

Yevgeniy Vorobeychik
15 E. Montgomery Ave, Apt. 6A
Bala-Cynwyd, PA 19004
(773) 562-0148
yev@seas.upenn.edu
<http://www.seas.upenn.edu/~yev>

Research Interests

Computational game theory, mechanism design, electronic commerce, simulation analysis, complex systems, multi-agent systems, machine learning, distributed systems.

Education

University of Michigan
Ph.D. Computer Science & Engineering
Intelligent Systems Program
Adviser: Michael P. Wellman
Thesis: Mechanism Design and Analysis Using Simulation-Based Game Models

Ann Arbor, Michigan
August 2008

Nominated for the ACM Dissertation Award

Runner-up for the IFAAMAS-08 Victor Lesser Distinguished Dissertation Award

University of Michigan
M.S.E. Computer Science & Engineering
Intelligent Systems Program

Ann Arbor, Michigan
May 2004

Northwestern University
B.S. Computer Engineering (with Honors)
Economics minor
Graduated summa cum laude (GPA 3.95/4.00)

Evanston, Illinois
June 2002

Professional Experience

August, 2008-Present: Postdoctoral Researcher, Computer and Information Science Department, University of Pennsylvania, Philadelphia, PA.

Summer, 2007: Summer Intern, Yahoo! Research, Microeconomics Division, New York, NY.

Summer, 2005: Summer Associate, RAND Corporation, Pittsburgh, PA.

September, 2002-July, 2008: Research Assistant, University of Michigan, Computer Science and Engineering Division, Ann Arbor, MI.

Summer, 2001: Summer Intern, Visteon Corporation, Allen Park, MI.

November, 1999-June, 2002: Network Consultant, Solus, LLC, Chicago, IL.

Publications

Refereed Journals

1. Yevgeniy Vorobeychik. Probabilistic analysis of simulation-based games. In *ACM Transactions on Modeling and Computer Simulation*, 2009, to appear.
2. John Langford, Lihong Li, Yevgeniy Vorobeychik, and Jennifer Wortman. Maintaining equilibria during exploration in sponsored search auctions. In *Algorithmica*, 2009, to appear.

3. Yevgeniy Vorobeychik and Isaac Porche. Game-theoretic methods for analysis of tactical decision-making using agent-based combat simulations. In *Military Operations Research*, 2009, to appear.
4. Yevgeniy Vorobeychik and Daniel Reeves. Equilibrium analysis of dynamic bidding in sponsored search auctions. In *International Journal of Electronic Business* 6(2):172-193, 2008.
5. Yevgeniy Vorobeychik, Michael P. Wellman, and Satinder Singh. Learning payoff functions in infinite games. In *Machine Learning* 67:145-168, 2007.
6. Michael P. Wellman, Joshua J. Estelle, Satinder Singh, Yevgeniy Vorobeychik, Christopher Kiekintveld, and Vishal Soni. Strategic interactions in a supply chain game. In *Computational Intelligence* 21(1):1-26, 2005.
7. Michael P. Wellman, Daniel M. Reeves, Kevin M. Lochner, and Yevgeniy Vorobeychik. Price prediction in a trading agent competition. In *Journal of Artificial Intelligence Research* 21:19-36, 2004.

Refereed Conferences

1. Jacomo Corbo and Yevgeniy Vorobeychik. The Effects of Quality and Price on Adoption Dynamics of Competing Technologies. In *Thirtieth International Conference on Information Systems*, 2009, to appear.
2. Yevgeniy Vorobeychik and Michael P. Wellman. Strategic analysis with simulation-based games. In *Winter Simulation Conference*, 2009, to appear.
3. Quang Duong, Yevgeniy Vorobeychik, Satinder Singh, and Michael P. Wellman. Learning graphical game models. In *Twenty-First International Joint Conference on Artificial Intelligence*, 116-121, 2009.
4. Yevgeniy Vorobeychik. Simulation-based game theoretic analysis of keyword auctions with low-dimensional bidding strategies. In *Twenty-Fifth Conference on Uncertainty in Artificial Intelligence*, 2009.
5. Yevgeniy Vorobeychik and Michael P. Wellman. Stochastic search methods for Nash equilibrium approximation in simulation-based games. In *Seventh International Conference on Autonomous Agents and Multiagent Systems*, 1055-1062, 2008.
6. Patrick Jordan, Yevgeniy Vorobeychik, and Michael P. Wellman. Searching for approximate equilibria in empirical games. In *Seventh International Conference on Autonomous Agents and Multiagent Systems*, 1063-1070, 2008.
7. Yevgeniy Vorobeychik, Daniel M. Reeves, and Michael P. Wellman. Constrained automated mechanism design for infinite games of incomplete information. In *Twenty-Third Conference on Uncertainty in Artificial Intelligence*, 400-407, 2007.
8. Yevgeniy Vorobeychik and Daniel M. Reeves. Equilibrium analysis of dynamic bidding in sponsored search auctions. In *Third International Workshop on Internet and Network Economics*, 2007.
9. Jennifer Wortman, Yevgeniy Vorobeychik, Lihong Li, and John Langford. Maintaining equilibria during exploration in sponsored search auctions. In *Third International Workshop on Internet and Network Economics*, 2007.
10. Yevgeniy Vorobeychik, Christopher Kiekintveld, and Michael P. Wellman. Empirical mechanism design: methods, with an application to a supply chain scenario. In *Seventh ACM Conference on Electronic Commerce*, 306-315. 2006.
11. Yevgeniy Vorobeychik, Michael P. Wellman, and Satinder Singh. Learning payoff functions in infinite games. In *Nineteenth International Joint Conference on Artificial Intelligence*, 977-982. 2005.

12. Joshua J. Estelle, Yevgeniy Vorobeychik, Michael P. Wellman, Satinder Singh, Christopher Kiekintveld, and Vishal Soni. Strategic interactions in the TAC 2003 supply chain tournament. In *Fourth International Conference on Computers and Games*, 2004.
13. Christopher Kiekintveld, Michael P. Wellman, Satinder Singh, Joshua Estelle, Yevgeniy Vorobeychik, Vishal Soni and Matthew Rudary. Distributed feedback control for decision making on supply chains. In *Fourteenth International Conference on Automated Planning and Scheduling*, 384-392. 2004.

Refereed Workshops

1. Giacomo Corbo and Yevgeniy Vorobeychik. The Effects of Quality and Price on Adoption Dynamics of Competing Technologies. In *AAAI 2009 Fall Symposium on Complex Adaptive Systems and the Threshold Effect*, 2009, to appear.
2. Yevgeniy Vorobeychik and Yagil Engel. Incentive analysis of approximately efficient allocation algorithms. In *Agent-Mediated Electronic Commerce*, 2009.
3. Yevgeniy Vorobeychik, Daniel M. Reeves, and Michael P. Wellman. Automated Mechanism Design: Framework and Applications. In *AAAI 2007 Spring Symposium on Game Theory and Decision Theory*, 2007.
4. Yevgeniy Vorobeychik and Michael P. Wellman. Mechanism design based on beliefs about responsive play. In *Workshop on Alternative Solution Concepts for Mechanism Design*, 2006.
5. Joshua J. Estelle, Yevgeniy Vorobeychik, Michael P. Wellman, Satinder Singh, Christopher Kiekintveld, and Vishal Soni. Strategic procurement in TAC/SCM: an empirical game-theoretic analysis. In *AAMAS-04 Workshop on Trading Agent Design and Analysis*, 2004.
6. Shih-Fen Cheng, Daniel M. Reeves, Yevgeniy Vorobeychik, and Michael P. Wellman. Notes on equilibria in symmetric games. In *AAMAS-04 Workshop on Game Theory and Decision Theory*, 23-28, 2004.

Working Papers

1. Yevgeniy Vorobeychik, Daniel M. Reeves, and Michael P. Wellman. Constrained automated mechanism design for infinite games of incomplete information.
2. Giacomo Corbo and Yevgeniy Vorobeychik. The Effects of Quality and Price on Adoption Dynamics of Competing Technologies.
3. Yevgeniy Vorobeychik and Yagil Engel. Incentive analysis of approximately efficient allocation algorithms.

Professional Activities

Presentations

- University of North Carolina, Charlotte (Software and Information Systems), February, 2009
- RAND Corporation, March, 2008
- University of Southern California (Computer Science), March, 2008
- University of Pennsylvania (Wharton Business School, OIM), January, 2008
- Brooklyn College (Computer Science), June, 2007
- Decentralization Conference, April, 2007

Tutorials

- International Joint Conference on Artificial Intelligence, July, 2009 (Automated Mechanism Design, together with Vincent Conitzer)
- International Joint Conference on Autonomous Agents and Multiagent Systems, May, 2009 (Automated Mechanism Design, together with Vincent Conitzer)
- ACM E-Commerce Conference, July, 2008 (Automated Mechanism Design, together with Vincent Conitzer)

Reviewing

- *Journals*: Journal of Artificial Intelligence Research, Artificial Intelligence, Journal of Machine Learning Research, Operations Research, Journal of Autonomous Agents and Multiagent Systems, Production and Operations Management Journal, ACM Transactions on the Web
- *Conferences*: ACM Conference on Electronic Commerce (program committee, EC '09), Conference on Uncertainty in Artificial Intelligence (program committee, UAI '09), International Joint Conference on Autonomous Agents and Multiagent Systems (program committee, AAMAS '08), National Conference on Artificial Intelligence (program committee, AAAI '08), International Joint Conference on Artificial Intelligence (program committee, IJCAI '09)

Teaching Experience

Graduate Student Instructor
University of Michigan

January, 2006–December, 2007
Ann Arbor, MI

- Taught discussion and lab sections for introductory programming courses (C++, Matlab)
- Helped faculty with course development and management
- Graded assignments and exams
- Taught select lectures

Honors and Awards

Nominated for the ACM Dissertation Award by the University of Michigan Electrical Engineering and Computer Science department, 2008

Runner-up for the IFAAMAS-08 Victor Lesser Distinguished Dissertation Award

Honorable Mention in CSE Honors Competition, 2006

STIET (Socio-Technical Infrastructure for Electronic Transactions) Fellowship, University of Michigan, 2003-2004

Best Computer Engineering Senior Award, Northwestern University, 2002

William L. Everitt Student Award of Excellence, Northwestern University, 2002

Microsoft Research Grant, Northwestern University, 2001

Academic Activities

ACM member, 2008-present

AAAI member, 2003-present

Citizenship

U.S. Citizen