

Albert X. Jiang

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Citizenship: Canada

Research Interests: Multi-Agent Systems, Security, Algorithmic Game Theory, Artificial Intelligence, Machine Learning, Operations Research.

EDUCATION

University of British Columbia, Vancouver, Canada. April 2006 – December 2011.

Ph.D., Computer Science.

Dissertation Title: Representing and Reasoning with Large Games

Advisor: Kevin Leyton-Brown

University of British Columbia, Vancouver, Canada. September 2003 – March 2006.

M.Sc., Computer Science.

Thesis Title: Computational Problems in Multiagent Systems

Advisor: Kevin Leyton-Brown

University of British Columbia, Vancouver, Canada. September 1998 – May 2003.

B.Sc. (honours), Computer Science and Physics.

Co-op Education program, consisting of full-time paid internships at three employers (16 months).

Honours Thesis: Implementation of Multi-ProbCut in Chess, supervised by David Poole

AWARDS

- **Coast Guard Meritorious Team Commendation, 2013**, for creating “an innovative approach to optimize patrol schedules and actions for the Coast Guard Ports, Waterways and Coast Security missions” while serving on the Coast Guard Port Resilience Operational/Tactical Enforcement to Combat Terrorism (PROTECT) Team.
- **Finalist for Best Paper Award at AAMAS, 2013**. Our paper *Game-theoretic Randomization for Security Patrolling with Dynamic Execution Uncertainty* (joint with Zhengyu Yin, Chao Zhang, Sarit Kraus, and Milind Tambe) was one of three finalists for the Best Paper Award at the Twelfth International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS), May 2013.
- **Flag Letter of Appreciation from Vice Admiral R.C. Parker, US Coast Guard, 2013**, for research work “during the development and implementation of the Port Resilience Operational/Tactical Enforcement to Combat Terrorism (PROTECT) Model.”
- **Canadian Artificial Intelligence Association (CAIAC) Doctoral Dissertation Award, 2012**, for the best doctoral thesis in artificial intelligence completed at a Canadian university in 2011. \$500 award; I was also invited to give a plenary presentation on my work at the Canadian Conference on Artificial Intelligence, Toronto, May 2012.

- **Runner-up for the IFAAMAS-11 Victor Lesser Distinguished Dissertation Award, 2012.** The award was sponsored by the International Foundation for Autonomous Agents and Multiagent Systems, for doctoral dissertations completed in 2011 in the area of Autonomous Agents or Multiagent Systems.
- **Best Student Paper Award, ACM Conference on Electronic Commerce (ACM-EC), 2011,** for the paper *Polynomial-time Computation of Exact Correlated Equilibrium in Compact Games* (joint with Kevin Leyton-Brown). One other paper co-won the award.
- **NSERC Canada Graduate Scholarship for three years (CGS D3), 2007-2010.** \$35000 CAD per year. Competitive national scholarship, awarded by the Natural Sciences and Engineering Research Council of Canada “to high calibre scholars who are engaged in master’s or doctoral programs in the natural sciences or engineering ... offered to the top-ranked applicants.”
- **University Graduate Fellowship (UGF), University of British Columbia, 2006.** \$16000 CAD per year. Competitive merit-based scholarship for graduate students at University of British Columbia.
- **Participation in the ACM Programming Contest Pacific-NW Regionals, 2002,** as one of nine team members representing University of British Columbia.
- **J Fred Muir Memorial Scholarship in Science, University of British Columbia, 1999.** \$500 CAD.
- **Outstanding Student Initiative / Undergraduate Scholar Program, University of British Columbia, 1998-2000.** Entrance scholarship (renewed yearly), for academic excellence. \$2500 CAD per year.
- **Highest score in the State of Idaho in the American Invitational Math Examination, 1998.** This was a yearly national mathematics competition for U.S. high school students. I received a certificate of achievement from the Governor of Idaho.

LIST OF PUBLICATIONS

Rigorously Refereed Journal Articles

1. F.M. Delle Fave, E. Shieh, M. Jain, A.X. Jiang, H. Rosoff, M. Tambe, J.P. Sullivan. Efficient Solutions for Joint Activity Based Security Games: Fast Algorithms, Results and a Field Experiment on a Transit System. Accepted with minor revisions to JAAMAS, 2014
2. F.M. Delle Fave, A.X. Jiang, Z. Yin, C. Zhang, M. Tambe, S. Krause, and J.P. Sullivan Game Theoretic Security Patrolling with Dynamic Execution Uncertainty and a Case Study on A Real Transit System. Journal of Artificial Intelligence Research (JAIR), Volume 50, June 2014.
3. F. Fang, A.X. Jiang, M. Tambe. Protecting Moving Targets with Multiple Mobile Resources. Journal of Artificial Intelligence Research (JAIR), Volume 48, pages 583-634, November 2013.
4. A.X. Jiang, K. Leyton-Brown. Polynomial-time Computation of Exact Correlated Equilibrium in Compact Games. Games and Economic Behavior, 2013. DOI: 10.1016/j.geb.2013.02.002
5. A.X. Jiang, K. Leyton-Brown and N. Bhat. Action-Graph Games. Games and Economic Behavior, Volume 71, Issue 1, January 2011, Pages 141-173.
6. A.X. Jiang and K. Leyton-Brown. Bidding Agents for Online Auction Environments with Hidden Bids. Machine Learning, Volume 67, Numbers 1-2, May, 2007. (Special Issue on Learning & Computational Game Theory)

Rigorously Refereed Conference Proceedings

7. E. Shieh, A.X. Jiang, A. Yadav, P. Varakantham, M. Tambe. Unleashing Dec-MDPs in Security Games: Enabling Effective Defender Teamwork. To appear in European Conference on Artificial Intelligence (ECAI), 2014.
8. L. S. Marcolino, H. Xu, A. X. Jiang, M. Tambe, and E. Bowring. Give a Hard Problem to a Diverse Team: Exploring Large Action Spaces. In AAAI, 2014.
9. Haifeng Xu, Fei Fang, Albert Xin Jiang, Vincent Conitzer, Shaddin Dughmi, Milind Tambe. Solving Zero-Sum Security Games in Discretized Spatio-Temporal Domains. In AAAI, 2014.
10. T. Nguyen, A.X. Jiang, M. Tambe. Stop the Compartmentalization: Unified Robust Algorithms for Handling Uncertainties in Security Game. In *Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2014*. (Acceptance rate: 169/709=24%)
11. Y. Qian, W. Haskell, A.X. Jiang, M. Tambe. Online Planning for Optimal Protector Strategies in Resource Conservation Games. In *AAMAS, 2014*. (Acceptance rate: 169/709=24%)
12. C. Zhang, A.X. Jiang, M. Short, P.J. Brantingham, M. Tambe. Defending against opportunistic criminals: New game-theoretic models and algorithms (Extended Abstract). In *AAMAS, 2014*. (Acceptance rate: 169 full + 159 short / 709 = 46%)
13. Francesco Maria Delle Fave, Matthew Brown, Albert Xin Jiang, Eric Shieh, Chao Zhang, Milind Tambe Security Games In the Field: Deployments on a Transit System (Extended Abstract). In *AAMAS, 2014*. (Acceptance rate: 169 full + 159 short / 709 = 46%)
14. A.X. Jiang, T.H. Nguyen, M. Tambe, A.D. Procaccia. Monotonic Maximin: A Robust Stackelberg Solution Against Boundedly Rational Followers. In Conference on Decision and Game Theory for Security (GameSec), 2013.
15. Rong Yang, Albert X. Jiang, Milind Tambe, Fernando Ordonez. Scaling-up Security Games with Boundedly Rational Adversaries: A Cutting-plane Approach. In *Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI), 2013* (Acceptance rate: 413/1473=28%)
16. Leandro Soriano Marcolino, Albert X. Jiang, Milind Tambe. Multi-agent Team Formation - Diversity Beats Strength? In *Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI), 2013* (Acceptance rate: 413/1473=28%)
17. (Alphabetical) Albert X. Jiang, Ariel Procaccia, Yundi Qian, Nisarg Shah, Milind Tambe. Defender (Mis)coordination in Security Games. In *Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI), 2013* (Acceptance rate: 413/1473=28%)
18. Eric Shieh, Manish Jain, Albert X. Jiang, Milind Tambe. Efficiently Solving Joint Activity Based Security Games. In *Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI), 2013* (Acceptance rate: 413/1473=28%)
19. A.X. Jiang, Z. Yin, C. Zhang, S. Kraus, M. Tambe. Game-theoretic Randomization for Security Patrolling with Dynamic Execution Uncertainty. In *Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2013*. (Full paper acceptance rate: 140/612 = 23%) **Finalist for Best Paper Award.**
20. F. Fang, A.X. Jiang, M. Tambe. Optimal Patrol Strategy for Protecting Moving Targets with Multiple Mobile Resources. In *Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2013*. (Full paper acceptance rate: 140/612 = 23%)
21. Z. Yin, A.X. Jiang, M.P. Johnson, M. Tambe, C. Kiekintveld, K. Leyton-Brown, T. Sandholm, J.P. Sullivan. TRUSTS: Scheduling Randomized Patrols for Fare Inspection in Transit Systems. In *Proceeding of the Conference on Innovative Applications of Artificial Intelligence (IAAI), 2012*.

22. R. Yang, F. Fang, A.X. Jiang, K. Rajagopal, M. Tambe, R. Maheswaran. Designing Better Strategies against Human Adversaries in Network Security Games: Extended Abstract. In *Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2012 (short paper)*. (Acceptance rate: 43% for short papers)
23. A.X. Jiang, K. Leyton-Brown. A General Framework for Computing Optimal Correlated Equilibria in Compact Games. In WINE, 2011. (Acceptance rate: 30/100 = 30%)
24. (Alphabetical) J. Garg, A.X. Jiang, R. Mehta. Bilinear Games: Polynomial Time Algorithms for Rank Based Subclasses. In WINE, 2011 (short paper). (Acceptance rate: 30 full + 8 short / 100 = 38%)
25. A.X. Jiang, K. Leyton-Brown. Polynomial-time Computation of Exact Correlated Equilibrium in Compact Games. In ACM-EC, 2011. (Acceptance rate: 49/189 = 26%) **Co-winner of Best Student Paper award.**
26. A.X. Jiang and K. Leyton-Brown, Bayesian Action-Graph Games. In NIPS, 2010. (Acceptance rate: 293/1219 = 24%)
27. C. Ryan, A.X. Jiang and K. Leyton-Brown. Computing pure strategy Nash equilibria in symmetric games with a fixed number of actions. In ACM-EC, 2010. (Full paper presentation acceptance rate: 45/136 = 33%)
28. (Alphabetical) A.X. Jiang and M. Safari. Pure Nash Equilibria: Complete Characterization of Hard and Easy Graphical Games. In AAMAS, 2010. (Full paper acceptance rate: 163/685 = 24%)
29. A.X. Jiang, K. Leyton-Brown and A. Pfeffer. Temporal Action-Graph Games: A New Representation for Dynamic Games. In UAI, 2009. Plenary presentation. (Acceptance rate: 30 plenary + 46 poster / 243, 12% for plenary)
30. A.X. Jiang and K. Leyton-Brown. Computing Pure Nash Equilibria in Symmetric Action Graph Games. In AAI, 2007. (Acceptance: 253/921 = 27%)
31. A.X. Jiang and K. Leyton-Brown. A Polynomial-Time algorithm for Action-Graph Games. In AAI, 2006. (Acceptance: 236/776 = 30%)

Refereed Conference, Workshop and Symposium Publications

32. Haifeng Xu, Fei Fang, Albert X. Jiang, Vincent Conitzer, Shaddin Dughmi, Milind Tambe. Computing Minimax Strategy for Discretized Spatio-Temporal Zero-Sum Security Games. International Joint Workshop on Optimization in Multi-Agent Systems and Distributed Constraint Reasoning (OPTMAS-DCR) at AAMAS, 2014
33. L. S. Marcolino, H. Xu, A. X. Jiang, M. Tambe, and E. Bowring. Team Formation in Large Action Spaces. In 17th International Workshop on Coordination, Organizations, Institutions and Norms (COIN) at AAMAS, 2014.
34. C. Zhang, A.X. Jiang, M.B. Short, P.J. Brantingham, M. Tambe. Modeling Crime diffusion and crime suppression on transportation networks: An initial report. AAI Fall Symposium, 2013.
35. L. S. Marcolino, A. X. Jiang, and M. Tambe. Diversity beats strength? - Towards forming a powerful team. In 15th International Workshop on Coordination, Organisations, Institutions and Norms (COIN) at AAMAS, 2013.
36. F. Fang, A. X. Jiang and M. Tambe. Designing Optimal Patrol Strategy for Protecting Moving Targets with Multiple Mobile Resources. In Workshop on Optimization in Multi-Agent Systems (OPTMAS) at AAMAS, 2013

37. Eric Shieh, Manish Jain, Albert X. Jiang, Milind Tambe. Efficiently Solving Time-Dependent Joint Activities in Security Games. In Workshop on Optimization in Multi-Agent System (OPTMAS) at AAMAS, 2013
38. T.H. Nguyen, J. Tsai, A.X. Jiang, E. Bowring, R. Maheswaran, M. Tambe. Security Games on Social Networks. AAAI Fall Symposium, 2012.
39. R. Yang, F. Fang, A. X. Jiang, K. Rajagopal, M. Tambe and R. Maheswaran. Modeling Human Bounded Rationality to Improve Defender Strategies in Network Security Games. In Workshop on Human-Agent Interaction Design and Models at AAMAS, 2012.
40. Albert X. Jiang, Zhengyu Yin, Matthew P. Johnson, Christopher Kiekintveld, Kevin Leyton-Brown, Tuomas Sandholm, Milind Tambe. Towards Optimal Patrol Strategies for Fare Inspection in Transit Systems. AAAI Spring Symposium on Game Theory for Security, Sustainability and Health, 2012.
41. A. Jiang, N. Bhat, K. Leyton-Brown. Action-Graph Games. Third World Congress of the Game Theory Society (Games 2008), (abstract), Evanston, 2008.
42. David R.M. Thompson, Albert X. Jiang, Kevin Leyton-Brown. Game-Theoretic Analysis of Network Quality-of-Service Pricing. BCNET, 2007.
43. A.X. Jiang, K. Leyton-Brown and N. de Freitas. N-Body Games. NIPS Workshop on Game Theory, Machine Learning and Reasoning under Uncertainty, 2005.
44. A. X. Jiang, K. Leyton-Brown. Estimating Bidders' Valuation Distributions in Online Auctions. In Game Theory and Decision Theory (GTDT) Workshop at the International Conference on Artificial Intelligence (IJCAI), Edinburgh, 2005.
45. A.X. Jiang and M. Buro. First Experimental Results of ProbCut Applied to Chess. In Proceedings of the Advances in Computer Games Conference 10, Graz, 2003

Refereed Magazine, Newsletter, and Other Invited Articles

46. A.X. Jiang, M. Jain, M. Tambe. Computational Game Theory for Security and Sustainability. Invited article; Journal of Information Processing (JIP), 2014.
47. Francesco Maria Delle Fave, Yundi Qian, Albert X. Jiang, Matthew Brown and Milind Tambe. Planning and Learning in Security Games. ACM SIGecom Exchanges, volume 11, number 3, 2013.
48. Z. Yin, A.X. Jiang, M. Tambe, C. Kiekintveld, K. Leyton-Brown, T. Sandholm, J.P. Sullivan. TRUSTS: Scheduling Randomized Patrols for Fare Inspection in Transit Systems using Game Theory. AI Magazine, Winter 2012.
49. A. X. Jiang, K. Leyton-Brown. Polynomial Computation of Exact Correlated Equilibrium in Compact Games. ACM SIGecom Exchanges, volume 10, number 1, pages 6-8, March 2011.
50. J. Wright, A.X. Jiang and K. Leyton-Brown. Linear solvers for nonlinear games: using pivoting algorithms to find Nash equilibria in n-player games. ACM SIGecom Exchanges, volume 10, number 1, pages 9-12, March 2011.

Demonstrations

51. Samantha Luber, Zhengyu Yin, Francesco Delle Fave, Albert X. Jiang, Milind Tambe and John P. Sullivan. Game-theoretic Patrol Strategies for Transit Systems: the TRUSTS System and its Mobile App (Demonstration). AAMAS Demonstration Track, 2013.
52. L. S. Marcolino, D. Chen, A. X. Jiang, M. Tambe. Diversity Beats Strength? - A Hands-on Experience with 9x9 Go (Demonstration). AAMAS Demonstration Track, 2013.

53. Michal Jakob, Zbynek Moler, Antonin Komenda, Zhengyu Yin, Albert X. Jiang, Matthew P. Johnson, Michal Pechoucek, and Milind Tambe. AgentPolis: Towards a Platform for Fully Agent-based Modeling of Multi-Modal Transportation (Demonstration). AAMAS Demonstration Track, 2012.

Technical Reports

54. A.X. Jiang, K. Leyton-Brown, N. Bhat. Action-Graph Games. University of British Columbia Technical Report TR-2008-13, September 2008.
55. A.X. Jiang and K. Leyton-Brown. A Tutorial on the Proof of the Existence of Nash Equilibria. University of British Columbia Technical Report TR-2007-25, November 2007.

Theses

56. A.X. Jiang. Representing and Reasoning with Large Games. PhD Thesis, University of British Columbia, December 2011.
57. A.X. Jiang. Computational Problems in Multiagent Systems. MSc Thesis, University of British Columbia, 2006.

FIELDDED AND DEPLOYED RESEARCH

- **Tactical Randomization for Urban Security in Transit Systems (TRUSTS)**, (with Zhengyu Yin, Chao Zhang, Francesco Maria Delle Fave, Matthew Brown, Matthew P. Johnson, Samantha Lubner, Kevin Leyton-Brown, Tuomas Sandholm, Christopher Kiekintveld, Sarit Kraus, Milind Tambe, John P. Sullivan). TRUSTS generates patrol schedules for Los Angeles Sheriff's Department (LASD) officers, for randomized inspection of passengers in the LA Metro Rail system in order to combat fare evasion and crime. We have also developed a mobile phone application so that the officers are able to get new schedules after interruptions. LASD has conducted multiple field tests of our system in 2012 and 2013, and the TSA is evaluating it toward deployment.
- **Port Resilience Operational/Tactical Enforcement to Combat Terrorism (PROTECT)**, (with Eric Shieh, Fei Fang, Manish Jain, Bo An, Rong Yang, Milind Tambe, Craig Baldwin, Joseph DiRenzo, Ben Maule, Garrett Meyer). The PROTECT system for randomized patrolling of ports has been successfully deployed by the US Coast Guard in the Port of Boston since 2011. After I joined the project in 2012, we have made improvements to the algorithms to achieve significant speedups, which are necessary for the application of PROTECT to larger ports like New York. The improved PROTECT has been deployed in New York since 2012 and is heading for nationwide deployment. We have also developed a new application, for randomized scheduling of escort boats to protect ferries, which has been deployed at the Staten Island Ferry in New York since April 2013.

SOFTWARE RELEASED PUBLICLY THROUGH MY RESEARCH

- **Action-Graph Games (2007-2013)**. Software tools for Action-Graph Games (AGGs), a general modeling language and computational framework for game-theoretic modeling and analysis of large games. Available at <http://agg.cs.ubc.ca>. Includes:
 - **AGG Solvers** (with Kevin Leyton-Brown), a set of programs that computes Nash equilibria given games described using the AGG modeling language.
 - **BAGG Solvers** (with Kevin Leyton-Brown), which computes Bayes-Nash equilibria for Bayesian Action-Graph Games (BAGGs), a generalization of AGGs to games of incomplete information.
 - **AGG Graphical User Interface** (with Damien Bargiacchi and Kevin Leyton-Brown). It allows users to create and edit AGGs, read in existing AGGs, and visualize strategy profiles (e.g. Nash equilibria) as a density map.

- **AGG Generators** (with Kevin Leyton-Brown). We extended GAMUT, a popular suite of game generators, with generators of AGG instances.
- **Gambit-AGG** (with Ted Turocy and Kevin Leyton-Brown). We have been incorporating AGG functionality into Gambit, a well-known collection of software tools for game theory. The AGG representation and solvers has been integrated into the official Gambit 14 release (August 2013). Code repository available on GitHub.
- **Crafty-MPC (2003)**. A modified version of the chess-playing program Crafty that uses the *Multi-ProbCut* pruning heuristic. Available at <http://www.cs.ubc.ca/~jiang/code/craftympc.tar.gz>.

INVITED TALKS

- *Representing and Reasoning with Large Games*. CAIAC Dissertation Award Presentation, Canadian Conference on Artificial Intelligence, Toronto, May 2012
- *Polynomial-time Computation of Exact Correlated Equilibrium in Compact Games*. Workshop on Innovations in Algorithmic Game Theory, Hebrew University, Jerusalem, Israel, May 2011
- *Action-Graph Games*. Schloss Dagstuhl Seminar 07471 on Equilibrium Computation, Germany, November 2007
- *First Experimental Results of ProbCut Applied to Chess*. University of Alberta Department of Computing Science, Edmonton, November 2003

EDITORIAL ACTIVITIES

- Senior Program Committee member, IJCAI 2013.
- Program Committee member for the conferences AAI (2008,2012,2013), AAMAS (2008,2012-2014), ACM-EC (2012,2013), IJCAI (2009,2011), and UAI (2012,2013).
- Reviewer for the journals Games and Economic Behavior (2012), JAAMAS (2010,2013), Journal of Artificial Intelligence Research (JAIR) (2007,2011), Journal of Machine Learning Research (JMLR) (2013), Mathematics of Operations Research (MOR) (2011), ACM Transactions on Economics and Computation (twice in 2013), and ACM Transactions on Internet Technology (2014).
- Reviewer for the conferences AAI (2005-2007,2011), AAMAS (2005-2007), AI-STATS (2011), CP (2005), ACM-EC (2005,2007-2009), ICALP (2008,2011), IJCAI (2005,2007), SAGT (2009,2014), SODA (2009), STACS (2012), and UAI (2005,2006).

OTHER PROFESSIONAL ACTIVITIES

- Co-organizer (with Manish Jain, Bo An and Samarth Swarup) of AAI Spring Symposium on Applied Computational Game Theory, 2014.
- Co-organizer of tutorials on Stackelberg Games for Security at ACM-EC, Valencia, Spain, 2012 (with Christopher Kiekintveld and Bo An); at AAI, Bellevue, 2013 (with Bo An and Manish Jain and Rong Yang); and at AAI, 2014 (with Bo An and Manish Jain).
- Session Chair for AAI, Bellevue, WA, July 2013.
- Student volunteer for conferences including AAI (2007), NIPS (2005, 2010), ACM-EC (2010).

PROPOSAL WRITING

I led the writing of the following grant proposals:

- 2012: TSA grant proposal *ARMOR-Metro: Towards Optimal Use of Limited Security Resources for Randomized Patrols for Public Transit Systems*. PI: Milind Tambe. Awarded \$500,000 over 30 months.
- 2011: NSF ICES proposal *Efficient Algorithms for Addressing Human Bounded Rationality in Security Games*. PI: Milind Tambe.

I contributed to the writing of the following grant proposals:

- 2013: ARL Proposal for a Cyber Security Research Consortium. PIs: Detlof von Winterfeldt, Milind Tambe, Terry Benzel
- 2013: DHS CREATE extended white paper, *Game Theory for Security*, PI: Milind Tambe.
- 2012: Air Force STTR grant proposal *ASSET*. PIs: Avi Pfeffer, Milind Tambe.
- 2011: DHS grant proposal *Use of Microsimulation for Terrorism Interdiction, Policing and Emergency Response*. PIs: Anthony Green, Milind Tambe.
- 2011: DARPA GRAPHS grant proposal *(Inter)Actions on Massive Graphs*. PIs: U. Mitra, D. Kempe, A. Ortega, S. Teng, T.W. Valente, M. Tambe, K. Lerman, B. Krishnamachari.
- 2010: Google Research grant proposal *Advanced Computational Analysis of Position Auction Games*. PI: Kevin Leyton-Brown. Awarded \$35,000/year for one year.

TEACHING

Development of Teaching Materials

- Contributed to Sections 3.3.4, 6.5.2, and 6.5.3 of Yoav Shoham and Kevin Leyton-Brown's textbook *Multiagent Systems: Algorithmic, Game-theoretic and Logical Foundations*, published by Cambridge University Press in 2009.

Instructor, Computer Science, University of Southern California

- Jan-Apr 2013: Co-instructor with Prof. Milind Tambe for CSCI 599: Security and Game Theory.
- Jan-Apr 2012: Co-instructor with Prof. Milind Tambe for CSCI 543: Software Multiagent Systems.

Tutorial Speaker

- September 2013: Center for Risk and Economic Analysis of Terrorism Events (CREATE), University of Southern California. Tutorial title: *Game Theory for Security: Key Algorithmic Principles, Deployed Systems, Lessons Learned*; with Milind Tambe, Chris Kiekintveld.
- July 2013: AAI Conference, Bellevue, WA. Tutorial title: *Game Theory for Security*; with Manish Jain, Bo An, Rong Yang.
- August 2012: Center for Risk and Economic Analysis of Terrorism Events (CREATE), University of Southern California. Tutorial title: *Game Theory for Security: Key Algorithmic Principles, Deployed Systems, Lessons Learned*; with Milind Tambe, Manish Jain.
- June 2012: ACM Conference on Electronic Commerce, Valencia, Spain. Tutorial title: *Computation of Stackelberg Equilibria with Application to Security*; with Bo An, Chris Kiekintveld.

Co-advising of Students

- During my postdoc at USC, I unofficially co-advised the following students together with primary advisor Milind Tambe (years in parenthesis indicate the duration of the co-advising relationship). My responsibilities typically included meeting with the students regularly, advising on research directions and priorities, and attending some of the students' weekly meetings with Prof. Tambe.
 - Kim Chu (Undergrad, 2012),
 - Fei Fang (PhD, 2011-2013),
 - Leandro Marcolino (PhD, 2012-2013),
 - Thanh Nguyen (PhD, 2011-2013),
 - Yundi Qian (PhD, 2013),
 - Eric Shieh (PhD, 2012-2013),
 - Chao Zhang (PhD, 2012-2013).
- During my PhD at UBC, I unofficially co-advised the following students together with primary supervisor Kevin Leyton-Brown:
 - Damien Bargiacchi (Undergrad, 2008).

Teaching Assistant

- Sept - Dec 2010: CPSC 211 Introduction to Software Development (Java). Instructor: David Tompkins and George Tsiknis
- June - July 2010: CPSC 211 Introduction to Software Development (Java). Instructor: Gabriel Murray
- Sept - Dec 2005: CPSC 532A Multiagent Systems. Instructor: Kevin Leyton-Brown
- May - June 2005: CPSC 322 Introduction to Artificial Intelligence. Instructor: Pantelis Elinas
- Jan - Apr 2005: APSC 160 Introduction to Computation in Engineering Design. Instructor: Margaret Dulat
- May - June 2004: CPSC 121 Models of Computation. Instructor: Robert St. Aubin
- Jan - Apr 2004: CPSC 216 Program Design and Data Structures. Instructor: Paul Carter
- May - June 2003: CPSC 320 Intermediate Algorithm Design and Analysis. Instructor: Nando de Freitas

Private Tutor

- Computer Science: Python programming and basic algorithms (2010); Introduction to AI (2007)
- Chess: Ho Math & Chess, Richmond, BC, Canada (2007-2011)

Additional Training Completed

- Instructional Skills Workshop, Centre for Teaching and Academic Growth (TAG) at University of British Columbia, August 2010. This was a three-day workshop for graduate students interested in teaching, consisted of sessions on relevant topics as well as teaching practice.

EXPERIENCE

Academic Appointments

- 2012 - present: Computer Science Department, University of Southern California, Los Angeles, California, USA
Postdoctoral Research Associate, working with Prof. Milind Tambe and the Teamcore research group. My responsibilities include: leading research projects, collaborating on research with others in the research group as well as researchers outside the group, working with practitioners to deploy our research, co-supervising the junior students, helping with grant writing.

Industry Experience

- 2007 - 2010: BroadBandTV Corp., Vancouver, BC, Canada
Director of Research. Part-time consulting work including advising on the company's technological directions, developing new technologies in natural language processing and data analytics, and implementing software solutions using Python.
- May - Aug 2002: Elegant Solutions Consulting, Vancouver, BC, Canada
Software Developer. Developed PHP web applications, including an online auction system and an online classified ads system.
- May - Aug 2001: Star-Bridge Software Co. Ltd., Qingdao, China
Software Developer. Developed a software component using Java & XSLT that converts between XML Schema formats.
- May - Dec 2000: TRIUMF MuSR Group, Vancouver, BC, Canada
Software Developer. Main developer in several software projects using PHP/MySQL, including a web interface for legacy scientific software and a user management system for the group.

REFERENCES

- Kevin Leyton-Brown
Associate Professor, Department of Computer Science,
University of British Columbia
kevinlb@cs.ubc.ca
- Milind Tambe
Helen N. and Emmett H. Jones Professor in Engineering,
Professor, Computer Science and Industrial & Systems Engineering Departments,
University of Southern California
tambe@usc.edu
- Vincent Conitzer
Sally Dalton Robinson Professor of Computer Science and Professor of Economics,
Duke University
conitzer@cs.duke.edu
- David Parkes
Harvard College Professor, George F. Colony Professor of Computer Science, and Area Dean for
Computer Science,
School of Engineering and Applied Science, Harvard University
parkes@eecs.harvard.edu