

PRITHVIRAJ (RAJ) DASGUPTA

Director, C-MANTIC Research Group (<http://cmantic.unomaha.edu>)
Mutual of Omaha Endowed Associate Professor of Computer Science

Website: <http://faculty.ist.unomaha.edu/pdasgupta>

E-mail: pdasgupta@mail.unomaha.edu

PROFESSIONAL APPOINTMENTS

2007- present: Associate Professor (with tenure), Computer Science Department, University of Nebraska, Omaha.

2001- 2007: Assistant Professor, Computer Science Department, University of Nebraska, Omaha.

EDUCATION

Ph. D. (2001), Computer Engineering, University of California, Santa Barbara.

M. S. (1998), Computer Engineering, University of California, Santa Barbara.

Bachelor of Engineering (with Honors) (1995), Computer Science and Engineering, Jadavpur University, Calcutta, India.

RESEARCH AREA

Multi-agent and multi-robot systems, swarm robotics, game theory and computational economics.

SIGNIFICANT ACHIEVEMENTS

1. Received over \$3 million as PI in external, federally funded research grants and established the Multi-robot/Multi-agent System Group (called C-MANTIC).
2. Best paper award at 13th International Conference on Electronic Commerce (ICEC) 2011, for paper titled "A Multi-Agent Prediction Market based on Partially Observable Stochastic Games", co-authored with Ph.D. student Janyl Jumadinova.
3. Mutual of Omaha Distinguished Faculty Member of Computer Science, 2011-2014.

PRIOR APPOINTMENTS

1. 1997 – 2001: Research Assistant, Computer Networks and Distributed Systems Group, University of California, Santa Barbara.
2. Summer 1999: Summer internship at IBM T. J. Watson Research Center, Information Economy Group
3. 1995-1997: Software engineer, Siemens Information Systems Ltd., Bangalore, India and Siemens AG, Munich, Germany.

AWARDED RESEARCH GRANTS (ALL AS PRINCIPAL INVESTIGATOR)

1. Title: ModRED – A highly dexterous modular self-reconfigurable robot for extra-terrestrial exploration (Science PI: Dasgupta, Science Co-I: Dr. Carl Nelson, Mechanical Engg. Dept., UN-Lincoln, Administrative PI: Dr. Scott Tarry, NASA Nebraska Space Grant Consortium)
Agency: NASA EPSCoR
Amount: **\$1, 028, 250**
Period: 09/2011 – 08/2014
2. Title: "Dynamic Reconfigurations of Modular Robots for Autonomous Navigation in Extra-terrestrial Environments,"
Agency: NASA Nebraska Space Grant Consortium (Student Research Stipend)
Amount: **\$10, 000**
Period: 2010-2011
3. Title: COMRADES: COoperative Multi-Robot Autonomous DEtection System for Humanitarian Demining
Agency: DoD Office of Naval Research
Amount: **\$ 1, 310, 200**
Period: 09/2009 – 08/2012
4. Title: Center for Multi-Agent Networked Technologies for Intelligent Computation
Agency: University of Nebraska Foundation
Amount: **\$25, 000**
Period: 2007
5. Title: A swarm-based multi-robot system for lunar and Martian surface exploration
Agency: NASA Nebraska Space Grant Consortium
Amount: **\$15, 000**
Period: 2007-2008
6. Title: COMSTAR: COoperative Multi-agent System for automatic TArget Recognition (Phase II)
Agency: DoD NavAir (STTR grant jointly awarded with 21st Century Systems Inc.)
Amount: **\$750, 000**
Period: 2006-2008
7. Title: A Multi-agent based Swarming System for Extra-terrestrial Missions
Agency: NASA Nebraska Space Grant Consortium
Amount: **\$14, 400**
Period: 2006-2007
8. Title: COMSTAR: COoperative Multi-agent System for automatic TArget Recognition (Phase I)
Agency: DoD NavAir (STTR grant jointly awarded with 21st Century Systems Inc.)
Amount: **\$100, 000**
Period: 2004-2005
9. Title: Intelligent Agent Enabled Adaptive Learning and Dynamic Pricing Algorithms for Online Markets
Agency: University Committee on Research, University of Nebraska, Omaha

Amount: \$4, 500

Period: 2004

PUBLICATIONS

Journals

1. P. Dasgupta, T. Whipple, and K. Cheng, "Effects of Multi-Robot Team Formation on Distributed Area Coverage," *International Journal on Swarm Intelligence Research (IJSIR)*, vol. 2, no. 1, 2011, pp. 44-69.
2. J. Jumadinova and P. Dasgupta, "A Multi-Agent System for Analyzing the Effect of Information on Prediction Markets," *International Journal of Intelligent Systems.*, vol. 26, no. 5, 2011, pp. 383-409.
3. P. Dasgupta, "A Multi-agent Swarming System for Distributed Automatic Target Recognition," *IEEE Transactions on Systems, Man, Cybernetics, Part A*, vol. 38, no. 3, 2008, pp. 549-563
4. P. Dasgupta, P. M. Melliar-Smith, and L. E. Moser, "Maximizing Welfare Through Cooperative Negotiation in a Multi-agent Internet Economy," *Intl. Journal of Information Technology and Decision Making*, vol. 5, no.2, 2006, pp. 331-352.
5. P. Dasgupta, P. M. Melliar-Smith, "Dynamic Pricing for Time Limited Goods in a Supplier-Driven Electronic Marketplace", *Journal of Electronic Commerce Research*, Springer, vol. 5, no. 2, pp. 267-292, 2005.
6. P. Dasgupta and D. Khazanchi, "An Adaptive Decision Support System for Academic Course Scheduling using Intelligent Software Agents," *International Journal of Technology in Teaching and Learning*, vol 1, no. 2, 2005, pp. 63-78.
7. P. Dasgupta, P. M. Melliar-Smith, "Dynamic Consumer Profiling and Tiered Pricing Using Software Agents", *Journal of Electronic Commerce Research*, Kluwer Academic Publishers, The Netherlands, vol.3, no 3-4, July-October 2003, pp. 277-296.
8. P. Dasgupta, N. Narasimhan, L. Moser, P.M. Melliar Smith, "MAGNET: Mobile Agents for Networked Electronic Trading", *IEEE transactions on Knowledge and Data Engineering, Special Issue on Web Technologies*, vol. 24, no. 6, July/August 1999, pp 509-525.

Book Chapters

9. P. Dasgupta, "Multi-Robot Task Allocation for Performing Cooperative Foraging Tasks in an Initially Unknown Environment," *Innovations in Defense Support Systems - 2*, Springer, Studies in Computational Intelligence, vol. 338, 2011, pp. 1-20.
10. K. Cheng, P. Dasgupta and B. Banerjee, "Adaptive Multi-Robot Team Reconfiguration using a Policy-Reuse Reinforcement Learning Approach," (*forthcoming*) *Lecture Notes in Computer Science*, 2011.
11. P. Dasgupta and K. Cheng, "Robust Multi-robot Team Formations using Weighted Voting Games," (*forthcoming*) *Springer Tracts in Advanced Robotics(STAR)*, 2011.

12. K. Cheng and P. Dasgupta, "Multi-agent coalition formation for distributed area coverage," (*forthcoming*), *Lecture Notes in Computer Science*, 2011.
13. J. Jumadinova and P. Dasgupta "Multi-attributed Regret-based Dynamic Pricing," *Agent-Mediated Electronic Commerce and Trading Agent Design and Analysis, Lecture Notes in Business Information Systems, Springer*, 2010, pp. 73-87.
14. P. Dasgupta, M. Hoeing, K. Cheng, *et al.*, "Dynamic Pricing Algorithms for Task Allocation in Multi-agent Swarms," *Massively Multi-Agent Technology, Lecture Notes in Computer Science*, vol. 5043, Springer, 2008, pp. 64-79.
15. P. Dasgupta, "Efficient Searching in Peer-to-Peer Networks Using Agent Enabled Ant Algorithms," *Handbook of Research on Nature-Inspired Computing for Economics and Management*, vol. II, (Ed. J. Rennard), Idea Group Publishing, 2006, pp. 721-737.
16. P. Dasgupta, P. M. Melliar-Smith, L. E. Moser, "Dynamic Pricing Algorithms for Online Sellers using Intelligent Agents," *Encyclopedia of E-commerce, e-government and mobile commerce*, (Ed. M. Khosrow-pour), 2006.
17. D. Miller, P. Dasgupta and T. Judkins, "Distributed Task Selection in Multi-agent based Swarms using Heuristic Strategies," *Swarm Robotics, Lecture Notes in Computer Science*, vol. 4433, Springer, pp. 158-172, 2006.
18. P. Dasgupta, S. O'Hara and P. Petrov, "A Multi-agent UAV Swarm for Automatic Target Recognition," *Defense Applications of Multi-Agent Systems, Lecture Notes in Computer Science*, vol. 3890, 2005, pp. 80-91.
19. P. Dasgupta, "Intelligent Agent Enabled Genetic Ant Algorithm for P2P Resource Discovery," *Agents and Peer-to-Peer Computing, Lecture Notes in Computer Science*, vol. 3601, 2005, pp. 213-220.
20. P. Dasgupta, "Improving Peer-to-Peer Resource Discovery Using Mobile Agent Based Referrals," *Agents and Peer-to-Peer Computing, Lecture Notes in Computer Science*, vol. 2872, 2004, pp. 186-197.

Highly Refereed Conferences and Workshops

21. J. Jumadinova. M. Matache and P. Dasgupta, "Boolean Network-based Prediction Market," *IEEE/WIC/ACM International Conference on Intelligent Agent Technology (IAT)* , 2011.
22. J. Jumadinova and P. Dasgupta, "Distributed Decision Making in a Multi-agent Prediction Market using a Partially Observable Stochastic Game," *13th International Conference on E-Commerce (ICEC)* , 2011. **(Best Paper Award)**
23. Z. Ramaekers, P. Dasgupta, V. Ufimtsev, S. G. M. Hossain and C. Nelson, "Self-Reconfiguration in Modular Robots using Coalition Games with Uncertainty," *AAAI Workshop on Autonomous Action Planning for Autonomous Mobile Robots (PAMR)* , 2011, pp. 57-63.
24. Z. Wilson, T. Whipple and P. Dasgupta, "Multi-robot Area Coverage using Dynamic Coverage Information Compression," *8th International Conference on Informatics in Control, Automation and Robotics (ICINCO)*, 2011, pp. 236-241.

25. K. Cheng, P. Dasgupta and B. Banerjee, "Adaptive Multi-Robot Team Reconfiguration using a Policy-Reuse Reinforcement Learning Approach," *Autonomous Robots and Multi-robot Systems (ARMS) workshop* (co-located with AAMAS), 2011.
26. J. Jumadinova and P. Dasgupta, "Partially Observable Stochastic Game based Multi-agent prediction markets," (extended abstract), *10th International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS)*, Taipei, Taiwan, 2011, pp. 1217-1218.
27. Z. Ramaekers, P. Dasgupta and C. Nelson, "Dynamically reconfiguring modular robots for efficient maneuverability in initially unknown terrains," *121st Annual Meeting, Nebraska Academy of Sciences*, Lincoln, NE, 2011.
28. J. Jumadinova and P. Dasgupta, "A Multi-Agent System for Predicting Future Event Outcomes," *3rd Conference on Prediction and Information Markets*, Nottingham, UK, 2011.
29. P. Dasgupta and K. Cheng, "Robust Multi-robot Team Formations using Weighted Voting Games," *10th International Symposium on Distributed Autonomous Robotic Systems (DARS 2010)*, Lausanne, Switzerland, 2010.
30. K. Cheng and P. Dasgupta, "Multi-agent coalition formation for distributed area coverage," *2nd International Collaborative Agents Research and Development (CARE) Workshop*, (co-located with IAT 2010), Toronto, Canada, 2010.
31. J. Jumadinova and P. Dasgupta, "A comparison of different automated market-maker strategies," *Agent Mediated E-commerce - XII Workshop* (co-located with AAMAS 2010), Toronto, Canada, 2010, pp. 141-154.
32. K. Cheng and P. Dasgupta, "Weighted voting game based Multi-robot team formation for distributed area coverage," *3rd Practical and Cognitive Agents and Robots (PCAR) Workshop*, (co-located with AAMAS 2010), Toronto, Canada, 2010, pp. 9-15.
33. C. Nelson, K. Chu and P. Dasgupta, "ModRED: A Modular Self-Reconfigurable Robot For Autonomous Extra-terrestrial Exploration and Discovery", *Planetary Rovers Workshop*, (co-located with International Conference on Robotics and Automation 2010), Anchorage, AK, 2010.
34. W. Lenagh and P. Dasgupta, "Levy Distributed Search Behaviors for Mobile Target Locating and Tracking," *Proceedings of the 19th Annual Conference on Behavior Representation in Modeling and Simulation (BRIMS)*, Charleston, SC, 2010, pp. 103-109.
35. K. Cheng, P. Dasgupta, and Yi Wang, "Distributed Area Coverage Using Robot Flocks," World Congress on Nature and Biologically Inspired Computing (NaBIC'09), 2009, pp.678-683.
36. P. Dasgupta, K. Cheng, and L. Fan, "Flocking-based Distributed Terrain Coverage with Mobile Mini-robots," *Proc. IEEE Swarm Intelligence Symposium (SIS'09)*, Nashville, TN, 2009, pp. 96-103.
37. L. Fan, P. Dasgupta and Ke Cheng, "Swarming-based Mobile Target Following Using Limited-Capability Mobile Mini-robots," *Proc. IEEE Swarm Intelligence Symposium (SIS'09)*, Nashville, TN, 2009, pp. 168-175.
38. P. Dasgupta, "A swarm-based multi-robot system for lunar and Mars surface mapping," Proceedings of the 119th Annual Meeting, Nebraska Academy of Sciences, Lincoln, NE, 2009, pp. 24.
39. J. Jumadinova and P. Dasgupta, "Firefly-Inspired Synchronization for Improved Dynamic Pricing in Online Markets," *2nd IEEE Intl. Conf. on Self Adaptation and Self Organization (SASO)*, 2008, pp. 403-412.

40. L. Fan and P. Dasgupta, "A Stigmergy-based model for Solving Cooperative Pursuit-Evasion Games in Unknown Environments," *2nd IEEE Intl. Conf. on Self Adaptation and Self Organization (SASO)*, 2008, pp. 467-468.
41. J. Jumadinova and P. Dasgupta "Multi-attributed Regret-based Dynamic Pricing," *Agent Mediated Electronic Commerce Workshop (AMEC-X)*, co-located with AAMAS 2008, Estoril, Portugal, 2008.
42. K. Cheng and P. Dasgupta, "Coalition game based distributed coverage of unknown environments using robot swarms," *International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS'08)*, Estoril, Portugal, 2008, pp. 1191-1194.
43. P. Dasgupta and E. Antonson, "Heuristics for Uninformed Search Algorithms in Unstructured P2P Networks Inspired by Self-Organizing Social Insect Models," *International Conference on Biologically Inspired Collaborative Computing (BICC)*, 2008, pp. 19-32.
44. K. Cheng and P. Dasgupta, "Dynamic Area Coverage using Faulty Multi-agent Swarms" Proc. IEEE/WIC/ACM International Conference on Intelligent Agent Technology (IAT 2007), Fremont, CA, 2007, pp. 17-24.
45. P. Dasgupta and M. Hoeing, "Task Selection in Multi-Agent Swarms using Adaptive Bid Auctions," Proc. 1st IEEE International Conference on Self Adaptation and Self Organization (SASO'07), 2007, Boston, MA, pp. 307-310.
46. M. Hoeing, P. Dasgupta *et al.*, "Auction-based Multi-Robot Task Allocation in COMSTAR," Proc. 5th International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS'07), Honolulu, HI, May 2007, pp. 1435-1442.
47. P. Dasgupta, "Building Small Worlds in Unstructured P2P Networks using a Multi-agent Bayesian Inference Mechanism," Proc. 5th International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS'07), Honolulu, HI, May 2007, pp. 936-938.
48. P. Dasgupta, M. Hoeing, K. Cheng, *et al.*, "Dynamic Pricing Algorithms for Task Allocation in Multi-agent Swarms," Proc. International Workshop on Coordination and Control in Massively Multi-agent Systems, Honolulu, HI, May 2007, pp. 1-15.
49. P. Dasgupta and M. Hoeing, "Market based Distributed Task Selection in Multi-agent Swarms," Proc. IEEE/WIC/ACM International Conference on Intelligent Agent Technology (IAT 2006), Hong Kong, 2006, pp. 113-116.
50. P. Dasgupta, "Multi-agent Mechanism for Topology Balancing in Unstructured P2P Networks," Proc. IEEE/WIC/ACM International Conference on Intelligent Agent Technology (IAT 2006), Hong Kong, 2006, pp. 389-392.
51. D. Miller, P. Dasgupta and T. Judkins, "Distributed Task Selection in Multi-agent based Swarms using Heuristic Strategies," Swarm Robotics Workshop, Rome, Italy, 2006.
52. S. Airiau, S. Sen and P. Dasgupta, "Effect of Joining Decisions on Peer Clusters," Proc. of the 5th International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS'06), Hakodate, Japan, 2006, pp. 609-615.
53. P. Dasgupta, "Distributed Automatic Target Recognition Using Multi-Agent UAV Swarms," Proc. of the 5th International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS'06), Hakodate, Japan, 2006, pp. 479-481.

54. P. Dasgupta, "Adaptive Sharing of Large Resources in P2P Networks," Proc. of the 4th International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS'05), Utrecht, The Netherlands, 2005, pp. 839-845.
55. D. Banerjee, S. Saha, S. Sen and P. Dasgupta, "Reciprocal Resource Sharing in P2P Environments", Proc. of the 4th International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS'05), Utrecht, The Netherlands, 2005, pp. 853-869.
56. P. Dasgupta, S. O'Hara and P. Petrov, "A Multi-agent UAV Swarm for Automatic Target Recognition," 1st Intl. Workshop on Defense Applications of Multi-agent Systems, Utrecht, The Netherlands, 2005, pp. 4-15.
57. P. Dasgupta and Y. Hashimoto, "Multi-attribute Dynamic Pricing for Online Markets Using Intelligent Agents," Proceedings of the Third IEEE/ACM International Conference on Autonomous Agents and Multi-agent Systems, (AAMAS'04) New York, NY, 2004, pp. 277-285.
58. P. Dasgupta, "Intelligent Agent Enabled Genetic Ant Algorithm for P2P Resource Discovery," Proceedings of the 3rd Workshop on Agent Enabled P2P Computing, New York, NY, 2004, 187-199.
59. P. Dasgupta and Y. Hashimoto, "Eliciting Buyer Preferences Using Intelligent Agents for Multi-attribute Dynamic Pricing," Proceedings of the 8th International Conference on Artificial Intelligence, Las Vegas, NV, 2004, pp. 790-797.
60. P. Dasgupta, "Intelligent Agent Enabled P2P Search Using Ant Based Heuristics", Proceedings of the 8th International Conference on Artificial Intelligence, Las Vegas, NV, 2004, pp. 751-757.
61. P. Dasgupta and P. Petrov, "COMSTAR: Cooperative Multi-agent Swarm for Automated Target Recognition," 2nd Annual Swarming Conference, Washington D. C., 2004.
62. P. Dasgupta, "Improving Peer-to-Peer Resource Discovery Using Mobile Agent Based Referrals," Proceedings of the 2nd Workshop on Agent Enabled P2P Computing, Melbourne, Australia, July 2003, pp 41-54.
63. P. Dasgupta, "Incentive Driven Node Discovery in a Peer-to-Peer Network Using Mobile Intelligent Agents," Proceedings of the 7th International Conference on Artificial Intelligence, Las Vegas, June 2003, pp. 750-756.
64. P. Dasgupta, "A Peer-to-Peer System Architecture for Multi-agent Collaboration," Advances in Soft Computing, Springer-Verlag, (Proc.the 3rd International Conference on Intelligent Systems and Design Automation, Tulsa, OK) , 2003, pp. 483-492.
65. P. Dasgupta and V. Kalogeraki, "Auctioning Strategies in Agent Enabled Peer-to-Peer Marketplace," Proceedings of the Sixth International Conference on Artificial Intelligence, Las Vegas, NV, June 24-27, 2002, pp. 64-70.
66. P. Dasgupta, "Fault tolerance in MAgNET: A Mobile Agent E-commerce System," Proceedings of the Sixth International Conference on Internet Computing, Las Vegas, NV, June 24-27, 2002, pp. 733-739.
67. P. Dasgupta, L. E. Moser, P. M. Melliar-Smith, "Multi-attribute Tiered Pricing for Maximizing Seller's Profits in Online Markets," Proceedings of the First International Conference on Intelligent Agents, Web Technologies and Internet Commerce, Las Vegas, NV, July 9-11, 2001.

68. P. Dasgupta, L. E. Moser, P. M. Melliar-Smith, "Dynamic Tiered Pricing in a Multi-agent Internet Economy," Proceedings of the Fifth International Conference on Internet Computing, Las Vegas, NV, June 25-28, 2001.
69. P. Dasgupta, L. E. Moser, P. M. Melliar-Smith, "The Security Architecture for MAGNET: A Mobile Agent E-commerce System," Proceedings of the Third International Conference on Telecommunications and E-commerce, Dallas, TX, November 16-19, 2000, pp. 289-298.
70. P. Dasgupta, R. Das, "Dynamic Pricing with Limited Competitor Information in a Multi-Agent Economy," Cooperative Information Systems, Lecture Notes in Computer Science 1901, (Proc. Fifth International Conference on Cooperative Information Systems (CoopIS), Eilat, Israel,) 2000, pp. 299-310.
71. P. Dasgupta, R. Das, "Dynamic Service Pricing for Brokers in a Multi-Agent Economy," Proceedings of the Fourth International Conference for Multi-Agent Systems, (ICMAS'00) Boston, MA, 2000, pp. 375-376.
72. P. Dasgupta, N. Narasimhan, L. Moser, P.M. Melliar Smith, "A Supplier-Driven Electronic Marketplace Using Mobile Agents," Proceedings of the First International Conference on Telecommunication and E-commerce, Nashville, TN, 1998, pp 42-50.

Technical Reports

73. J. Jumadinova and P. Dasgupta, "Stochastic game based Multi-agent Prediction Markets," UNO Computer Science Technical Report, (cst-2010-1)
74. P. Dasgupta, "A Dynamic-bid Auction Algorithm for Cooperative, Distributed Multi-Robot Task Allocation," UNO Computer Science Technical Report (cst-2009-2).
75. P. Dasgupta, K. Cheng, "Distributed Coverage of Unknown Environments using Multi-robot Swarms with Memory and Communication Constraints," UNO Computer Science Technical Report (cst-2009-1).

Other Publications

76. P. Dasgupta and K. Sengupta, "E-commerce in the Indian Insurance Industry: Prospects and Future," Electronic Commerce Research, Kluwer Academic Publishers, The Netherlands, vol. 2, no. 1-2, April 2002, pp. 43-60.

INVITED TALKS

1. Indian Statistical Institute, Calcutta, India, "Dynamic Multi-robot Team Reconfigurations using Weighted Voting Games", July 2011.
2. Indian Statistical Institute, Calcutta, India, "Issues in Distributed Multi-robot Task Allocation", December 2009.
3. Max Planck Institute for. Mathematics in the Sciences, "Distributed area coverage using low-cost, resource constrained robots," July 2009.
4. Ecole Polytechnic Federale Lausanne, Switzerland, "Coalition Game-based multi-robot team formations for distributed area coverage," June 2009.

5. Indian Institute of Technology, Kharagpur, India, "Distributed Coverage of Unknown Environments Using Multi-robot Systems," August 2008.
6. Indian Statistical Institute, Calcutta, India, "Large scale dynamic adaptive systems", March 2006.
7. Union Pacific Railroad, Omaha, January 2003, "Planning Agent Simulation and Testing Environment."
8. International Union for Decision Support, "Dynamic Pricing and Segmentation in E-commerce," Omaha, NE, February 2002.
9. IBM T J Watson Research Center, "Mobile Agent Enabled E-commerce" Invited Speaker Series, Hawthorne, NY, May 2001,
10. Hughes Research Laboratories, "Dynamic Tiered Pricing in a Multi-agent Internet Economy," Malibu, CA, April 2001.
11. IBM T J Watson Research Center, "Dynamic Pricing in the MAGENTA system for a book market", Summer Speaker Series, , Hawthorne, NY, September 1999.
12. IBM T J Watson Research Center, "A Supplier-Driven Electronic Marketplace Using Mobile Agents," Summer Speaker Series, Hawthorne, NY, July 1999.

COLLABORATION, SUPERVISION AND MENTORING ACTIVITIES

Current Collaborators

1. Dr. Carl Nelson, Associate Professor, Mechanical Engineering Department, University of Nebraska, Lincoln
Collaboration area: Co-PI on funded NASA EPSCoR project, design and development of hardware of modular self-reconfiguration robot called ModRED, co-author on publication nos. 23, 27, 33.
2. Dr. Bikramjit Banerjee, Assistant Professor, Computer Science Department, University of Southern Mississippi
Collaboration area: Learning in multi-robot systems, co-authored publication no. 25.
3. Dr. Mihaela Matache, Associate Professor, Mathematics Department, University of Nebraska, Omaha
Collaboration area: Dynamical systems for distributed information aggregation/prediction markets, co-authored conference publication no. 21.
4. Dr. Kenneth Kriz, Associate Professor, School of Public Administration, University of Nebraska, Omaha
Collaboration area: Financial markets for distributed information aggregation/prediction markets.
5. Dr. Leen-kiat Soh, Associate Professor, Computer Science Department, University of Nebraska, Omaha
Collaboration area: Multi-agent systems for ad-hoc collaboration.

6. Other collaborators: I have worked over a period of 1 month during summer 2009 at the DISAL robotics group at EPFL, Switzerland led by Prof. Alcherio Martinoli. I am currently collaborating with an inter-disciplinary group of ECE and mechanical engineering faculty led by Prof. Bing Chen, ECE Department, UN-Lincoln, on developing a proposal for the NSF National Robotics Initiative (NRI) program.

Current Supervisees

7. Dr. Angelica Munoz-Melendez
Post-doctoral researcher, visiting faculty from Computer Science Department, INAOE, Puebla, Mexico
Background: PhD in Computer Science (Robotics) from University of Paris VI
Area of research: Multi-robot task allocation, physical and field robot experiments
8. Dr. K. R. Guruprasad Rao
Post-doctoral researcher, visiting faculty from Mechanical Engineering Department, National Institute of Technology, Surathkal, Karnataka
Background: PhD in Mechanical Engineering from Indian Institute of Science, Bangalore
Area of research: Multi-robot coverage and exploration
9. Janyl Jumadinova, Ph. D. Student (4th year)
Area of research: Distributed decision making and information aggregation using market models, prediction markets, game theory.
10. Vladimir Ufimtsev, Ph. D. Student (1st year)
Area of research: Decision theoretic planning using distributed Markov Decision Processes (MDPs), modular self-reconfigurable robots
11. Zachary Wilson, Master's student (2nd year)
Thesis topic: Distributed Terrain Coverage with Dynamic Coverage Information Compression
12. Justin Schmidt, undergraduate research assistant (sophomore)
13. Christopher Molini, undergraduate research assistant (sophomore)
14. William Lenagh, Master's student (2nd year)
15. Sayan Sen, Master's student (1st year)

Graduated Students

16. Ke Cheng, Ph.D., graduated in 2011
Thesis title: Dynamic Multi-Robot Coalition Formation for Distributed Area Coverage
Current Employer: Paypal, Omaha
17. Zachary Ramaekers, M. S., graduated in 2011

Thesis title: Dynamic Reconfiguration in Modular Self-Reconfigurable Robots using Multi-agent Coalition Games

Current Employer: Union Pacific Railroad, Omaha

18. Taylor Whipple, B. S., graduated in 2011
Current Employer: Garmin, Kansas City, MO
19. Matthew Hoeing, M.S., graduated in 2007
Project: Auction-based multi-robot task allocation
20. Erik Antonson, M.S., graduated in 2007
Thesis: Heuristics for Uninformed Search Algorithms in Unstructured P2P Networks Inspired by Self-Organizing Social Insect Models
21. Boonyot P., M.S., graduated in 2004
Project: Intelligent Agent Enabled Ant Algorithms for Resource Discovery in Peer-to-Peer Networks

SIGNIFICANT STUDENT ACHIEVEMENTS

1. Janyl Jumadinova (Ph.D. student): Best Paper Award at 13th International Conference on Electronic Commerce, Liverpool, UK, 2011.
2. Zachary Ramaekers (M.S. student): Summer Internship at NASA Jet Propulsion Laboratories, 2010.
3. Ke Cheng (Ph.D. student): Univ. of Nebraska, Omaha dissertation scholarship, 2010-11.
4. Janyl Jumadinova (Ph.D. student): 1st prize for oral presentation at University of Nebraska Student Research and Creative Activity Fair, 2010 (research symposium and competition featuring 100+ presentations by University of Nebraska, Omaha and University of Nebraska, Lincoln students across all departments).
5. Ke Cheng (Ph.D. student): 2nd prize for oral presentation at University of Nebraska Student Research and Creative Activity Fair, 2009.
6. Janyl Jumadinova (Ph.D. student): Software agent entry, *NEBTAC*, reached qualifying rounds in Trading Agent Competition Supply Chain Management (TAC-SCM) in 2008.
7. Ross Bell (M.S. student): Summer Internship at NASA Langley Research Center, 2007.

TEACHING

Major Courses Taught

1. *CSCI/MATH 8480 Multi-agent Systems and Game Theory (offered yearly, since 2004)
2. *CSCI 4480/8486 Introduction to Multi-agent and Multi-robot Systems (offered bi-yearly since 2007)
3. CSCI 4450/8456 Introduction to Artificial Intelligence
4. CSCI 3320 Data Structures

5. *CSCI 3830 Advanced Java Programming

Service Learning Course Offered Jointly with Industry Professionals: Java Agents for PASTE (Planning and Simulation Test Environment) (Fall 2002): Co-supervised six under-graduate and graduate students along with industry professionals from Union Pacific Railroad, Omaha, NE. We developed a Java agents-based prototype for a distributed railway scheduling system in this course/project.

*: New course developed and offered

Books Reviewed

1. E. Koffmann and P. Wolfgang, "Objects, Abstraction, Data Structures, and Design Using C++," Addison-Wesley, 2005
2. B. Coppin, Artificial Intelligence Illuminated, Jones and Bartlett Publishers, 2004.
3. A. Gittelman, "Advanced Java: Internet Applications," Scott Jones Publishing Company, 2002.
4. W. Collins, "Data Structures and the Java Collections Framework," Mc-Graw Hill, 2001.

Outreach Activities

1. Summer student workshop 2010

Organized a week-long summer workshop on robotics for middle and high school students. Students were introduced to behavior based robotics and simple programming to make e-puck robots move along specified paths. The blog for this workshop including videos of student work is available at <http://unosummer2010robotics.blogspot.com/>.

2. Focus school 2009

Taught classes on agents and robotics for middle school students as part of an after-school initiative of three Omaha area school districts called the Omaha Focus School, over a period of 2 months.

3. Organized several 30 min - 1hour demo sessions on robotics basics and robotics research to following groups of elementary school students:

- a. Boy scouts of Nebraska (2009)
- b. Kopecky Elementary School (2009)
- c. Ezra Millard Elementary after-school robotics club (2010)
- d. Rockbrook Elementary school (2011)

4. Nebraska Annual Robotics Expo 2011, 2010

Presented robotics booth from College of IS&T showcasing robotics research to general public

5. Judge at CREATE national robotics championship (middle and high school students), 2008-2010

6. Multi-robot Systems Interest Group

Organized invited colloquia speaker series and in-house seminar talks for UNO students and Omaha area IT company professionals focussed on robotics and AI.

(<http://cmantic.unomaha.edu/seminar.htm>)

SERVICE ACTIVITIES

a. External to University of Nebraska

Member of the Technical Program Committee for the following conferences:

1. IEEE/WIC/ACM International Conference on Agent Technology (IAT), 2011, 2010, 2008.
2. International Conference on Informatics in Control, Automation, Robotics (ICINCO 2011, 2010)
3. Tenth International Symposium on Distributed Autonomous Robotic Systems (DARS 2010)
4. Seventh International Conference on Swarm Intelligence (ANTS 2010)
5. International Conference on Swarm Intelligence (ICSI 2010, 2011, 2012)
6. Autonomous Agents and Multi-agent Systems (AAMAS 2009)
7. IEEE Conference on Self Adaptation and Self Organization (SASO), 2008
8. IEEE Swarm Intelligence Symposium (2005, 2007, 2009, 2011)
9. Intl. Conference on Intelligent Systems Design and Applications (2003, 2004)
10. Intl. Conference on Internet Computing (2002, 2003, 2004, 2005), Las Vegas, NV

Editorial Board Membership

1. International Journal of Swarm Intelligence Research, Idea Group Publishing.
2. International Journal of E-business Research, Idea Group Publishing.

Session Organizer at the following conferences:

1. Hawaii International Conference on Systems Sciences (HICSS) 2004, Mini-track on "Security and survivability in mobile agent based distributed systems".
2. Hawaii International Conference on Systems Sciences (HICSS) 2004, Mini-track on "Intelligent Agent Enabled Decision Support Systems".

3. International Conference on Intelligent Systems Design and Applications, 2003, Special Session on “Intelligent agent enabled peer-to-peer systems”

Panel Member at the following conferences/meetings

1. NSF review panel for ITR-small grants, 2003.
2. International Conference on Intelligent Systems Design and Applications (ISDA 2003) panel on “Multi-agent based Distributed Systems”.
3. International Conference on Internet Computing (IC 2002) panel on “Agent mediated Dynamic Pricing on the Internet”.

Reviewer for Journals, Magazines, Conferences and Meetings

IEEE Transactions on Robotics, IEEE Transactions on Systems, Man, Cybernetics, ACM Transactions on Internet Technology, IEEE Transactions for Knowledge and Data Engineering, IEEE Transactions on Mobile Computing, , Multi-agent and Grid Systems (IOS Press), Journal of E-commerce Research, Springer, MIS Quarterly, IEEE Distributed Systems Online, IEEE Intelligent Systems Magazine , IEEE Computer Networks Magazine, IEEE Computer Magazine, Intl. Journal on Info. Tech. and Data Mining (World Scientific).

International Conference on Robotics and Automation (ICRA) (2008-2011), International Conference on Robotic Systems (IROS) (2008-2011), HICSS 2005, 2006, ACM-Symposium on Applied Computing, 2004, Intl. Conf. on Intelligent Systems Design and Applications (ISDA), International Conference on Artificial Intelligence, International Conference on Internet Computing, Workshop on Object-oriented Distributed Systems (WORDS).

b. Internal to University of Nebraska

Committee Appointments as Chair

1. Doctoral program committee for Ph.D. in IT – 2010 – present.
2. Computer science faculty hiring committee –2008.
3. Computer science annual merit review committee –2007.
4. Computer Science under-graduate program committee – 2005-2007.

Committee Appointments as Member

| Committee Name | Term |
|--|----------------|
| Computer Science Graduate Program Committee | 2007 – present |
| ADROCA (Award for Distinguished Research or Creative Activity) | 2010 – present |
| Excellence in Teaching committee (University-wide) | 2008 - 2010 |

| | |
|--|--------------------|
| College of IS&T Personnel Committee | 2007 – 2009 |
| College of IS &T Technology Committee | Spring 2003 – 2006 |
| University Faculty Senate | 2003 – 2006 |
| University Rules Committee | 2003 – 2006 |
| Graduate Mentoring Award committee | 2003 – 2004 |
| Chancellor's Commission on Multicultural Affairs | 2004 – 2006 |

Other Duties

Organizer (since 2010) of invited speaker colloquium series (called round table), URL:
<http://www.ist.unomaha.edu/index.php?p=roundTables>

Professional Affiliations

Member of IEEE, AAAI and ACM.