1993.

Continuing Education/Short Course Offerings

- "Multiagent Learning," presented in the PRIMA 2004 Agent School On Agents and Multiagent System held in Auckland, NZ on August 8, 2004.
- "Learning Agents," presented in the Melbourne Agent Systems School held in Melbourne, Australia between July 8–12, 2003.
- "Learning Agents," presented in the Fouth European Agent Systems Summer School held in Bologna, Italy between August 8–12, 2002.
- "Learning Agents," presented in the First American Agent Systems School held in Marina del Ray, California between January 6–11, 2002.
- "Learning Agents," presented in the Second European Agent Systems Summer School held in Saarbrücken, Germany between August 14–18, 2000.
- "Learning and Evolution in Multiagent Systems," presented in the First European Agent Systems Summer School held in Utrecht, Netherlands between July 26–31, 1999.
- "Distributed AI" (offered in Universidad Nacional de San Luis, San Luis, Argentina between July 22-August 2, 1996, in response to an invitation from the Education Ministry of Argentina).
- "Genetic Algorithms: An Overview," presented in the Department of Computer Science, University of Windsor, Canada (July, 1995).

Invited talk

- "Promoting Strategic Partnerships in Agent Communities", Keynote, 2014 AAAi-Workshop on Incentives and Trust in Electronic Communities, July 27, 2014.
- "Tools for a Robust, Sustainable Agent Community," presented on January 14, 2013 at University of Georgia, USA.
- "Robust and Sustainable Agent Communities," presented on September 4, 2012 at Nanyang Technological University, Singapore.
- "Tools for a Robust, Sustainable Agent Community," Keynote talk presented at *PRIMA 2011:* The 14th International Conference on Principles and Practices of Multi-Agent Systems.
- "Tools for a Robust, Sustainable Agent Community," presented on November 14, 2011 at Griffith University, Brisbane, Australia,
- "Finding Useful Items and Links in Social and Agent Networks," presented at the Agents and Data Mining Workshop held in association with AAMAS-2010.
- "Learning coordinated behavior in agent communities," presented at the Emergent Intelligence and Networked Agents Workshop held in association with AAMAS-2010.
- "Robust Agent Communities," presented at University of Waterloo, Canada on July 3, 2008.

- "Robust Agent Communities," presented at University of Melbourne, Australia on November 16, 2007.
- "Robust Agent Communities," presented at the Second International Workshop on Autonomous Intelligent Systems: Agents & Data Mining (AIS-ADM-07) held in St. Petersburg, Russia on June 4, 2007.
- "Sustainable Agent Communities," presented at the Third European Workshop on Multiagent Systems (EUMAS 2005) held in Brussels, Belgium on December 8, 2005.
- Keynote talk on "Mechanisms for open, adaptive agent communities," presented at the Pacific Rim International Workshop on Multiagent Systems (PRIMA'04), held in Auckland, NZ on August 9, 2004.
- "Evolution and Stability of Collaboration Among Rational Agents," presented at the 7th international workshop on cooperative information agents (CIA 2003) on August 28, 2003 in Helsinki, Finland.
- "Intelligent Agent Technologies for User Support and Peer-to-Peer Computing" presented at the Third International Conference on Intelligent Systems Design and Applications, on August 13, 2003.
- "Intelligent Agent Systems: Theories & Application," presented at the Indian Institute of Management, Joka, India, on June 9, 2003.
- "Designing Agent Behaviors: Theory & Applications," presented at National Tsing Hua University, Hsin-Chu, Taiwan, on December 21, 2001.
- "Learning With and About Other Agents," presented on October 27, 2001 at the "Workshop on Multi-Agent Computation in Natural and Artificial Economies" held at Brookings Instituion, Washington DC.
- "Designing Intelligent Agents: Theory & Practice" presented at the Electrical & Computer Engineering Department of the University of Iowa on September 4, 2001.
- "Designing Intelligent Agents: Theory & Practice" presented at the Computer Science Department of the University of Oklahoma on September 8, 2000.
- "Adaptive Choice of Information Sources," presented on July 6, 1998 at the 2nd International Cooperative Intelligent Agents Workshop held in conjuction with the Third International Conferences on Multiagent Systems, Paris, France.

Panelist role:

- Panel, The 14th International Conference on Principles and Practice of Multi-Agent Systems (PRIMA-2011) held in Woolongong, Australia, 2011.
- Joint Panel, ALA/MSDM workshops, Twelfth International Conference on Autonomous Agents and Multiagent Systems (AAMAS-2013) held in St. Paul, MN, USA, 2013.

Serving on dissertation committees in other universities

Served on the dissertation of committee of

- MV Nagendraprasad (supervisor: Victor S. Lesser, Computer Science Department, University of Massachusetts, Amherst), 1996–1997.
- Geert Jonker, (supervisor: John-Jules Meyer, Department of Information and Computing Sciences, Faculty of Science, Utrecht University, Utrecht, The Netherlands), 2008.
- Georgia K. Kastidou (supervisor: Kate Larson & Robin Cohen, D.R. Cheriton School of Computer Science, University of Waterloo, Ontario, Canada), 2010.

Reviewer duties

- Reviewed papers for the following journals:
 - Artificial Intelligence Journal
 - Journal of Artificial Intelligence Research
 - Autonomous Agents and Multi-Agent Systems
 - Journal of Machine Learning Research
 - IEEE Transactions on Pattern Analysis and Machine Intelligence
 - IEEE Transactions on Systems, Man, and Cybernetics
 - IEEE Transactions on Knowledge and Data Engineering
 - IEEE Transactions on Neural Networks
 - IEEE Intelligent Systems
 - IEEE Transactions on Evolutionary Computation
 - ACM Transactions on Office Information Systems (TOIS)
 - Evolutionary Computation
 - Journal of Experimental & Theoretical Artificial Intelligence
 - Journal of Intelligent & Cooperative Information Systems
 - Group Decision and Negotiation Support Systems
 - INFORMS
 - Games and Economic Behavior
 - International Journal of Computational Intelligence and Organizations.
- Senior Program committee member of the following conferences:
 - 25th International Joint Conference on Artificial Intelligence, 2016.
 - First, Second, Fourth, Tenth, Fourteenth, and Fifteenth International Conferences on Autonomous Agents and Multiagent Systems
 - 13th International Conference on Principles and Practices of Multi-Agent Systems (PRIMA-2010)

- Program committee member of the following conferences and workshops:
 - Thirteenth, Fifteenth, Twenty-first, and Twenty-Second National Conference on Artificial Intelligence
 - Fifteenth, Sixteenth, Seventeenth, Eighteenth, and Nineteenth International Joint Conference on Artificial Intelligence
 - Fifth International Conference on Autonomous Agents and Multiagent Systems
 - Third and Fourth International Conference on Multiagent Systems
 - Second, Third, and Fourth International Conference on Autonomous Agents
 - Seventeenth and Twentyfourth (2007) International Conference on Machine Learning
 - 18th European Conference on Machine Learning (ECML-2007)
 - Thirteenth International Workshop on Distributed AI
 - Robocup 2002, 2003, 2004, 2005
 - 2003 IEEE/WIC International Conference on Intelligent Agent Technology
 - Sixth and Seventh International Conference on Genetic Algorithms
 - Genetic and Evolutionary Computation Conference (GECCO), 1999, 2000, 2001, 2002, 2003, 2004, 2006, 2007.
 - Parallel Problem Solving from Nature (PPSN), 2000, 2002, 2004.
 - Congress on Evolutionary Computation'99
 - Twelfth International Conference on Industrial and Engineering Application of Artificial Intelligence and Expert Systems 1999 (IEA/AIE-99)
 - Seventh International Conference on Tools with Artificial Intelligence
 - Third, Fourth, Fifth, and Sixth International Workshop on Cooperative Information Systems
 - Second, Third, Fourth, and Fifth International Workshops in Cooperative Information Agents
 - Fifth (2003) and Sixth (2004) International Workshop on Distributed Computing (IWDC)
 - AAAI-02 Spring Symposium on Collaborative Learning Agents
 - Pacific Rim MultiAgent workshop (PRIMA2000)
 - Ninth and Tenth Mid-America Symposium on Applied Computer Technology
 - AAAI-05 Workshop on Multiagent Learning
- Reviewed papers for a number of other national and international conferences.

Presentations in meetings

Presented more than 100 papers in workshops and conferences.

Masters and Doctoral Committees at The University of Tulsa

• As chair:

- 1. Osman Yucel, "Leveraging Reviews to Produce Personal Recommendations", (PhD, 2017)
- 2. Feyza Hafizoglu, "A Study of Trust Development in Virtual Human-Agent Teamwork Without Explicit Coordination" (PhD, 2015)
- 3. Logan Brooks, "Analytical Prediction Methods for Stochastic Multiagent Systems" (MS, 2013)
- 4. Jolie Olsen, "Analysis, Discovery, and Utilization of Credible Threats in 2x2 Games of Incomplete Information Within the Theory of Moves Framework" (MS, 2011)
- 5. Oly Mistry, "Probabilistic Approaches to Tag Recommendation in a Social Bookmarking Network" (MS, 2009)
- 6. Anil Gursel, "Producing Timely Recommendations From Social Networks Through Targeted Search" (MS, 2008)
- 7. Doran Chakraborty, "Learning to Play Optimally Against Adaptive and Hill Climber Opponents" (MS, 2007)
- 8. Stephane Airiau, "Forming Efficient Agent Coalitions for Endogenous Coalition Structures." (PhD, 2007)
- 9. Susnata Basak, "Preserving Data Integrity in Sensor Networks Using Reputation Management." (MS, 2006)
- 10. Sabyasachi Saha, "Negotiating Contracts in Multiagent Societies." (PhD, 2006)
- 11. Ikpeme Erete, "Learning Task-specific Trust Decisions." (MS, 2006)
- 12. Dipyaman Banerjee, "Convergence to Pareto Optimality in General Sum Games via Learning Opponent Preferences." (MS, 2005)
- 13. Teddy Candale, "Hill-Climbing Approach to Bidding for Bundles in Simultaneous Auctions." (MS, 2005)
- 14. Arjita Ghosh, "Agent-Based Distributed Intrusion Alert System." (MS, 2004)
- 15. Parijat Prosun Kar, "An Agent-To-Agent Framework for Knowledge Transfer," (MS, 2003)
- 16. Neelima Sajja, "Robustness of reputation-based trust." (MS, 2002)
- 17. Partha Sarathi Dutta, "Forming Stable Reciprocal Groups Through Learning and Adaptation." (MS, 2001)
- 18. Rajatish Mukherjee, "Bidding for Bundles in Asynchronous Auctions." (MS, 2001)
- 19. Bikramjit Banerjee, "Fast Convergence of Concurrent Reinforcement Learners." (MS, 2000)
- 20. Manisha Mundhe, "Escaping the Curse on Concurrent Learners." (MS, 1999)
- 21. Karina Hernandez, "Informed Consumers in E-Commerce: An Agent Based Approach." (MS, 1999)
- 22. Anish Biswas, "Making self-interested agents cooperate: an evaluation of probabilistic reciprocity." (MS, 1999)

- 23. Sumit Ranjan Ghosh, "A Distributed Agent Based Framework for Information Retrieval and Dissemination." (MS, 1998)
- 24. Thomas Haynes, "Collective Adaptation: The Sharing of Building Blocks." (PhD, 1998)
- 25. Maria Gordin, "Observation-Based Coordination in Multiagent Cooperative Environments." (MS, 1997)
- 26. Narendra Puppala, "Shared Memory Based Cooperative Co-evolution." (MS, 1997)
- 27. Rajani Nadella, "Cooperating to Compete." (MS, 1997)
- 28. Neeraj Arora, "Learning to Beat An Opponent." (MS, 1997)
- 29. Mahendra Sekaran, "Reinforcement learning based agent coordination." (MS, 1995)

• As member:

- 1. Melanie Smith, "Modeling and Analysis of the Coordinated Vehicle Routing Problem," PhD, 2011
- 2. Robert Baird, PhD, 2011.
- 3. Sudarshan Anand, "Modeling an All Optical Regenerator based on Four-Wave Mixing in Semiconductor Optical Amplifiers." (MS, EE, 2004)
- 4. Gerdur Jónsdóttir, "Notating Problematic Architecture Interactions." (MS, 2002)
- 5. Shounak Roychowdhury, "Encoding Fuzzy Rules for Knowledge Discovery." (MS, 1997)
- 6. Ramya Sitaraman, "Integration of Software Systems at an Abstract Architectural level." (MS, 1997)
- 7. Kelly D. Crawford, "The role of recombination in genetic algorithms for fixed-length subset problems." (PhD, 1996)
- 8. Ranadeep Mukherjee, "Hybrid expert systems development and analysis." (MS, 1995)
- Currently supervising two PhD and three undergraduate students.

The University of Tulsa Service Activities

- Member, Graduate Council, 2003-2009, 2010-2013
- Faculty Senate, 2007-2008, 2009-present
- Member, Research Council, 2013
- Member, ENS Committee on Rights and Responsibilities, 2007-2010
- University Committee on Faculty Grievances, 2010-2013
- ENS Committee on Promotion and Tenure, 1st Alternate, 2005-2007
- Faculty Senate, 1st Alternate, 2003-2004, 2005-2006
- Faculty Senate, 3rd Alternate, 2002-2003

- Graduate Coordinator, Tandy School of Computer Science, 2012-present
- Member, CS Review Committee, 2005-2013
- Member, ENS Computing Committee, 2001-?
- Member, CS Faculty Recruitment Committee, 2000, 2008
- Judge, Student Research Colloquium, 2003-present
- Faculty Advisor: Math & Computer Science Graduate Student Association (1995-)
- Coach: CS ACM Collegiate Programming Contest Teams (1997-present)
- Faculty Advisor: Math & Computer Science ACM Student Chapter (1997-present)
- Faculty Advisor: Indian Students Association (1995-present)
- Member: Math & Computer Sciences Department Computer Policy Committee (1995-)
- Member, India Working Group (2012-present)
- Member: Selection committee for College of Engineering & Natural Sciences Interns to Los Alamos National Labs, 1998-1999.
- Organized weekly social get-togethers for the students, faculty, and staff of the Mathematical & Computer Sciences Department (Fall 1995)
- Curriculum development: developed four new graduate level courses in the Computer Science curriculum (CS 7313: Advanced Artificial Intelligence, CS 7323: Distributed Artificial Intelligence, CS 7333: Machine Learning, CS 7863: Agent Based Systems). Also completely revamped the course material for Advanced Topics in Database Systems (CS 7513) and Analysis of Algorithms (CS 7353) courses.
- Undergraduate courses taught: Introduction to Artificial Intelligence, Introduction to Database Systems, Discrete Mathematics, Fundamentals of Computer Algorithms & Applications.
- Mentor for students in the Tulsa Undergraduate Research Challenge (TURC) program. Currently working with Chad Crawford and Anton Ridgway. Former students include Daniel Wilson, Zachary Ingraham, Jason Grlicky, Benjamin Stover, Mary McGlohon, Austin McDonald, Erin Ferguson, Raquel Phillips, Nathan Brooks, Matt Matlock, Frank Grove, Austin Roberts, Bryce Culhane, Michael Michalak and Logan Brooks. Of these Daniel, Mary, Frank, and Logan won the NSF Graduate Fellowship and Matt received an honorable mention. Also worked with TURC Junior Scholar Samuel Pangetsu.
- Supervised the research of the recipient of the following OKAMP-SMET summer interns: Rashid Kiwanuka (Summer, 1996), Daniel Wilson (Summer, 1997, 1998).

Other Service Activities

• Judge, Tulsa Regional Science and Engineering Fair, 2006-2010

- Judge, Oklahoma State Science and Engineering Fair, 2007-2011.
- \bullet Committee Member, Bengali Association of Greater Tulsa, 1993–present.