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Contents

Education

8/86-5/91 PhD, School of Computer Science, Carnegie Mellon University, Pittsburgh, PA 15213.
Thesis title: *Eliminating combinatorics from production match.*
Thesis advisors: *Prof. Allen Newell and Prof. Paul Rosenbloom*

7/82-6/86 M. Sc.(tech) Computer Science: Birla Institute of Technology and Science(BITS), Pilani, India.

Current Positions

3/10- Professor, Daniel J. Epstein Department of Industrial and Systems Engineering Department, University of Southern California (USC)

10/06- Professor, Computer Science Department, University of Southern California (USC)

Experience

9/01-9/06 Associate Professor, Computer Science Department, University of Southern California (USC)

5/98-5/03 Project Leader, Information Sciences Institute (ISI), University of Southern California (USC)

3/00-9/01 Research Associate Professor, Computer Science Department, University of Southern California

2/94-3/00 Research Assistant Professor, Computer Science Department, University of Southern California

9/93-5/98 Computer Scientist, Information Sciences Institute, University of Southern California

7/91 - 8/93 Research Associate, School of Computer Science, Carnegie Mellon University.

1/86 - 6/86 Computer Maintenance Corporation, Bombay, India, under the practice school program of BITS, Pilani.

5/84 - 7/84 Computer division, Bhabha Atomic Research Center, Bombay, India under the practice school program of BITS, Pilani.

Awards: Research, Teaching, Service and Others

Research: Major Professional Society Honors and Awards

2007 *AAAI Fellow* Elected fellow of the Association for the Advancement of Artificial Intelligence "For significant contributions to theory and software infrastructure for multi-agent systems and pioneering applications in teamwork systems."

2005 *ACM/SIGART Autonomous Agents Research Award* An annual award for excellence in research in the area of autonomous agents, specifically intended to recognize researchers whose current research is influencing the field. From the award text: "Dr. Tambe made seminal contributions to the theory, applications, and software infrastructure in the area of teamwork, which has become a flourishing research area in multi agent systems". Award winners receive an honorarium and are invited to give a talk at the annual International Joint Conference on Autonomous Agents and Multi-Agent Systems (AAMAS).

Research: Major Awards

2011 *Certificate of Appreciation* From the Transportation Security Administration, Federal Air Marshals Service (FAMS) "in recognition and appreciation of your outstanding achievement in developing the Intelligent Randomization in Scheduling (IRIS) program" to advance the mission of the Office of Law Enforcement/FAMS.

2011 *Operational Excellence Award* Commander, First Coast Guard District's Operational Excellence Award for work on the PROTECT scheduling software to intelligently randomize boat patrols of critical infrastructure around Boston Harbor.

2010 *Christopher Columbus Fellowship Foundation Homeland Security Award* The Foundation is a Federal government agency established by Congress to "encourage and support research, study and labor designed to produce new discoveries in all fields of endeavor for the benefit of mankind." The award is in the area of border and transportation security.

2009 *Inaugural USC Viterbi School of Engineering Use-inspired research award* Award recognizes significant work in four key areas — scientific understanding, technical knowledge, research promise and societal needs — that has culminated in a demonstrably useful contribution to a problem of national/societal importance.

2009 *Commendation, City of Los Angeles, Los Angeles World Airports Police Department* As a leader of a team of researchers from CREATE (Center for Risk and Economic Analysis of Terrorism Events) that developed ARMOR, "Assistant for randomized monitoring over routes". The commendation states "To merit this commendation you have performed an exceptional service to the Airport police Division, the Los Angeles World Airports and the city of Los Angeles. Your outstanding service facilitates the critical link between the laboratory and the operational world. Thank you for your outstanding contributions to the security of our nation."

2009 *Certificate of Recognition, DHS University Programs* Received by CREATE "The DHS Office of University Programs recognizes CREATE for the outstanding contributions to the security of our nation that the Assistant for Randomized Monitoring over Routes (ARMOR) has made to the police operations at the Los Angeles World Airports".

2003 *The Okawa Foundation Research award* for research on "Agents and Multiagent Systems". Among 10 international awards per year given overall by the Okawa foundation (Japan) in areas of telecommunications and information processing. http://www.okawa-foundation.or.jp/e/

1999 *RoboCup Scientific Challenge Award*, RoboCup'99 International Robotic Soccer Tournament, held in conjunction with the International Joint Conferences on Artificial Intelligence, 1997, for outstanding research at a RoboCup tournament. Led the USC effort.

Research: Best Paper Awards, Best Student Papers, Finalists, Most cited papers

Research: Best Paper Awards and Finalists in Computer Science Conferences

2011 *Best paper, IVA'2011* Our paper from the International Conference of Intelligent Virtual Agents (IVA 2011) won the best paper award. The paper is entitled "Empirical Evaluation of Computational Emotional Contagion Models".

2011 *Best paper, AAMAS'2011 Innovative Applications track* Our paper from the International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2011) won the innovative applications best paper award. The paper is entitled "GUARDS - Game Theoretic Security Allocation on a National Scale".

2009 *Best paper, AAMAS'2009 Industry track* Our paper from the International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2009) won the industry track best paper award. The paper is entitled "IRIS — A Tool for Strategic Security Allocation in Transportation Networks".

2008 *Finalist for Best paper, AAMAS'2008 Industry track* Our paper from the International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2008) a finalist for the industry track best paper award. The paper is entitled "Deployed ARMOR protection: The Application of a Game Theoretic Model for Security at the Los Angeles International Airport".

2008 *Best paper, CTS'2008* Our paper from the International Symposium on Collaborative Technologies and Systems (CTS 2008) won the best paper award. The paper is entitled "Multiagent Adjustable Autonomy Framework (MAAF) for multirobot multihuman teams".

2007 *Best paper, DCR'2007* Our paper from the International workshop on Distributed constraint reasoning (DCR 2007), held in conjuction with IJCAI'2007, won the best paper award. The paper is entitled "Lower bounds on the quality of k-optimal DCOP solutions with respect to the global optimum".

2006 *TOP 4 most cited article* My paper "Towards flexible teamwork" among the TOP 4 most cited articles of Journal of AI research (JAIR) since the journal's inception (via ISI science citation index).

2005 *Best paper, SASEMAS'2005* Our paper from the International Workshop on Safety and Security in Multiagent Systems (SASEMAS'2005) selected as the best paper. This paper is entitled "Safety in multiagent systems via policy randomization".

2005 *Finalist for Best Paper, CEEMAS'2005* Our paper from the Central and Eastern European Conference on Agents and Multiagent Systems 2005 (CEEMAS'2005) finalist for Best Paper Award. This paper is entitled "On Communication in Solving Distributed Constraint Satisfaction problems".

2003 *Finalist for Best Student Paper, AAMAS'2003* Our paper from the International Joint Conference on Agents and Multiagent Systems 2003 (AAMAS'2003) finalist for Best Student Paper Award. This

paper is entitled "An asynchronous complete method for distributed constraint optimization" (first author: Pragnesh Jay Modi, PhD student).

2002 *Best paper, AAMAS'02* Our paper from the International Joint Conference on Autonomous Agents and Multiagents (AAMAS'02) chosen the best paper (out of approx 150 papers presented at the conference). The paper is entitled "Multiagent teamwork: Analyzing the complexity and optimality of key theories and models".

1999 *Best of Agents'99*. Our paper from the International Conference on Autonomous Agents 1999 (Agents'99) published in the "Best of Agents'99" special issue of the Autonomous Agents and Multi-agent Systems Journal. This paper is entitled "On being a teammate: Experiences acquired in the design of RoboCup teams".

1999 *Best of ICMAS'98*. Our paper from the International Conference on Multi-Agent Systems 1998 (ICMAS'98) published in the "Best of ICMAS'98" special issue of the Autonomous Agents and Multiagent Systems Journal. This paper is entitled "Towards flexible teamwork in persistent teams".

Research: Best Paper Awards and Finalists in Operations Research Meetings

2011 *Rist Prize, Military Operations Research Society* The RIST prize recognizes the practical benefits of sound Operations Research. Our abstract is entitled "Software Assistants for Patrol Planning at LAX, Federal Air Marshals Service, and Transportation Security Administration".

2010 *Finalist, EURO Operations Research Conference Excellence in Practice Award EEPA'2010* Our paper from the journal "Interfaces" selected to be a finalist for the EEPA'2010 award. The paper is entitled "Software Assistants for Randomized Patrol Planning for The LAX Airport Police and The Federal Air Marshals Service."

Research: Best Paper Awards and Finalists in Other Society Meetings

2010 *Student Merit Award, Security and Defense, Society for Risk Analysis (SRA) meeting* Our abstract at the SRA annual meeting won the student merit award. The abstract is entitled "Research allocation decisions against adaptive adversaries". (first author: James Pita, PhD student).

2009 *Best Student Poster, DHS Third Annual University Network Summit* Our poster at the Department of Homeland Security (DHS) University Network Summit won first place in the student poster competition. This poster is entitled "Strategic allocation of Federal Air Marshals". (first author: Jason Tsai, PhD student).

Implemented Agent Team Competitions: Awards for Fielded Agents and Agent Teams

2001 *Sliver medal* at the Robocup-Rescue International Competition at RoboFesta, International Robotic Games Festival, held in Japan, in July 2001, for development of earthquake rescue agent-teams. Led the USC effort that won this prize.

2001 *Third Place Prize* at RoboCup'2001 International Robotic Soccer and Rescue tournaments, held in conjunction with the International Joint Conference on Artificial Intelligence, 2001, for development of earthquake rescue agent teams. Led the USC effort that won this prize.

1997 *Third-place prize*, RoboCup'97 International Robotic Soccer Competition (simulation league), held in conjunction with the International Joint Conferences on Artificial Intelligence, 1997. Led the USC student team; software developed was based on my research in multi-agent teams.

Key Teaching and Mentoring Awards

2010 *Steven B. Sample Teaching and Mentoring Award* This award is a signature program of the USC Parents Association and is the only faculty recognition award that is initiated by USC parents and family members.

Key Service Awards

2004 *ACM Recognition of Service Award* In Appreciation of Contributions to ACM (Association for Computing Machinery) as General Co-Chair for AAMAS'2004: The Third International Joint Conference on Autonomous Agents and Multiagent Systems.

1997 *Meritorious service award* of the USC/Information Sciences Institute for outstanding contributions to the success of ISI's robots in international competition.

Other Honors and Awards

1986 *Bhamsa* award for the highest cumulative grade point average (CGPA) of 9.96/10.0 in the computer science department of BITS, Pilani.

1986 *Bronze medal* for the third highest overall cumulative grade point average (CGPA) of 9.96/10.0 at BITS, Pilani.

1982 *Merit list* (ranked 7th) in the higher secondary certificate examination, state of Maharashtra (Pune division), India.

1982 First in the subject of electronics in the higher secondary certificate examination, state of Maharashtra (Pune division), India.

Key Awards for PhD and MS Students at USC

2011 **Manish Jain**, Best research assistant for academic year 2010-2011, Computer Science Department, University of Southern California

2007 **Emma Bowring**, Outstanding teaching assistant award, Center for Excellence in Teaching, University of Southern California

2006 **Jonathan Pearce**, Outstanding research assistant award, Computer Science Department

2005 **Pradeep Varakantham**, Outstanding research assistant award, Computer Science Department

2005 **Emma Bowring**, Special award for co-designing and co-developing a new course "Intelligent agents and science fiction"

2003 **Steven Okamoto**, Chair's excellence award for his MS thesis

Professional Memberships

- Association for Advancement of Artificial Intelligence [Formerly, American Association for AI] (AAAI)
- Association for Computing Machinery (ACM)

Publications

Rigourously Refereed Journal Articles

[J33] L. Klein, J. Kwak, G. Kavulya, F. Jazizadeh, B. Becerik-Gerber, P. Varakantham, M. Tambe Coordinating Occupant Behavior for Building Energy and Comfort Management using Multi-Agent Systems *Automation in Construction*, 2012 (to appear).

[J32] D. Korzhyk*, Z. Yin*, C. Kiekintveld, V. Conitzer, M. Tambe *(*Korzyk and Yin are both first-authors of this publication)* Stackelberg vs. Nash in Security Games: An Extended Investigation of Interchangeability, Equivalence, and Uniqueness *Journal of AI Research*, 41:297-327, 2011.

[J31] M. E. Taylor, M. Jain, P. Tandon, M. Tambe, M. Yokoo Distributed On-line Multi-Agent Optimization Under Uncertainty: Balancing Exploration and Exploitation *Advances in Complex Systems*, 14(3):471-528, 2011.

[J30] M. Vieira, R. Govindan, G. Sukhatme, M. E. Taylor, M. Jain, P. Tandon, M. Tambe Mitigating Multi-path Fading in a Mobile Mesh Network *Ad-hoc Networks Journal*, 2011 (to appear).

[J29] B. Kaluza, E. Dovgana, T. Tusara, M. Tambe, M. Gams A Probabilistic Risk Analysis for Multimodal Entry Control *Expert Systems with Applications*, 38:6696-6704, 2011.

[J28] J. Pita, M. Jain, F. Ordonez, M. Tambe, S. Kraus Solving Stackelberg Games in the Real-World: Addressing Bounded Rationality and Limited Observations in Human Cognition *Artificial Intelligence Journal*, 174(15):1142-1171, 2010.

[J27] M. Jain, J. Pita, J. Tsai, C. Kiekintveld, S. Rathi, F. Ordonez, M. Tambe Software Assistants for patrol planning at LAX and Federal Air Marshals Service. *Interfaces*, 40(4):267-290, 2010.**Finalist, EURO Excellence in Practice Award EEPA'2010**

[J26] M. Taylor, C. Kiekintveld, C. Western, M. Tambe A Framework for Evaluating Deployed Security Systems: Is There a Chink in your ARMOR? In *Informatica*, 34:129-139, 2010.

[J25] M. Tasaki, Y. Yabu, Y. Iwanari, M. Yokoo, J. Marecki, P. Varakantham, M. Tambe Introducing Communication in Dis-POMDPs with Locality of Interaction *Journal of Web Intelligence and Agent Systems (WIAS)*, 8(3):303-311, 2010.

[J24] E. Bowring, M. Tambe, M. Yokoo Balancing local resources and global goals in multiply-constrained DCOP *Journal of Multiagent and Grid Systems (MAGS)*, 6(4):353-393, 2010.

[J23] P. Paruchuri, J. Pearce, J. Marecki, M. Tambe, F. Ordonez, S. Kraus Coordinating randomized policies for increasing security of agent systems In *Journal of Information Technology and Management (ITM)*, 10:67–79, 2009.

[J22] R. Maheswaran, J. Pearce, P. Varakantham, E. Bowring, M. Tambe Privacy Loss in Distributed Constraint Reasoning: A Quantitative Framework for Analysis and its Applications *Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS)*, 13(1):27–60, 2006.

[J21] R. Nair, M. Tambe A Hybrid BDI-POMDP Framework for Multiagent Teaming *Journal of AI Research* (JAIR), 23:367–420, 2005

[J20] P. Modi, W. Shen, M. Tambe, M. Yokoo ADOPT:Asynchronous distributed constraint optimization with quality gurantees *Artificial Intelligence Journal(AIJ)*. 161:149–180, 2005.

[J19] N. Schurr, J. Marecki, M. Tambe, P. Scerri Towards flexible coordination of human-agent teams *Multiagent and Grid Systems – an International Journal* (MAGS). 1:3-16, 2005.

[J18] R. Nair, M. Tambe, S. Marsella, T. Raines Automated assistants for analyzing team behaviors *Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS)*. 8:69–111, 2004.

[J17] D.V. Pynadath and M. Tambe. Automated teamwork among heterogeneous software agents and humans. *Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS)*. 7:71–100, 2003.

[J16] P. Scerri, D.V. Pynadath, M. Tambe Towards Adjustable Autonomy for the Real World *Journal of Artificial Intelligence Research (JAIR)*. 17:171–228 , 2002

[J15] G. Kaminka, D.V. Pynadath and M. Tambe. Monitoring teams by overhearing: A multiagent plan-recognition approach *Journal of Artificial Intelligence Research (JAIR)*. 17:83–135, 2002.

[J14] D.V. Pynadath and M. Tambe The Communicative Multiagent Team Decision Problem: Analyzing Teamwork theories and Models *Journal of Artificial Intelligence Research (JAIR)*, 16:389–423, 2002.

[J13] S. Marsella, M. Tambe, J. Adibi, Y. Alonaizon, G. Kaminka and I. Muslea. Experiences acquired in the design of RoboCup teams. *Journal of Autonomous Agents and Multi-agent Systems (JAAMAS)*. **Best of Agents'99** special issue. 4:115-129. 2001.

[J12] G.A. Kaminka and M. Tambe. Robust agent teams via socially attentive monitoring. *Journal of Artificial Intelligence Research (JAIR)*. 12:105-147. 2000.

[J11] M. Tambe and W. Zhang. Towards flexible teamwork in persistent teams: An Extended Report. *Journal of Autonomous Agents and Multi-agent Systems (JAAMAS)*. **Best of ICMAS'98** special issue. 3:163-188. 2000.

[J10] M. Tambe, J. Adibi, Y. Alonaizon, A. Erdem, G. Kaminka, S. Marsella, and I. Muslea. Building agent teams using an explicit teamwork model and learning. *Artificial Intelligence (AIJ)*, 110:215-239, 1999.

[J9] M. Tambe. Implementing agent teams in dynamic multi-agent environments. *Applied Artificial Intelligence (AAI)*, 12:189–210, 1998.

[J8] M. Tambe, W. L. Johnson, and W. Shen. Adaptive agent tracking in real-world multi-agent domains: a preliminary report. *International Journal of Human-Computer Studies (IJHCS)*, 48:105–124, 1998.

[J7] M. Tambe. Towards flexible teamwork. *Journal of Artificial Intelligence Research (JAIR)*, 7:83–124, 1997.

[J6] M. Tambe and P. S. Rosenbloom. Event tracking in a dynamic multi-agent environment. *Computational Intelligence (CI)*, 12(3):499–522 1995.

[J5] M. Tambe and P. S. Rosenbloom. Investigating production system representations for non-combinatorial match. *Artificial Intelligence (AIJ)*, 68(1):155–199, 1994.

[J4] A. Acharya, M. Tambe, and A. Gupta. Implementation of production systems on message passing computers: Simulation results and analysis. *IEEE Transactions on Parallel and Distributed Computing (IEEE TPDC)*, 3(4):477–487, 1992.

[J3] W. Harvey, D. Kalp, M. Tambe, D. McKeown and A. Newell. The effectiveness of task-level parallelism for production systems. *Journal of Parallel and Distributed Computing (JPDC)*, 13(4):395-411, 1991.

[J2] M. Tambe, Newell A., and P. Rosenbloom. The problem of expensive chunks and its solution by restricting expressiveness. *Machine Learning (MLJ)*, 5(3):299–348, 1990.

[J1] A. Gupta, M. Tambe, D. Kalp, C. L. Forgy, and A. Newell. Parallel implementation of ops5 on the encore multiprocessor: Results and analysis. *International Journal of Parallel Programming (IJPP)*, 17(2):95–124, 1988.

Refereed Technical Magazine Articles

[M16] M. Jain, B. An, M. Tambe An overview of recent application trends at the AAMAS conference: Security, sustainability and safety In *AI Magazine*, 2012 (to appear)**(Invited paper)**.

[M15] J. Pita, M. Jain, C. Western, P. Paruchuri, J. Marecki, M. Tambe, F. Ordonez, S. Kraus Using game theory for Los Angeles Airport Security In *AI Magazine* 30(1):43-57, 2009.

[M14] J. Pearce, M. Tambe, R. Maheswaran Solving Multiagent Networks using Distributed Constraint Optimization In *AI Magazine* 29(3):47-66, 2008.

[M13] M. Tambe, E. Bowring, J. Pearce, P. Varakantham, D.V. Pynadath, P. Scerri Electric Elves: What went wrong and why In *AI Magazine*, 29(2):23-32, 2008.

[M12] K. Myers, P. Berry, J. Blythe, K. Conley, M. Gervasio, D. McGuinness, D. Morley, A. Pfeffer, M. Pollack, M. Tambe An Intelligent Personal Assistant for Task and Time Management In *AI Magazine*, 28(2): 47-61, 2007.

[M11] P. Paruchuri, E. Bowring, J.P. Pearce, R. Nair, N. Schurr, M. Tambe, P. Varakantham Multiagent teamwork: Hybrid approaches In *Computer Society of India Communications*, 30(6):19-24, 2006.

[M10] M. Huhns, M. Singh, M. Burstein, K. Decker, E. Durfee, T. Finin, L. Gasser, H. Goradia, N. Jennings, K. Lakaraju, H. Nakashima, V. Parunak, J. Rosenschein, A. Ruvinsky, G. Sukthankar, S. Swarup, K. Sycara, M. Tambe, T. Wagner, L. Zavala Research directions for service-oriented multiagent systems In *IEEE Internet Computing*, 9(6):65–70, 2005.

[M9] H. Chalupsky, Y. Gil, C. Knoblock, K. Lerman, J. Oh, D.V. Pynadath, T. Russ, M. Tambe Electric Elves: Applying agent technology to support human organizations In *AI magazine*, Volume 23, Number 2, Summer 2002.

[M8] M. Tambe, D. Pynadath and N. Chauvat. Building Dynamic Agent Organizations in Cyberspace. *IEEE Internet Computing Magazine*, Volume 4, Number 2, March/April 2000

[M7] M. Tambe, T. Raines and S. Marsella Agent assistants for team analysis *AI Magazine* Volume 21, Number 3, Fall 2000.

[M6] M. Asada, M. Veloso, M. Tambe, I. Noda, H. Kitano, G.K. Kraetzschmar. Overview of RoboCup'98. *AI Magazine*, Volume 21, Number 1, Spring 2000.

[M5] M. Tambe and H. Jung. The benefits of arguing in a team. *AI Magazine*, Volume 20, Number 4, Winter 1999.

[M4] M. Tambe, J. Adibi, Y. Alonaizon, A. Erdem, G. Kaminka, S. Marsella, I. Muslea, and M. Tallis. Isis: Using an explicit teamwork model in robocup97. *AI Magazine*, 19(3):56, 1998. (Sidebar short article).

[M3] M. Tambe, W. L. Johnson, R. Jones, F. Koss, J. E. Laird, P. S. Rosenbloom, and K. Scwhamb. Intelligent agents for interactive simulation environments. *AI Magazine*, 16(1):15–39, 1995.

[M2] A. Acharya and M. Tambe. Efficient implementations of production systems. *VIVEK: A Quarterly in Artificial Intelligence*, 2(1):3–18, 1989. (Published by National Center for Software Technology, Juhu, Bombay, India 400 049).

[M1] M. Tambe and A. Acharya. Parallel implementations of production systems. *VIVEK: A Quarterly in Artificial Intelligence*, 2(2):3–22, 1989. (Published by National Center for Software Technology, Juhu, Bombay, India 400 049).

Rigorously Refereed Conferences: *Full* Papers

(Typical acceptance rates for these conferences are about 20-25%)

[C101] R. Yang, M. Tambe, F. Ordonez Computing Optimal Strategy against Quantal Response in Security Games In *Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, June 2012.

[C100] E. Shieh, R. Yang, B. An, M. Tambe, C. Baldwin, J. DiRenzo, B. Maule, G. Meyer PROTECT: A Deployed Game Theoretic System to Protect the Ports of the United States In *Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*(Innovative applications track), June 2012.

[C99] Z. Yin, M. Tambe A Unified Method for Handling Discrete and Continuous Uncertainty in Bayesian Stackelberg Games In *Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, June 2012.

[C98] J. Kwak, T. Hayes, L. Klein, G. Kavulya, F. Jazizadeh, B. Becerik-Gerber, R. Maheswaran, P. Varakantham, W. Wood, M. Tambe SAVES: A Sustainable Multiagent Application to Conserve Building Energy Considering Occupants In *Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*(Innovative applications track), June 2012.

[C97] B. Kaluza, G. Kaminka, M. Tambe Detection of Suspicious Behavior from a Sparse Set of Multiagent Interactions In *Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, June 2012.

[C96] O. Vanek, Z. Yin, M. Jain, B. Bosansky, M. Pechoucek, M. Tambe Game-theoretic Resource Allocation for Malicious Packet Detection in Computer Networks In *Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, June 2012.

[C95] M. Brown, C. Kiekintveld, B. An, F. Ordonez, M.Tambe Multi-Objective Optimization for Security Games In *Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, June 2012.

[C94] R. Yang, M. Jain, J. Pita, Z. Yin, J. Kwak, M. Tambe Game theory and human behavior: Challenges in security and sustainability In *Algorithmic Decision Theory (ADT)*, 2011 **(Invited paper)**.

[C93] J. Tsai, E. Bowring, S. Marsella, M.Tambe Empirical Evaluation of Computational Emotional Contagion Models In *Proceedings of the International Conference on Intelligent Virtual Agents (IVA)*, **Best Paper Award**, September 2011

[C92] Z. Yin, M. Jain, F. Ordonez, M. Tambe Risk-Averse Strategies for Security Games with Execution and Observational Uncertainty In *Proceedings of the National Conference on Artificial Intelligence (AAAI)*, August 2011

[C91] B. An, E. Shieh, C. Kiekintveld, F. Ordonez, M. Tambe Refinement of Strong Stackelberg Equilibria in Security Games In *Proceedings of the National Conference on Artificial Intelligence (AAAI)*, August 2011

[C90] J. Pita, C. Kiekintveld, M. Tambe, E. Steigerwald, S. Cullen GUARDS - Innovative Application of Game Theory for National Airport Security In *Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI)*, **Best Paper Track**, July 2011

[C89] R. Yang, C. Kiekintveld, R. John, F. Ordonez, M. Tambe Improving Resource Allocation Strategy Against Human Adversaries in Security Games In *Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI)*, July 2011

[C88] Z. Yin, M. Tambe Continuous Time Planning for Multiagent Teams with Temporal Constraints In *Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI)*, July 2011

[C87] C. Kiekintveld, J. Marecki, M. Tambe Approximation Methods for Infinite Bayesian Stackelberg Games: Modeling Distributional Uncertainty In *Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, May 2011

[C86] M.Jain, C. Kiekintveld, M. Tambe Quality-bounded Solutions for Finite Bayesian Stackelberg Games: Scaling up In *Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, May 2011

[C85] M.Jain, D. Korzhyk, O. Vanek, M. Pechoucek, V. Conitzer, M. Tambe A Double Oracle Algorithm for Zero-Sum Security Games on Graphs In *Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, May 2011

[C84] M. Vinyals, J. Rodriguez-Aguilar, J. Cerquides, Z. Yin, E. Shieh, E. Bowring, M. Tambe Quality guarantees for region optimal DCOP algorithms In *Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, May 2011

[C83] J. Tsai, N. Fridman, E. Bowring, M. Brown, S. Epstein, G. Kaminka, S. Marsella, A. Ogden, I. Rika, A. Sheel, M. Taylor, X. Wang, A. Zilka, M. Tambe ESCAPES: Evacuation Simulation with Children, Authorities, Parents, Emotions, and Social Comparison In *Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS)* (Innovative Applications Track), May 2011

[C82] J. Pita, C. Kiekintveld, M. Tambe, E. Steigerwald, S. Cullen GUARDS - Game Theoretic Security Allocation on a National Scale In *Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS)***Best Paper Award, Innovative Applications**, May 2011

[C81] M. Jain, C. Kiekintveld, E. Kardes, F. Ordonez, M. Tambe Security games with arbitrary schedules: A branch and price approach *Proceedings of the National Conference on Artificial Intelligence (AAAI)*, July 2010

[C80] J. Tsai, J. Kwak, Z. Yin, C. Kiekintveld, D. Kempe, M. Tambe Urban Security: Game-Theoretic Resource Allocation in Networked Physical Domains *Proceedings of the National Conference on Artificial Intelligence (AAAI)*, July 2010

[C79] M. Taylor, M. Jain, Y. Jin, M. Tambe, M. Yokoo When Should There be a "Me" in "Team"? Distributed Multi-Agent Optimization Under Uncertainty In *Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, May 2010

[C78] Z. Yin*, D. Korzhyk*, C. Kiekintveld, V. Conitzer, M. Tambe *(*Yin and Korzhyk are both first authors of this publication)* Stackelberg vs. Nash in Security Games: Interchangeability, Equivalence, and Uniqueness In *Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, May 2010

[C77] C. Kiekintveld,Z. Yin, A. Kumar, M. Tambe Asynchronous Algorithms for Approximate Distributed Constraint Optimization with Quality Bounds In *Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, May 2010

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[SY40] M. Jain, M. Tambe, K. Leyton-Brown Phase Transition in Security Games: An Initial Report AAAI Spring Symposium on Game Theory for Security, Sustainability and Health, 2012

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[SY36] M. Tambe, B. An Game Theory for Security: A real-world challenge problem for multiagent systems and beyond AAAI Spring Symposium on Game Theory for Security, Sustainability and Health, 2012

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[N1] M. Jain, J. Pita, P. Paruchuri, M. Tambe, F. Ordonez, S. Kraus Bayesian Stackelberg games and their application at the Los Angeles International Airport In ACM SIGecom exchanges: 7.2, 2008

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[R2] M. Tambe, A. Newell and P. S. Rosenbloom. The problem of expensive chunks and its solution by restricting expressiveness. In *The Soar Papers*. MIT press, Cambridge, MA, 1993.

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Citation Impact: h-index, g-index, i10-index

For more details, please see: http://scholar.google.com/citations?hl=en&user=YOVZiJkAAAAJ

h-index *50*

g-index *91*

i10-index *146*

Key Research Outcomes

Fielded and Deployed Research

- **ARMOR**: ARMOR has been deployed since August 2007 at the Los Angeles International Airport for randomization of checkpoints and canine patrols. The ARMOR system solves Bayesian Stackelberg games to provide mixed strategies to randomize schedules for the Los Angeles World Airports police.
- **IRIS**: IRIS has been deployed since October 2009 for randomizing schedules for allocation of Federal Air Marshals (FAMS) to some sectors of international flights. IRIS uses the fastest known algorithm for solving Stackelberg games to provide mixed strategies which allows it to randomize schedules for the FAMS.
- **PROTECT**: PROTECT is in use for randomizing schedules for the US Coast Guard in the port of Boston. PROTECT solves Stackelberg games to provide mixed strategies which allows it to randomize patrols for the US Coast Guard, taking into account weights of different targets and reactions potential adversaries. PROTECT is currently being deployed in the port of New York.
- **GUARDS**: GUARDS is under testing since October 2009 for randomizing schedules for the Transportation Security Administrations (TSA) security activities. GUARDS solves Stackelberg games to provide mixed strategies which allows it to randomize schedules for the TSA.

Patents

- United States Patent application application 20090099987 "DOBBS (Decomposed Optimal Bayesian Stackelberg Solver) is an Optimal Algorithm for Solving Bayesian Stackelberg Games" (co-inventors: M. Tambe, P. Paruchuri, F. Ordonez, J. P. Pearce, J. Marecki, S. Kraus)
- United States Patent application application 20090119239 "ASAP Agent Security Via Approximate Policies Algorithm Is An Approximate Solver for Bayesian Stackelberg Games" (co-inventors: M. Tambe, P. Paruchuri, F. Ordonez, J. P. Pearce, J. Marecki, S. Kraus)
- United States Patent application 20070156460 " System having a locally interacting distributed joint equilibrium-based search for policies and global policy selection" (co-inventors: R. Nair, P. Varakantham, M. Tambe, M. Yokoo)

Funding as PI

Current Research Funding

- *Game theoretic randomization with applications to Federal Air Marshals (FAMS) III*, 10/1/11-7/1/12, approx $115,000 (via the Rutgers CCICADA center from the department of homeland security)
- *ARMOR-PROTECT-NY Prototype model development*, 8/16/11-3/13/13, approx $466,000, US Coast Guard Research and Development Center
- *Task allocation using continuous resource distributed markov decision processes*, 9/1/11-8/31/12, approx $66,000, NASA Space Technology Research Fellowships (NSTRF)
- *Scalable, Stochastic and Spatiotemporal Game Theory for Real-World Human Adversarial Behavior*, 6/1/11-5/31/16, approx $7,500,000, Fiscal Year (FY) 2011 Department of Defense Multidisciplinary Research Program of the University Research Initiative
- *Enhancing ARMOR at the Los Angeles International Airport*, 6/1/11-6/1/12, approx $25,000, Los Angeles World Airports
- *Scheduling Security Activities in Uncertain Adversarial Domains*, 1/1/11-1/11/14, approx $350,00 (part of the USC center for excellence award from the department of homeland security))
- *Scheduling Border Security Operations in Uncertain Adversarial Domains*, 9/15/10-9/15/12, approx $175,000 (via the Univ of Texas El Paso NCBSI center from the department of homeland security)
- *Game theory and human behavior*, 7/1/10-7/1/13, approx $90,000, from USC Research collaboration fund
- *Cancer as a Dynamic Stochastic Graphical-Game*, 7/1/10-8/1/12, approx $120,000, from MC-START (Multiscale Complex Systems Transdisciplinary Analysis of Response to Therapy) PSOC (Physical Sciences-Oncology Center)
- *Towards Algorithmic Advances for Solving Stackelberg games: Addressing Model Uncertainties and Massive Game Scale-up*, 4/15/10-4/15/13, approx $360,000 Army Research Office
- *Adaptive Team Training*, 9/1/09-1/31/12, approx $45,000, subcontract from Perceptronics Solutions, Principal Investigator (Part of Army SBIR, Phase II)
- *Distributed Automated Planning System (DAPS) for a Dynamic Collection of Heterogeneous Manned and Unmanned Entities*, 9/1/09-2/28/12, approx $185,000, subcontract from Perceptronics Solutions, Principal Investigator (Part of Army SBIR, Phase II)
- *Automated Mission Scheduling using Distributed Constraint Optimization*, 6/1/08-12/1/11, approx $87,000, subcontract from Perceptronics Solutions, Principal Investigator (Part of DARPA STTR, Phase II)

Past Research Funding

- *Automated Threat Assessment and Suspicious Activity Detection*, 5/1/11-12/1/11, approx $50,000, subcontract from Raytheon

- *Multi-Agent Simulation and Causal Model (MSCM) System for Enhancing Team Cognitive Readiness*, 6/1/11-12/1/11, approx $20,000, subcontract from Perceptronics Solutions, Principal Investigator (Part of OSD SBIR 010-CR7, Phase I)

- *Game-theoretic randomization with applications to coast guard problems*, 5/1/10-3/1/11, approx $75,000 (via the USC center for excellence award from the department of homeland security)

- *Game theoretic randomization with applications to Federal Air Marshals (FAMS) II*, 5/1/10-7/1/11, approx $150,000 (via the Rutgers CCICADA center from the department of homeland security)

- *Multi Agent Autonomous Reasoning System (MAARS) for Satellite Defense*, 2/1/10-9/1/10, approx $27,500, subcontract from Perceptronics Solutions, Principal Investigator (Part of DARPA SBIR, Phase I)

- *Game theory for security*, 9/1/07-9/1/10, approx $470,000 (part of the USC center for excellence award from the department of homeland security)

- *Game-theoretic randomization with applications to transportation security*, 7/1/09-7/1/10, approx $225,000 (via the USC center for excellence award from the department of homeland security)

- *Multiagent Adjustable Autonomy Framework (MAAF) to Support Multi-robot, Multi-Human Teams*, 5/1/08-5/1/10, approx $250,000, subcontract from Perceptronics Solutions, Principal Investigator (Part of DARPA STTR, Phase II)

- *Rapid formation of virtual organizations using modeling and multiagent systems*, 2/1/08-2/1/10, approx $243,000, subcontract from Perceptronics Solutions, Principal Investigator (Part of DARPA STTR, Phase II)

- *Game theoretic randomization with applications to Federal Air Marshals (FAMS)*, 5/1/08-9/1/09, approx $250,000 (via the USC center for excellence award from the department of homeland security)

- *Automated Planning Software For a Dynamic Heterogeneous Collection Of Manned And Unmanned Entities*, 1/1/09-6/1/09, approx $30,000, subcontract from Perceptronics Solutions, Principal Investigator (Part of Army SBIR, Phase I)

- *Distributed constraint optimization for mobile sensor nets*, 1/1/08-2/28/09, approx $100,000, Subcontract from Lockheed Martin Advanced Technology Laboratory (DARPA "LANDROIDs" program).

- *Smart oil apprentice*, 5/1/08-12/31/08, approx $100,000, subcontract from Center for Interactive and Smart Oil field Technologies (PI Prof. Raghu Raghavendra)

- *Cultivating Interdisciplinary Technology Innovation*, 1/1/08-7/1/08, approx $10,000, Zumberge Interdisciplinary Grant from the James H. Zumberge Research and Innovation Fund.

- *Automated Mission Scheduling by Distributed Constraint Optimization for Collaborative and Shared Control of Unmanned Vehicle Systems*, 3/1/07-12/1/07, approx $18,000, subcontract from Perceptronics Solutions, Principal Investigator (Part of DARPA SBIR, Phase I)

- *Multiagent Adjustable Autonomy Framework (MAAF) to Support Multi-robot, Multi-Human Teams*, 12/1/06-12/1/07, approx $45,000, subcontract from Perceptronics Solutions, Principal Investigator (Part of DARPA STTR, Phase I)

- *Rapid formation of virtual organizations using modeling and multiagent systems*, 10/1/06-10/1/07, approx $45,000, subcontract from Perceptronics Solutions, Principal Investigator (Part of DARPA STTR, Phase I)
- *Multiagent simulations of disaster rescue*, 4/1/04-8/1/07, approx $450,000 (part of the USC center for excellence award from the department of homeland security)
- *Team composition optimization tools*, 12/1/06-7/1/07, approx $12,000, subcontract from Perceptronics Solutions, Principal Investigator (Part of DARPA STTR, Phase I)
- *Coordinators: Intelligent coordination support for humans*, 2/15/05-6/30/07, approx $450,000, subcontract from Honeywell Research, Principal Investigator (Part of DARPA's COORDINATOR program)
- *Enduring teams of cognitive personal assistants*, 5/1/03-9/31/06, approx $1,390,000, Subcontract from SRI International, Principal investigator (Part of DARPA's CALO "personal assistant" project)
- *COM-MTDP: A new approach for analysis of multiagent teamwork*, 8/1/02-7/31/06, approx. $315,000, National Science Foundation (NSF). Principal Investigator.
- *Continual coherent team planning*, 6/1/2001-9/1/2004, Approx $300,000. NASA NRA subcontract from the Jet Propulsion Lab. Principal Investigator.
- *Large-scale agent-facilitated human organizations*, 9/1/03-9/1/04, approx $10,000, Okawa foundation research grant
- *Software for distributed robot teams*, 8/1/02-3/1/04, approx $400,000 Subcontract from SAIC. Co-principal investigator (with Dr. Gaurav Sukhatme)
- *RAP Team*, 7/1/02-12/31/02, approx $400,000, Defense Advanced Research Project Agency (DARPA). Co-principal investigator (with Dr. Paul Rosenbloom, Dr. Lewis Johnson and Dr. Gaurav Sukhatme).
- *Extending the ADOPT Algorithm*, 1/1/03-5/1/03 approx $20,000 Defense Advanced Research Project Agency (DARPA) Principal Investigator.
- *DYNAMITE: Dynamic Negotiating Adaptive Multi-agent Teams*, 6/1/99-5/1/03, approx. $1,000,000. Defense Advanced Research Projects Agency (DARPA). Principal Investigator.
- *TEAMCORE: Rapidly extending and building agents for flexible, adaptive teamwork*, 7/1/98-6/1/2002, approx. $2,038,000, Defense Advanced Research Projects Agency (DARPA). Principal Investigator.
- *Investigating teamwork among spacecraft*, 7/1/2001-12/1/2001, Approx $50,000. Subcontract from the NASA AMES research center. Co-Principal Investigator (with Dr. Stacy Marsella).
- *PSYCHSIM: Psychological operations impact analysis*, 7/1/2001-3/1/2002, Approx $160,000. Subcontract from the Institute for Defense Analysis (IDA). Co-principal investigator (with Dr. Stacy Marsella).
- *Modeling and analysis of team behavior in multi-agent worlds*, 7/1/98-10/1/2001, approx. $240,000, Gift from Intel corporation. Co-principal investigator (with Dr. Stacy Marsella).
- *Towards flexible teamwork in complex, dynamic environments*, 9/1/97-5/1/01, approx. $250,000, National Science Foundation (NSF). Principal Investigator.

- *Teaming and information sharing among adapative battlefield agents*, 7/8/97-9/1/00, approx. $900,000. Air-force offfice of scientific research (AFOSR). Co-Principal Investigator (with Dr. Wei-Min Shen).
- *Towards Free Flight: The Airborne Joint Intentions network*, 7/1/98-12/1/98, approx. $45,000, Subcontract from Boeing corporation. Principal investigator.
- *Adaptive Agent and Agent-Group Modeling*, 1/1/97-6/30/98, approx. $100,000 Subcontract from Sverdrup Technology, Inc. Principal Investigator.

Teaching and Education I: Students, Thesis Committees

Past Students and Post-doctoral Researchers

Past PhD Students

- **Prof. Gal Kaminka**, *PhD defended: 5/2000*, Thesis title: "Execution monitoring in multi-agent environments". Currently, associate professor, Computer Science, Bar-Ilan University, Israel.
- **Prof. Pragnesh Jay Modi**, *PhD defended: 6/2003*, Thesis title "Distributed constraint optimization in multiagent systems". Currently, assistant Professor, Computer Science, Drexel University (Co-advisor: Dr. Wei-min Shen). [deceased; the best student award at the International Joint Conference on Autonomous Agents and Multiagent systems is now named as the Pragnesh Jay Modi best student paper award.]
- **Dr. Hyuckchul Jung**, *PhD defended: 9/2003*, Thesis title "Conflict resolution strategies and their performance models for large-scale multiagent systems". Currently, research scientist at the Institute for Human-Machine cognition(IHMC).
- **Dr. Ranjit Nair**, *PhD defended: 8/2004*, Thesis title "Coordinating multiagent teams in uncertain domains using distributed POMDPs". Currently, founder and chief executive officer "GerminAIT", to germinate AI technologies, Mumbai, India.
- **Prof. Pradeep Varakantham**, *PhD defended: 2/2007* Thesis title: "Towards efficient planning for real world partially observable domains" Currently, Assistant Professor, School of Information Systems, Singapore Management University.
- **Dr. Praveen Paruchuri**, *PhD defended: 4/2007*, Thesis title: "Keep the adversary guessing: Agent security by policy randomizing". Currently, post-doctoral research associate, School of Computer Science, Carnegie Mellon University.
- **Dr. Jonathan Pearce**, *PhD defended: 5/2007*, Thesis title: "Local optimization in cooperative agent networks". Currently, research scientist, Knight capital, New York.
- **Prof. Emma Bowring**, *PhD defended: 7/2007*, Thesis title: "Balancing local constraints and global goals in multiply-constrained distributed constraint optimization". Currently, assistant professor, Computer Science Department, University of the Pacific.
- **Dr. Nathan Schurr**, *PhD defended: 10/2007*, Thesis title: "Towards Human-Multiagent Teams". Currently, research scientist, Aptima Inc.
- **Dr. Janusz Marecki**, *Phd defended: 5/2008*, Thesis title: "Planning with continuous resources in agent systems". Currently, research scientist, IBM T.J. Watson Research Labs.

Past postdoctoral researchers and research scientists

- **Dr. David Pynadath**, Computer Research Scientist, 12/1/98-7/1/02 (Currently, Research Scientist at the Institute for Creative Technology, University of Southern California)
- **Prof. Paul Scerri**, Post-doctoral research associate, 7/1/01-7/1/03 (Currently, Associate Research Professor at the Robotics Institute, Carnegie Mellon University)

- **Prof. Rajiv Maheswaran**, Post-doctoral research associate, 8/15/03-7/1/05 (Currently, Research Assistant Professor at the Computer Science Department at USC and research scientist at the Information Sciences Institute, University of Southern California)
- **Prof. Christopher Kiekintveld**, Post-doctoral research associate, 6/15/08-7/1/10 (Currently, Assistant Professor at the Computer Science Department at University of Texas at El Paso)
- **Prof. Matthew E. Taylor**, Post-doctoral research associate, 8/15/08-7/1/10 (Currently, Assistant Professor at the Computer Science Department at Lafayette College)

Past Masters Students

- **Mufaddal Jhaveri**, MS student, 11/1/10-5/1/11 "Game-theoretic randomization for the Federal Air Marshals Service"
- **Bharatkumar Patel**, MS student, 7/15/09-5/1/10 "Game-theoretic randomization for the Transportation Security Administration"
- **Harish Bellamane**, MS student, 2/1/09-5/15/10 "Game-theoretic randomization for the Federal Air Marshals service"
- **Atul Kumar**, MS student, 8/25/08-8/1/09 "K-optimal and t-distance optimal algorithms"'
- **Shyamsundar Rathi**, MS student, 7/1/08-5/15/09 "Randomized Allocation for the Federal Air Marshals"
- **Tapana Gupta**, MS student, 9/1/05-12/31/07 "Networked distributed POMDPs"
- **Ankit Modi**, MS student, 9/1/06-5/31/07 "Robust implementation of multiply constrainted DCOPs".
- **Yoonheui Kim**, MS student, 1/1/05-5/1/06 "Exploiting Locality of Interaction in Networked Distributed POMDPs: AN EMPIRICAL EVALUATION"
- **Rahul Iyer**, MS student, 12/1/04-12/1/05 "Speeding up DCOP algorithm ADOPT via Preprocessing"
- **Don Dini**, 9/1/04-5/1/05, MS Thesis title "Advantages of unpredictable multiagent systems: Randomized policies for single agents and agent teams",
- **Steven Okamoto**, 9/1/03-6/1/04, MS Thesis title "Distributed constraint optimization in LA: Relaxed".
- **Syed Muhammed Raza Ali**, 1/1/03-9/1/04, Research project "Preprocessing for Distributed Constraint Optimization in the ADOPT algorithm".
- **Shriniwas Kulkarni**, 6/1/00-8/1/01. Research project "Applying DisCSPs in Distributed sensor nets".
- **Taylor Raines**, 9/1/98-5/1/2000. Research project "ISAAC Soccer analyst for RoboCup".
- **Zhun Qiu**, 9/1/97-12/31/98. Research project "Multiagent Negotiation by Argumentation".

Past Undergraduate research students

- **Andrew Ogden**, 2/1/09-12/15/10 “ESCAPES - Multiagent Evaucation Simulation”.
- **Prateek Tandon**, 9/1/08-5/15/10 “Applying DCEE (distributed coordinated exploration and exploitation) framework on CREATE robots”.
- **Michael Scott**, 7/1/09-5/1/10 “GUARDS: Game theory for security”
- **Craig Western**, 9/1/07-5/15/10 “ARMOR, IRIS, GUARDS: Game theory for security”
- **Christopher Portway**, 5/15/07-5/15/08 “ARMOR randomization for airport security”.
- **Matt Mehne**, Undergraduate student, 1/1/04-5/1/04. “Machinetta proxies multiagent teamwork”

Current Research Group

Post-doctoral Research Associates

- **Bo An**, Postdoctoral Research Associate, 10/1/10-
- **Albert Xin Jiang**, Postdoctoral Research Associate, 11/1/11-
- **Matthew P. Johnson**, Postdoctoral Research Associate, 10/24/11-

PhD Students

- **Manish Jain**, PhD student, 8/1/07- (post-qualifying exam)
- **James Pita**, PhD student, 8/1/07- (post-qualifying exam)
- **Jason Tsai**, PhD student, 8/1/08-
- **JunYoung Kwak**, PhD student, 8/1/08-
- **Zhengyu Yin**, PhD student, 8/1/08-
- **Rong Yang**, PhD student, 8/1/09-
- **Eric Shieh**, PhD student, 8/1/10-
- **Matthew Brown**, PhD student, 8/1/10-
- **Fei Fang**, PhD student, 8/1/11-
- **Leandro Marcolino**, PhD student, 8/1/11-
- **Thanh Hong NGUYEN**, PhD student, 8/1/11-

MS Students

- **Mohit Goenka**, MS student, 5/15/10-

Undergraduate Students

- **Shira Esptein**, 1/1/09-
- **Dana Li**, 9/1/09-
- **Arjun Srinivasan**, 9/1/09-
- **Reetika Rastogi**, 9/1/10-
- **Noah Olsman**, 9/1/10-
- **Andrew Deeds**, 9/1/10-

Participation in Thesis committees: External to USC

- *Natalie van der Waal*, PhD thesis committee (2012), Computer Science, Vrije University, Amsterdam.
- *Dmytro Korzhyk*, PhD thesis committee (2011), Computer Science, Duke University.
- *Steven Okamoto*, PhD thesis committee (2008), School of Computer Science, Carnegie Mellon University.
- *Maayan Roth*, PhD thesis committee (2007), School of Computer Science, Carnegie Mellon University.
- *Rachel Greentstadt*, PhD thesis committee (2007), Computer Science Department, Harvard University.
- *Gita Sukhtankar*, PhD thesis committee (2007), School of Computer Science, Carnegie Mellon University.
- *Patrick Reily*, PhD thesis committee (2005), School of Computer Science, Carnegie Mellon University.
- *Sanjeev Kumar*, PhD thesis committee (2005), Oregon Graduate Institute.
- *Gerardo Simari*, MS thesis committee (2004), Universidad Nacional del Sur, Argentina.
- *Alessandro Farinelli*, PhD thesis committee (2004), Univerista di Roma "La Sapienza", Italy.
- *Silvia Coradeschi*, Licenciate thesis committee *opponent* (1997), Computer Science Department, Linkoping University, Sweden.
- *Anurag Acharya*, PhD thesis committee (1993), School of Computer Science, Carnegie Mellon University.
- *C.J. Paul*, PhD thesis committee (1993), Electrical and Computer Engineering, Carnegie Mellon University.

Participation in PhD Thesis committees: Internal to USC

- *Zhengyu Yin*, Chair, PhD qualifying exam committee (2012), Computer Science Dept.
- *Hossein Tajalli*, PhD thesis defense committee (2011), Computer Science Dept.
- *Jina Lee*, PhD thesis defense committee (2011), Computer Science Dept.
- *Jonathan Ito*, PhD qualifying exam committee (2011), Computer Science Dept.
- *Celso De Melo*, PhD qualifying exam committee (2011), Computer Science Dept.
- *James Pita*, Chair, PhD qualifying exam committee (2011), Computer Science Dept.
- *Manish Jain*, Chair, PhD qualifying exam committee (2011), Computer Science Dept.
- *Harris Chiu*, PhD qualifying exam committee (2011), Computer Science Dept.
- *Mahyar Salek*, PhD thesis defense committee (2011) and qualifying exam (2009), Computer Science Dept.
- *Marcos Vieria*, PhD qualifying exam committee (2009), Computer Science Dept.
- *Po-An Chen*, PhD thesis defense committee (2011) and qualifying exam (2009), Computer Science Dept.

- *William Yeoh*, PhD thesis defense (2010) and PhD qualifying exam committee (2009), Computer Science Dept.
- *Feili Hou*, PhD thesis defense committee (2011) and qualifying exam (2009), Computer Science Dept.

- *Sudeep Gandhe*, PhD qualifying exam committee (2009), Computer Science Dept.
- *Erroll Southers*, External member, PhD Advisory Committee (2008), School of Planning, Policy and Development
- *Janusz Marecki*, Chair, PhD Thesis defense (2008) and PhD qualifying exam committee (2007), Computer Science Dept.
- *Antonio Roque*, PhD thesis defense (2008) and qualifying exam committee (2007), Computer Science Dept.
- *Mei Si*, PhD Thesis defense (2009) and PhD qualifying exam committee (2007), Computer Science Dept.
- *Jonathan Pearce*, Chair, PhD Thesis defense (2007) and PhD qualifying exam committee (2006), Computer Science Dept.
- *Pradeep Varakantham*, Chair, PhD Thesis Defense (2007) and PhD qualifying exam committee (2006), Computer Science Dept.
- *Emma Bowring*, Chair, PhD Thesis defense (2007) and PhD qualifying exam committee (2006), Computer Science Dept.
- *Nathan Schurr*, Chair, PhD Thesis defense (2007) and PhD qualifying exam committee (2006), Computer Science Dept.
- *Praveen Paruchuri*, Chair, PhD Thesis Defense (2007) and PhD qualifying exam committee (2006), Computer Science Dept.
- *Xuefeng Song*, PhD qualifying exam committee (2005), Computer Science Dept.
- *Jordan Melzer*, Phd thesis defense (2006) and PhD qualifying exam committee (2005), Electrical and Computer Engg Dept.
- *Ranjit Nair*, Chair, Phd thesis defense (2004) and qualifying exam committee (2003), Computer Science Department.
- *Boyoon Jung*, Phd thesis defense (2004) and qualifying exam committee (2004), Computer Science Department.
- *Pragnesh Jay Modi*, Co-chair, Phd thesis defense (2003) and qualifying exam committee (2001), Computer Science Department.
- *Hyuckchul Jung*, Chair, Phd thesis defense (2003) and qualifying exam committee (2001), Computer Science Department.
- *Yaser Al-Onaizan*, Phd thesis defense committee (2002), Computer Science Department.
- *Li Zhao*, outside member, Phd qualifying exam committee (2001), Industrial Engg department.
- *Brian Gerkey*, Phd qualifying exam committee (2001), Computer Science Department.
- *Dani Goldberg*, Phd qualifying exam committee (1999), Computer Science Department.

- *Gal Kaminka*, Chair, PhD thesis defense committee (2000) and Phd qualifying exam committee (1999), Computer Science Department.
- *Bonghan Cho*, PhD thesis defense committee (1997) and qualifying exam committee (1996), Computer Science Department.
- *Chun-nan Hsu*, PhD qualifying exam committee (1995), Computer Science Department.

Participation in MS Thesis committees: Internal to USC

- *Mohit Goenka*, Chair, MS thesis committee (2009) Computer Science Department.
- *Yoonheui Kim*, Chair, MS thesis committee (2006) Computer Science Department.
- *Don Dini*, Chair, MS thesis committee (2004) Computer Science Department.
- *Steven Okamoto*, Chair, MS thesis committee (2003), Computer Science Department.

Teaching and Education II: Courses Developed and Taught

Teaching: Courses Developed

2008 CSCI300 "Introduction to Intelligent agents using science fiction": A new course on introducing intelligent agents to undergraduate students using science fiction as the motivator; this was based on the earlier CS499 course.

2006 Freshman seminar "Artificial Intelligence and science fiction": Co-designed (with Prof. Anne Balsamo of School of Cinema/TV and my PhD student Emma Bowring) a new course on introducing artificial intelligence to freshman using science fiction as the motivator. This interdisciplinary seminar course investigates the social and cultural implications of Artificial Intelligence.

2006 CSCI499 "Intelligent agents and science fiction": Co-designed (with my PhD student Emma Bowring) a new course on introducing intelligent agents to undergraduate students using science fiction as the motivator.

2002 CSCI543 "Software multiagent systems": Designed this brand new course on multiagent systems from scratch, to cover key paradigms of multiagent systems research, such as Belief-desire-intention (BDI) systems, distributed constraint optimization (DCOP), distributed POMDPs and market-based systems.

2001 CSCI573 "Advanced Artificial Intelligence": Redesigned and redefined course on "Advanced AI" to include recent advances in reasoning with uncertainty in AI such as latest research on single-agent and distributed POMDPs.

Teaching and Education II: Courses Taught

Spring 2011 CSCI 599, *Game Theory and Human Behavior*, Computer Science Dept, USC

Fall 2010 CSCI 300, *Understanding Intelligent Agents via Science Fiction*, Computer Science Dept, USC

Fall 2009,2010 ENGR 102, *Freshman academy*, School of Engineering, USC

Spring 2003 through to Spring 2011 CSCI 543, *Software multiagent systems*, Computer Science Dept, USC

Spring 2007 Freshman Seminar, *Artificial Intelligence and Science Fiction*, College of Letters Arts and Sciences, USC (with co-instructor Anne Balsamo and Emma Bowring)

Fall 2006, 2007 Freshman Micro-Seminar, *Artificial Intelligence and Science Fiction*, USC

Fall 2006, 2008 CSCI499, *Intelligent Agents and Science Fiction*, Computer Science Dept, USC

Spring 2002, Fall 2002 through to Fall 2005 CSCI 573 (earlier CS561B), *Advanced Artificial Intelligence*, Computer Science Dept, University of Southern California

Fall 2001, 2000 CSCI 599, *Software Multi-agent systems*, Computer Science Dept, University of Southern California

Fall 1996, 1995 CSCI 598, *Expert Systems*, Computer Science Dept, University of Southern California (with co-instructors Ramesh Patil and William Swartout)

Fall 1988 Teaching assistant for 15-381, an undergraduate course on *Artificial Intelligence*, with Prof. Kurt VanLehn, at the School of Computer Science, Carnegie Mellon University.

Teaching and Education III: International activities

International Agents Schools

2003-2007 Advisory committee, Americas Agents and Multiagent Systems School

2004-2006 Chair, IFMAS Committee for agents schools in under-represented countries. Initiated and chaired a committee to enable students in "under-represented" countries to attend agents schools, taught by internationally recognized speakers.

2003 Co-chair, Organizing committee, Second Americas School on Agents and Multiagent Systems

2002 Chair and founding member, Organizing committee, First Americas School on Agents and Multiagent Systems

Selected International and National Tutorials

[T14] M. Tambe Game theory and its applications in security and sustainability. First IJCAI summer school on Artificial Intelligence, July 2012.

[T13] M. Tambe, C. Kiekintveld Security Games Tutorial program for the International Conference on Uncertainty in Artificial Intelligence, July, 2011.

[T12] C. Ortiz, B. Grosz and M. Tambe. Teamwork among robots, agents and people Tutorial program for the International Joint Conference on Artificial Intelligence, August, 2005.

[T11] C. Ortiz, B. Grosz and M. Tambe. Teamwork among robots, agents and people Tutorial program for the National conference on Artificial Intelligence, July, 2004.

[T10] M. Tambe. Teamwork among robots, agents and people Tutorial program for the Agents School at the International Joint Conference on Agents and Multiagent Systems, July, 2004

[T9] M. Tambe. Multiagent and Agent-human teamwork: Theory and Practice The Melbourne Agents Systems School, Melbourne, Australia, July, 2003

[T8] C. Ortiz, B. Grosz and M. Tambe. Teamwork among robots, agents and people Tutorial program for the Second Agents and Multiagents Systems Conference, Melbourne, Australia, July, 2003.

[T7] M. Tambe Multiagent and Agent-human teamwork: Theory and Practice Tutorial program of the International Joint Conference on Artificial Intelligence, Mexico, August, 2003

[T6] M. Tambe Agent teamwork European robotic research network (EURON) summer school, Lisbon, Portugal

[T5] C. Ortiz, B. Grosz and M. Tambe. Agent teamwork. Tutorial program for the First Agents and Multiagents Systems Conference, Bologna, Italy, July, 2002.

[T4] M. Tambe. Agent teamwork. European Summer School on Agents, Bologna, Italy, July, 2002.

[T3] M. Tambe. Teamwork. Americas School on Agents and Multiagent Systems, University of Southern California, January 2002.

[T2] M. Tambe. Agent teams. International conference on High Performance Computing, Hyderabad, India, December, 2001

[T1] M. Tambe. Agent teamwork. European Summer School on Agents, Prague, Czech republic, July, 2001.

International Mentoring Service

2004 Participant and panelist at the AAAI'04 Doctoral Consortium, San Jose, CA

2003 Participant and panelist at the IJCAI'2003 Doctoral Consortium, Acapulco, Mexico

2003 Panelist at the "Careers Panel" Second Americas Agents and Multiagent Systems School, Acapulco

2003 Participant and panelist at the Doctoral Consortium affiliated with the Melbourne Agents Systems School, Melbourne

Selected Significant Invited Presentations

Significant invited presentations at international conferences and workshops

[IC34] M. Tambe Game theory and Human Behavior: Challenges in Security and Sustainability *AAMAS workshop on "Human-Agent Interaction Design and Models", 2012*

[IC33] M. Tambe Game theory for security: A real-world challenge problem for multiagent systems and beyond *AAAI Spring Symposium on "AI, The Fundamental Social Aggregation Challenge, and the Autonomy of Hybrid Agent Groups", 2012*

[IC32] M. Tambe Game theory for security: Lessons Learned from Deployed Applications *International Conference on Principles and Practice of Multiagent Systems (PRIMA), 2011*

[IC31] M. Tambe Game theory for security: Lessons Learned from Deployed Applications *European Workshop on Multiagent Systems (EUMAS), 2011*

[IC30] M. Tambe Multiagent adversarial reasoning under uncertainty: Lessons Learned from Deployed Applications *AAAI Fall Symposium on "Multiagent coordination under uncertainty", 2011*

[IC29] M. Tambe Game theory for security: Lessons Learned from Deployed Applications *International workshop on Knowledge discovery from sensor data (SensorKDD), held in conjucntion with KDD'2011*

[IC28] M. Tambe Game theory for security: Lessons Learned from Deployed Applications *Applied Adversarial Reasoning and Risk Modeling workshop at AAAI'2011*

[IC27] M. Tambe Game theory and human behavior: Next generation Challenges *International Conference on Algorithmic Decision Theory (ADT), 2011*

[IC26] M. Tambe Game theory for security: Lessons Learned from Deployed Applications *Soar Workshop, 2011*

[IC25] M. Tambe Game theory for security: Lessons learned from deployed applications *International Conference on Practical Applications of Agents and Multi-Agent Systems (PAAMS), 2011*

[IC24] M. Tambe Game theory for security: Lessons learned from deployed applications *AAAI Spring Symposium on Help me Help you: Bridging the Gaps in Human-Agent Collaboration, 2011*

[IC23] M. Tambe Game theory for security: Lessons learned from deployed applications *IEEE/WIC/ACM International Conference on Intelligent Agent Technology (IAT), 2010*

[IC22] M. Tambe Collaborative Multiagent systems: DCOPS and Distributed POMDPs *International Workshop on Collaborative Agents – REsearch and development (CARE), 2010*

[IC21] M. Tambe Game-theoretic approaches to security: Lessons learned from deployed systems *Workshop on Analysis and Modeling for Security (WAMOS) Santiago, Chile, 2010*

[IC20] M. Tambe, C. Kiekintveld Game-theoretic approaches to security: Lessons learned from deployed systems *Southern California Network Economics and Game Theory Workshop, 2009*

[IC19] M. Tambe Optimizing Multiagent Systems *International Workshop on Optimization in Multiagent Systems (OPTMAS), held in conjunction with AAMAS'09*

[IC18] M. Tambe Multiagent Systems: Lessons learned from putting theory into practice *International Workshop on Agent Design: Adapting from Practice to Theory (ADAPT), held in conjunction with AAMAS'09*

[IC17] M. Tambe Hybrid approaches to multiagent systems *Bar-Ilan Symposium on Foundations of AI, BISFAI'2007*

[IC16] M. Tambe Safety and security in agent teams *International workshop on safety and security in multiagent systems, at AAMAS'2006*

[IC15] M. Tambe Electric Elves *AAAI Spring Symposium on What When Wrong and Why*, 2006

[IC14] M. Tambe Conflicts in teamwork: Hybrids to the rescue *Fourth International Joint Conference on Agents and Multiagent Systems (AAMAS)*, 2005

[IC13] M. Tambe and N. Jennings A Report on the International Joint Conference on Agents and Multiagent Systems 2004 *National Conference on Artificial Intelligence (AAAI)*, 2005

[IC12] M. Tambe Conflicts in teamwork: Hybrids to the rescue *Multiagent Planning and Scheduling Workshop (in conjunction with ICAPS'2005)*, 2005

[IC11] M. Tambe Virtual reality simulations for disaster rescue *US-Israel Science and Technology Foundation symposium on applications of virtual reality, Israel*, 2005

[IC10] M. Tambe Teamwork: A distributed POMDP perspective *Second Brazilian Symposium on Artificial Intelligence, Brazil*, 2004

[IC9] M. Tambe Using distributed POMDPs for analysis and improvement of team-oriented programs *AAMAS International workshop on programming multiagent systems (ProMAS)*, 2004

[IC8] M. Tambe Implications of RoboCup for general multiagent research *American Open RoboCup Workshop, Carnegie Mellon University*, Pittsburgh, 2003

[IC7] M. Tambe. Agent Teams: Theory and Practice *AAAI workshop on Multiagent Planning*, Edmonton, Canada, 2002

[IC6] M. Tambe. Adjustable autonomy for the real world. *AAAI Spring Symposium, Workshop on Safe Learning Agents*, Stanford, CA, 2002.

[IC5] M. Tambe. Towards team-oriented programming. *PRIMA, Pacific Rim International Workshop on Multi-agent Systems*, Taipei, Taiwan, 2001

[IC4] M. Tambe. Team-oriented programming and adjustable autonomy. *IJCAI workshop on Adjustable Autonomy*, International joint conference on Artificial Intelligence (IJCAI), 1999.

[IC3] M. Tambe. Towards conflict resolution in agent teams via argumentation. *AAAI workshop on conflicts in Agents*, National conference on Artificial Intelligence (AAAI), 1999.

[IC2] M. Tambe. Towards flexible teamwork. International cooperation workshop on Intelligent Robotic Systems, Porto Alegre, Brazil, 1997. Sponsored by the National Science Foundation and Brazilian Conselho Nacional de Desenvolvimento Cientifico Technologico (CNPq).

[IC1] M. Tambe. Towards flexible teamwork. *DARPA Young Researchers Workshop*, in conjunction with the National Conference on Artificial Intelligence (AAAI-97), 1997.

Significant invited presentations at Universities and Research institutions (non-USC)

[IU64] M. Tambe Game-theory for security: A real-world challenge problem for computational game theory and beyond *University of California, Los Angeles*, 2012

[IU63] M. Tambe Game-theory for security: A real-world challenge problem for computational game theory and beyond *Center for Non-Linear Studies, Los Alamos National Laboratories*, 2012

[IU62] M. Tambe Game-theory for security: A real-world challenge problem for multiagent systems and beyond *Columbia University*, 2012

[IU61] M. Tambe Game-theory for security: A real-world challenge problem for multiagent systems and beyond *City University of New York*, 2012

[IU60] M. Tambe Game-theory for security: Lessons learned from deployed applications *University of California, Berkeley*, 2011

[IU59] M. Tambe Game-theory for security: Lessons learned from deployed applications *University of Southampton, UK*, 2011

[IU58] M. Tambe Game-theory for security: Lessons learned from deployed applications *Vrije University, Amsterdam, The Netherlands*, 2011

[IU57] M. Tambe Game-theory for security: Lessons learned from deployed applications *California Institute of Technology*, 2011

[IU56] T. Sandholm, M. Tambe, T. Wagner, S. Smith, D. Corkill Multiagent Systems Impact the Real-world *University of Massachussets, Amherst*, 2011

[IU55] M. Tambe Game-theory for security: Lessons learned from deployed applications *Harvard University*, 2011

[IU54] M. Tambe Game-theory for security: Lessons learned from deployed applications *Georgia Institute of Technology*, 2011

[IU53] M. Tambe Game-theory for security: Lessons learned from deployed applications *Singapore Management University*, 2011

[IU52] M. Tambe Game-theory for security: Lessons learned from deployed applications *Sandia National Labs*, 2011

[IU51] M. Tambe Game-theory for security: Lessons learned from deployed applications *California State University Dominguez Hills*, 2011

[IU50] M. Tambe Introduction to game theory with applications in security *Computer Science Dept, University of the Pacific*, 2011

[IU49] M. Tambe Game-theory for security: Lessons learned from deployed applications *University of Michigan, Ann Arbor, STIET Seminar*, 2010

[IU48] M. Tambe Game-theory for security: Lessons learned from deployed systems *Computer Science Dept, University of Massachusetts at Amherst*, 2010

[IU47] M. Tambe Game-theory for security: Lessons learned from deployed systems *Artificial Intelligence Research Institute (IIIA), Barcelona, Spain*, 2010

[IU46] M. Tambe Game-theory for security: Lessons learned from deployed systems *APTIMA, Boston, MA*, 2010

[IU45] M. Tambe Game-theory for security: Lessons learned from deployed systems *GerminAIT*, Mumbai, India, 2010

[IU44] M. Tambe Game-theoretic approaches to security: Lessons learned from deployed systems *SRI International, Menlo Park, CA*, 2010

[IU43] M. Tambe Multiagent systems: Lessons learned from putting theory into practice *Carnegie Mellon University Silicon Valley, Seminar Series*, 2010

[IU42] M. Tambe Multiagent systems: Lessons learned from putting theory into practice *Monterey Bay Aquarium Research Institute (MBARI) Seminar Series*, 2010

[IU41] M. Tambe Multiagent systems: Lessons learned from putting theory into practice *IBM TJ Watson Research Center, New York*, 2010

[IU40] M. Tambe Game-theoretic approaches to security: Lessons learned from deployed systems *CCI-CADA Center of excellence in research for homeland security, Rutgers University*, 2010

[IU39] M. Tambe Multiagent systems: Lessons learned from putting theory into practice *National Reconnaissance office, Washington DC*, 2009

[IU38] M. Tambe Multiagent systems: Lessons learned from putting theory into practice *RI seminar, School of Computer Science, Carnegie Mellon University*, 2009

[IU37] M. Tambe Multiagent systems: Lessons learned from putting theory into practice *First Jay Modi Memorial lecture, Computer Science Department, Drexel University*, 2008

[IU36] M. Tambe Multiagent systems: Lessons learned from putting theory into practice *Comnputer Science Department, UC Riverside*, 2008

[IU35] M. Tambe and E. Southers The Application of a Game Theoretic Model for Security at the Los Angeles International Airport *RAND Corp, Santa Monica*, 2008

[IU34] M. Tambe Multiagent and agent-human teamwork: Hybrid Approaches *Computer Science Department, University of California, Irvine*, 2007

[IU33] M. Tambe Conflicts in teamwork: Hybrids to the rescue *NASA Ames Research Center*, 2005

[IU32] M. Tambe Multiagent teamwork: From Belief-desire-intentions to POMDPs and Back *AI Seminar, School of Computer Science, Carnegie Mellon University*, Pittsburgh, 2005

[IU31] M. Tambe Agent teams: Practice and theory *CS colloquium, Harvard University*, Boston, 2003

[IU30] M. Tambe Agent teams: Practice and theory *Distinguished Speaker series, Computer Science Department, Columbia University*, New York, 2003

[IU29] M. Tambe. Agent Teams: Theory and Practice *NASA Jet Propulsion Laboratory (JPL)*, Pasadena, CA, 2002

[IU28] M. Tambe. Agent Teamwork *SRI International*, Menlo Park, CA, 2002

[IU27] M. Tambe. Agent teams: Theory and Practice *Navy Center for Applied Research in Artificial Intelligence (NCARAI)*, Naval Research Labs, Washington, DC, 2002

[IU26] M. Tambe. Agent teams *AT & T Shannon research labs*, NJ, 2001

[IU25] M. Tambe. Agent Teams. *Computer Science Department, Rutgers University*, 2001.

[IU24] M. Tambe. Agent Teams. *Computer Science Department, University of Illinois at Urbana-Champaign*, 2001.

[IU23] M. Tambe. Agent Teams. *College of Computing, Georgia Tech*, 2000.

[IU22] M. Tambe. Electric Elves: Towards an Agent-Facilitated Human Organization. Aethersystems *Distinguished Lecture Series* on Mobile and Wireless Computing, *University of Maryland (UMBC)*, Maryland, 2000.

[IU21] M. Tambe. Agent Teams. *Computer Science Department, University of Massachusettes, Amherst*, Mass, 2000.

[IU20] M. Tambe. Agent Teams. *Computer Science Department, University of Maryland*, Maryland, 2000.

[IU19] M. Tambe. Agent Teams. *NASA Ames Research Center*, San Jose, CA, 2000.

[IU18] M. Tambe. Agent Teams. *Air Force Research Laboratory*, Rome, NY, 2000.

[IU17] M. Tambe. Towards flexible teamwork. *CS Colloquim, Harvard University* 1998.

[IU16] M. Tambe. TEAMCORE: Rapidly extending and developing agents to build robust adaptive teams. *Queen Mary and Westfield College*, London, United Kingdom, 1998.

[IU15] M. Tambe. Towards flexible teamwork. *Computer Science Department, University of Maryland* 1998.

[IU14] M. Tambe. Towards flexible teamwork. *SRI International*, 1998.

[IU13] M. Tambe. Towards flexible teamwork. *Computer Science Department, Stanford University* 1997.

[IU12] M. Tambe. Towards flexible teamwork. *Linkoping University*, Linkoping, Sweden, 1997.

[IU11] M. Tambe. Towards flexible teamwork. *SAAB Research*, Linkoping, Sweden, 1997.

[IU10] M. Tambe. Intelligent agents for interactive simulation environments. *Center for Study of Language and Information, Stanford University*, 1995

[IU9] M. Tambe. Eliminating Combinatorics from Production Match. *Georgia Institute Technology*, 1994

[IU8] M. Tambe. Eliminating Combinatorics from Production Match. *Computer Science, University of Florida, Gainesville*, 1994

[IU7] M. Tambe. Parallelism matters. Symposium in honor of Allen Newell, *School of Computer Science, Carnegie Mellon University*, 1992.

[IU6] M. Tambe. Eliminating Combinatorics from Production Match. *National Center for Software Technology*, India, 1989

[IU5] M. Tambe. Parallelism in Production Systems. *National Center for Software Technology*, India, 1989

[IU4] M. Tambe. Parallelism in Production Systems. *Indian Institute of Technology, Madras*, India, 1989

[IU3] M. Tambe. Parallelism in Production Systems. *USC/Information Sciences Institute*, 1988

[IU2] M. Tambe. Parallelism in Production Systems. *Tata Institute of Fundamental Research*, Bombay, India, 1988

[IU1] M. Tambe. Parallelism in Production Systems. *Indian Institute of Technology*, Bombay, India, 1988

Invited Participation in Selected Significant Panels

[P7] M. Tambe (with S. Sen, A. Ghose, A. Sattar, J. Hsu, M. Yokoo, L. Sonnenberg) Agents for Sustainability International Conference on Principles and Practices of Multiagent Systems (PRIMA 2011) (panel discussion)

[P6] M. Tambe (with E. Heikkila, E. Southers, M. Ressa) Combating Terrorism: Science, Technology and the Human Element USC Global Conference, Hongkong 2011 (panel discussion)

[P5] M. Tambe (with E. Horvitz, B. Selman et al) AAAI presidential panel on long-term AI futures International Joint Conference on Artificial Intelligence (IJCAI), 2009 (panel discussion)

[P4] M. Tambe (with K. Fischer, A. Omicini, A. Segrouchni et al) Agent Oriented Methodologies and Programming Languages: Towards Practical Systems International Conference on Agents and Multiagent Systems (AAMAS), 2009 (panel discussion)

[P3] M. Tambe (with L. Johnson, C. Pelachud, et al) Agent-human interactions in agents and multiagent systems International Joint Conference on Agents and Multiagent Systems (AAMAS), 2002 (panel discussion)

[P2] M. Tambe (with M. Wooldridge, M. Georgeff, B. Pell, M. Pollack) The belief-desire-intention model of agency International Workshop on Agents, Theories, Architectures and Languages (ATAL), 1998 (panel discussion)

[P1] M. Tambe (with S. Stolfo, M. Perlin, et al) Is production system match interesting? International Conference on Tools for AI, 1992. (Panel discussion.).

Service I: National, State, City Service

2010 Appointed to National Academies Soldier Systems Panel

2010 Appointed to National Academies Air and Ground Vehicle Technology Panel

2010 Appointed to Blue Ribbon Panel to review security at LAX by Los Angeles Mayor Villaraigosa

2009 DARPA Information science and technology study-group (ISAT) on "Solving games of National Importance"

2001 DARPA Information science and technology study-group (ISAT) on "Robot-agent-person" (RAP) teams

Service II: Research Community

Presidential Panels, Trustee, Board of Directors, Steering Committee

2009 AAAI Presidential panel on "Long-term AI futures"

2007- Scientific advisory board, Germinait Solutions pvt. limited

2001-2007 Steering committee member for the International workshop on Agents, Theories, Architectures and Languages (ATAL). ATAL dissolved 2007.

2000-2008 Member of the board of directors of the International Foundation for Multi-agent Systems (IFMAS). IFMAS is sponsors major international events on multi-agent systems, such as the International Conference on Multi-agent Systems.

2001-2004 Planning committee member for the Pacific Rim International Multi-agent Systems Workshop (PRIMA).

1999-2001 Trustee of RoboCup (robot world cup soccer) federation responsible for sponsoring RoboCup soccer events worldwide.

Editorial Boards

2002- Advisory board, Springer series on cognitive science and artificial intelligence

2005- Advisory board, Journal of Artificial Intelligence Research

2002-2005 Associate editor, Journal of Artificial Intelligence Research

2000-2005 Editorial Board Member, IEEE Intelligent Systems

1999- Associate editor, Journal of Autonomous Agents and Multi-agent Systems.

1997-2002 Editorial Board Member, Journal of Artificial Intelligence Research.

1994-1996 Associate Editor, Book Reviews, *AI Magazine*.

Guest Editor

2002 Special issue, Artificial Intelligence Journal *Best of ICMAS'2000* (With S. Kraus and H. Nakayama)

2002 Special issue, Constraints Journal *Constraints and Agents* (With P. Eaton and T. Freuwirth)

Conference Chairperson

2004 General co-chair, International conference on agents and multiagent systems.

2000 Program Co-chair, Fourth International Conference on Multi-Agent Systems.

1998 Finance Chair, Second International Conference on Autonomous Agents.

1997 Local Arrangements Chair, First International Conference on Autonomous Agents.

Workshop Chairperson

2011 General co-chair, International Workshop on Collaborative Agents – REsearch and Development (CARE)

2001 Program Co-chair, International Workshop on Agents Theories, Architectures and Languages

1998 Co-chair, Collective Robotics Workshop, held in conjunction with AgentsWorld'98, Paris, France.

1996 Co-chair, Workshop on Agent Modeling, 1996, held in conjuction with the National Conference on Artificial Intelligence, AAAI-96.

1993 Co-chair, Second workshop on innovative applications of productions systems, held in conjunction with the International Joint Conference on Artificial Intelligence, IJCAI-93.

Area Chair

2012,2011,2010 National Conference on Artificial Intelligence

Senior program committees

2008, 2007, 1999, 1998 National Conference on Artificial Intelligence

2009, 2007 International Joint Conference on Artificial Intelligence

2010, 2009, 2005, 2003, 2002 International Conference on Autonomous Agents and Multi-agent Systems

2001 International conference on Autonomous Agents

Program committees

2011 Practical Applications of Agents and Multiagent Systems (PAAMS)

2011 International Conference on Decision and Game Theory for Security

2011 International Conference on Algorithmic Decision Theory

2008, 2006 International Joint Conference on Autonomous Agents and Multi-agent Systems

2006 National Conference on Artificial Intelligence

2007, 2006 Distributed Constraint Reasoning (DCR) workshop

2006 International Symposium on AI and Mathematics

2003, 2001, 1997 International Joint Conference on Artificial Intelligence

2004 FLAIRS'2005 Special track on distributed constraint reasoning

2004 SBIA'2004 Second Brazilian Symposium on Artificial Intelligence

2003 CEEMAS'2003 Central and Eastern European conference on multiagent systems

2002 AAMAS'2002 workshop on team and coalition formation

2002 NASA workshop on planning and scheduling

2000, 1999, 1998, 1997, 1996 Workshop on Agents, theories, Architectures and Languages.

1999, 1997 International conference on Autonomous Agents.

1999 AAAI'99 workshop on conflicts in agents.

1999 AAAI Spring Symposium on Agents with Adjustable Autonomy.

1998 International conference on Multi-Agent Systems.

1998 International conference on Artificial Intelligence Planning systems.

1998 AAAI spring symposium on Satisficing models.

1998 International Workshop on RoboCup: Robot world-cup soccer.

1997 Workshop on Constraints and Agents.

1996, 1992 National conference on Artificial Intelligence.

1995 International conference on Tools for Artificial Intelligence.

Organizing committees

2010 International Workshop on Agent Technologies for Energy Systems held in conjunction with AAMAS'2012 (ATES 2012)

2010 AAAI spring symposium on game theory for security, health and sustainability

2010 DIMACS workshop on Adversarial Decision Making

2006 AAMAS workshop on Agent technology for disaster management

2005 AAAI spring symposium on AI technologies for homeland security

2004, 2003,2002 Americas School on agents and Multiagent Systems.

1998 AAAI spring symposium on multi-modal reasoning.

1996-99 Executive committee, robot world cup soccer, *RoboCup*.

1995 Second International Workshop on Agents, theories, architectures, and languages (ATAL).

1991 Workshop on innovative applications of productions systems, held in conjunction with IJCAI-91.

NSF Review Panels

2011, 2003, 1999, 1996 National Science Foundation (NSF) review panel, Arlington, VA.

Other Service to the Research Area: Public Domain systems

All of the following systems are available for download from http://teamcore.usc.edu/software.htm

- **DCOP algorithms:** http://teamcore.usc.edu/dcop provides several DCOP algorithms. For example, ADOPT is a new polynomial space algorithm for distributed constraint optimization, DCOP. ADOPT is guaranteed to find an optimal solution, or a solution within a user-specified distance from the optimal, while allowing agents to execute asynchronously and in parallel. We provide Java based implementations of ADOPT and preprocessing algorithms, as well as data-sets for experimentation. In addition, new "k-optimal" algorithms are also made available.
- **JESP family of algorithms for Distributed POMDPs:** JESP (Joint equilibrium-based search for policies) is an algorithm that finds locally optimal policies for distributed POMDPs (Nair et al, IJCAI'03). Code for the original JESP, as well as its enhancements for networked distributed POMDPs (LID-JESP) (Nair et al, AAAI'05), are in the public domain, along with sample data sets.

- **Machinetta teamwork proxies:** Machinetta is a Java version of teamwork proxies (that contain reusable teamwork models) for rapid development of RAP (Robots, Agents, People) teams. Researchers do not have to encode team coordination algorithms repeatedly; instead, use of proxies reduces this burden.

Service III: University, School and Departmental Service

University Service

2011 Social sciences transformative hiring committee

2010- Leading the "Game theory and Human behavior"(GTHB) group, a university-wide group of over 60 faculty members, funded by the USC research collaboration grant. http://gthb.usc.edu provides an overview of our effort. GTHB has been organizing a series of workshops, seminars, and student events to build a new interdisciplinary parternership among our members, leading toward a new PhD program and other joint events.

2008 Ad-hoc General Education Review Committee

2008 Discovery scholars prize committee

School, Departmental Service

2011- Faculty search committee

2011- Advisory committee for VSoE Global Academic Initiatives and for VSoE India Initiatives

2011 Engineering Parents events, promotion committee for research track faculty members, hiring and tenure committees

2011 Engineering Parents events, promotion committee for research track faculty members, hiring and tenure committees

2010 Engineering scholarship interviews, Parents events, promotion committee for research track faculty members, hiring and tenure committees (2)

2009 Engineering scholarship interviews, Parents events, promotion committees for tenure track and research faculty members, Discover USC Engineering EXPO

2008 Engineering scholarship interviews, Parents events, promotion committees for tenure track and research faculty members

2008 Research faculty committee, Ad-hoc committee for research faculty

2007 Chair, research faculty promotion committee, research faculty appointment committee

2005 Co-chair, Faculty search committee, research faculty promotion committee

2004 Departmental evaluation committee, faculty search committee

2001- Organized the agents@usc effort (an umbrella effort for various agents related activities at USC), including the agents@usc web site, agents@usc mailing lists, agents@usc lecture series

2003-2005 Group leader of the *Autonomy* group

2002-2003 Chair of research faculty hiring committee, Phd Requirements committee, Chair of three-year review committee, chair of tenure-appointment committee

2001-2002 Promotions committee for research faculty, AI Course restructuring committee, hiring committee

Consulting

2003 Study panel for NASA on the use of agent technology in NASA applications, conducted by the Institute for Human-Machine Cognition, University of West Florida,

2001 Study panel for DARPA on the potential for research in agent and multiagent technology with potential for DARPA applications, conducted by the Institute for Human-Machine Cognition, University of West Florida, DARPA Information technology assessment consortium (ITAC)

Selected Relevant Articles in Popular Media

All articles and details available at: http://teamcore.usc.edu/news-content.htm

External Print Media

- *Play games, make policy*, **Economic times of India**, Sept 2011
- *Port of Boston Not playing Games with its Security*, **Security Products Article**, 2011
- *Villaraigosa appoints panel to review security at LAX*, **Los Angeles Times (web version)**, Nov 2010
- *Villaraigosa appoints panel to study LAX security*, **Daily Breeze**, Nov 2010
- *Technology developer honored*, **Homeland security today**, Nov 2010
- *Poker research spurs good deal for airport security*, **Richmond Times-Dispatch**, Sept 2010
- *Research on poker a good deal for airport security*, **Pittsburgh Post-Gazette**, August 2010
- *Random Acts - Software Program Keeps Would-be Terrorists Guessing*, **R-Tech news letter**, Jun 2009
- *Police behaving predictably: The other enemy*, **Officer.com**, Feb 2009
- *ARMOR security at LAX*, **Fox News Channel 11 Local news**, Jan 2009
- *LAX Checkpoint nets Weapons hoard*, **Dailybreeze.com**, Jan 2009
- *The ARMOR system appears on the Web Site*, **Polish web site Gazeta**, Nov 2008
- *Software randomizes airport patrols*, **Security Management Magazine**, Sept 2008 issue
- *LAX goes reliably random*, **Government Computer News**, Feb 4, 2008
- *From Routine to Random*, **Homeland Security Today**, Feb 1, 2008
- *New anti-terror weapon: Game Theory*, **Daily News and Analysis, DNA**, Mumbai, Oct 7, 2007.
- *Anti Terror Squad Sriharikota-born researcher and his Mumbai-born professor help improve airport security in the US.* **Yuva**, Mumbai, Oct 8, 2007.
- *USC student's computer program enlisted in the war against terror*, **Los Angeles Times**, Oct 1, 2007
- *The element of surprise*, **Newsweek**, Web edition, September 28, 2007 and International Edition Oct 22, 2007.
- *LAX uses randomization software to prevent terrorist attack*, AP News, Sept 29, 2007
- *Disaster game to the rescue*, **The Daily Breeze**, March 2006
- *Disaster game to the rescue*, **Channel 11 and Channel 13 news in Los Angeles**, March 2006
- *Ever learning elves*, **Government technology magazine**, March 2001
- *Software robots roam the net for better or for worse*, **AP News Story**, appeared in several news outlets throughout the world, including:

  - **CNN.com** February 10, 2001,
  - **Philadelphia Enquirer** Feb 15, 2001
  - **Central Maine Newspaper** Feb 18, 2001
  - **Evansville courier press**, **Fort Worth Star Telegram**,...

- *Just have your elves call my elves: Software aides learn to anticipate every desire* **USA TODAY**, October 30, 2000.
- *Just argue it out: Computer conflicts needn't lead to disaster* **New Scientist**, January 15, 2000.
- *Soccer robots train for their world cup*, **The Sunday Times, London**, May 12, 1996.