Jason Tsai

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EDUCATION

- **University of Southern California**, Los Angeles, CA. September 2008 – Present.
  Ph.D. Candidate, Department of Computer Science.
  Advisor: Professor Milind Tambe

- **Harvard University**, Cambridge, MA. September 2002 – May 2005.
  A.B., *cum laude* in Economics with distinction

EXPERIENCE

- **University of Southern California**, September 2008 – Present.
  Research Assistant in the Department of Computer Science with Dr. Milind Tambe. Research interests include game theory and multiagent simulations.

- **Oliver Wyman, General Practice**, July 2005 – December 2006.
  Analyst and *Experienced Analyst*. Worked as a management consultant on multiple projects, including analyzing customer-level purchase data for a $6B+ supermarket corporation to model consumer behavior change during discounting activities to optimize promotional spend. Successful implementation of recommendations led to over $1M of on-going work for the client. Also consulted a $400M+ pharmaceutical sales services company to analyze costs across the organization and identified over $50M in potential savings. Project led to successful reorganization and over $1M of on-going work for the client.

- **JP Morgan Chase**, Summer 2004.
  Summer Analyst. Researched and wrote reports on historical market reactions and expectations during past interest rate rises to predict future market reactions. Helped with daily, firm-wide reports on the impact of economic announcements.

- **Simon, Kucher & Partners**, Fall 2003 – Spring 2004.
  Business Analyst Intern. Conducted industry and company research, worked on proposals and follow-up presentations, analyzed and consolidated consumer data to assist in advising clients on possible products and launch prices.

- **Harvard Student Agencies**, Summer 2003.
  Assistant Director of IT. Maintained and upgraded the computer network, repaired and replaced non-functional computers, provided general technical support to over 50 employees.

HONORS

- **CREATE DHS Fellowship**.
- **Finalist, Excellence in Practice Award**: *Software Assistants for Randomized Patrol Planning for The LAX Airport Police and The Federal Air Marshals Service*. 24th European Conference on Operational Research (EURO 2010), July 2010.
- **Best Paper Award**: *IRIS - A Tool for Strategic Security Allocation in Transportation Networks*. Eighth International Joint Conference on Autonomous Agents and Multiagent Systems Conference (AAMAS 2009), Industry Track, May 2009.
- **Best Poster Award**: *Strategic Allocation of Federal Air Marshals*. Third Annual Department of Homeland Security University Summit, March 2009.
- **USC Annenberg Graduate Fellowship**.

FIELDED AND DEPLOYED RESEARCH

- **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.

PROFESSIONAL ACTIVITIES

- **PROGRAM COMMITTEE MEMBER**:
  - The 25th *AAAI Conference on Artificial Intelligence* (AAAI), 2011.
  - *Optimisation in Multi-Agent Systems* workshop at AAMAS, 2011.
- **JOURNAL REVIEWER**:
  - *Autonomous Agents and Multi-Agent Systems* (JAAMAS), 2011.
  - *Autonomous Agents and Multi-Agent Systems* (JAAMAS), 2010.
- **CONFERENCE REVIEWER FOR**:
  - The 38th International Conference and Exhibition on Computer Graphics and Interactive Techniques (SIGGRAPH), 2011.
  - The International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2010.
  - The International Joint Conference on Artificial Intelligence (IJCAI), 2009.

LIST OF PUBLICATIONS

Rigorously Refereed Journal Articles

1. Manish Jain, **Jason Tsai**, James Pita, Christopher Kiekintveld, Shyamsunder Rathi, Fernando Ordóñez, Milind Tambe. Software Assistants for Randomized Patrol Planning for The LAX Airport Police and The Federal Air Marshals Service. In *Interfaces 40(4):267-290, 2010*, 2010. **Finalist, Excellence in Practice Award, EURO 2010**.

Rigorously Refereed Conferences: Full Papers

2. **Jason Tsai**, Emma Bowring, Stacy Marsella, Milind Tambe. Evaluating Computational Models of Emotional Contagion. In *Proceedings of the 11th International Conference on Intelligent Virtual Agents* (IVA11), September 2011. 19.6% acceptance rate.

3. **Jason Tsai**, Natalie Fridman, Emma Bowring, Matthew Brown, Shira Epstein, Gal Kaminka, Stacy Marsella, Andrew Ogden, Inbal Rika, Ankur Sheel, Matthew Taylor, Xuezhi Wang, Avishay Zilka, Milind Tambe. ESCAPES - Evacuation Simulation with Children, Authorities, Parents, Emotions, and Social comparison. In *Proceedings of the Tenth International Joint Conference on Autonomous Agents and Multi-agent Systems* (AAMAS11), May 2011. 22.1% acceptance rate.

4. **Jason Tsai**, Zhengyu Yin, Jun-young Kwak, David Kempe, Christopher Kiekintveld, Milind Tambe. Urban Security: Game-Theoretic Resource Allocation in Networked Physical Domains. In *Proceedings of the National Conference on Artificial Intelligence* (AAAI10), July 2010. 26.9% acceptance rate.

5. **Jason Tsai**, Shyamsunder Rathi, Christopher Kiekintveld, Fernando Ordóñez, and Milind Tambe. IRIS - A Tool for Strategic Security Allocation in Transportation Networks. In *Proceedings of the Industry Track of the Eighth International Joint Conference on Autonomous Agents and Multiagent Systems* (AAMAS09), May 2009. **Best Paper Award, Industry Track**.

6. Christopher Kiekintveld, Manish Jain, **Jason Tsai**, James Pita, Milind Tambe, and Fernando Ordóñez. Computing Optimal Randomized Resource Allocations for Massive Security Games. In *Proceedings of the Eighth International Joint Conference on Autonomous Agents and Multiagent Systems* (AAMAS09), May 2009. 22% acceptance rate.

Rigorously Refereed Conferences: Short Papers

7. **Jason Tsai**, Zhengyu Yin, Jun-Young Kwak, David Kempe, Christopher Kiekintveld, Milind Tambe. How to Protect a City: Strategic Security Placement in Graph-Based Domains. In *Proceedings of the Ninth International Joint Conference on Autonomous Agents and Multiagent Systems* (AAMAS10), May 2010.

Refereed Workshop Papers and Posters

8. **Jason Tsai**, Emma Bowring, Stacy Marsella, Milind Tambe. Modeling Emotional Contagion. In *AAMAS 2011 Workshop on Multi-Agent Based Simulations* (MABS11), May 2011.

9. **Jason Tsai**, Zhengyu Yin, Jun-Young Kwak, David Kempe, Christopher Kiekintveld, Milind Tambe. Game-Theoretic Allocation of Security Forces in a City. In *AAMAS 2010 Workshop on Optimisation in Multi-Agent Systems* (OPTMAS III), May 2010.

10. **Jason Tsai**, Emma Bowring, Shira Epstein, Natalie Fridman, Prakhar Garg, Gal Kaminka, Andrew Ogden, Milind Tambe, Matthew Taylor. Agent-based Evacuation Modeling: Simulating the Los Angeles International Airport. In *Proceedings of the Workshop on Emergency Management: Incident, Resource, and Supply Chain Management* (EMWS09), November 2009.
11. **Jason Tsai**, Zhengyu Yin, Jun-Young Kwak, David Kempe, Christopher Kiekintveld, Milind Tambe. Strategic Security Placement in Network Domains with Applications to Transit Security. In *IJCAI 2009 Workshop on Quantitative Risk Analysis for Security Applications* (QRASA09), July 2009.
12. (Poster) **Jason Tsai**, Milind Tambe. Strategic Allocation of Federal Air Marshals.. In *Third Annual DHS University Network Summit*, March 2009. **Best Poster Award**.

Publications are available at: `http://teamcore.usc.edu/jasontts`

CONFERENCE PRESENTATIONS

- "ESCAPES - Evacuation Simulation with Children, Authorities, Parents, Emotions, and Social comparison"
  - **International Conference on Autonomous Agents and Multiagent Systems (AAMAS)**, Taipei, Taiwan, May 2011.
- "Modeling Emotional Contagion"
  - **MABS Workshop at International Conference on Autonomous Agents and Multiagent Systems (AAMAS)**, Taipei, Taiwan, May 2011.
- "Urban Security: Game-Theoretic Resource Allocation in Networked Physical Domains"
  - **AAAI Conference on Artificial Intelligence**, Atlanta, Georgia, USA, July 2010.
- "IRIS - A Tool for Strategic Security Allocation in Transportation Networks"
  - **International Conference on Autonomous Agents and Multiagent Systems (AAMAS)**, Budapest, Hungary, May 2009.

WORKSHOP PRESENTATIONS

- "Modeling Emotional Contagion"
  - **MABS Workshop at International Conference on Autonomous Agents and Multiagent Systems (AAMAS)**, Taipei, Taiwan, May 2011.
- "Strategic Security Placement in Network Domains with Applications to Urban Security"
  - **OPTMAS Workshop at International Conference on Autonomous Agents and Multiagent Systems (AAMAS)**, Toronto, Canada, July May 2010.
- "Agent-based Evacuation Modeling: Simulating the Los Angeles International Airport"
  - **Workshop on Emergency Management: Incident, Resource, and Supply Chain Management (EMWS)**, Irvine, California, USA, November 2009.
- "Security Placement in Network Domains with Applications to Transit Security"
  - **QRASA Workshop at International Joint Conference on Artificial Intelligence (IJCAI)**, Pasadena, California, USA, July 2009.

STUDENTS SUPERVISED:

- **Mohit Goenka** (M.S.), Summer 2010.
- **Xuezhi Wang** (Undergraduate), Summer 2010.
- **Ankur Sheel** (M.S.), Spring-Summer 2010.
- **Andrew Ogden** (Undergraduate), Fall 2009.
- **Shira Epstein** (Undergraduate), Fall 2009.
- **Prakhar Garg** (M.S.), Fall 2009.

Submitted Proposals

- Development of a Scripted Agent Based Microsimulation for Terrorism Interdiction and Emergency Response. Anthony Green and Milind Tambe. Department of Homeland Security, DHS-09-ST-108-001. September 2009.
- Multiscale Cancer Modeling: From Cell Phenotypes to Growth and Therapy Response. Parag Mallick, Richard Bonneau, Mitchell Gross, Jon Katz, Raffaella Sordella, Martin McIntosh, Joshua LaBaer, Sam Gambhir, Paul Macklin, Vittorio Cristini, Mark Chee, Anand Asthagiri, Milind Tambe, Scott Lowe, Jeff Trent, David Agus, Murray Gell-Mann, Shan Wang, Danny Hillis, Pavel Pevzner, Sam Hanash, Dan Ruderman, Carl Kessleman. NIH, RFA-CA-09-011. July 2009.