

Sven Seuken

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Research Interests

Electronic Market Design; Artificial Intelligence; Game Theory; Computational Mechanism Design; Electronic Commerce; Behavioral Economics; Reputation Systems; Auction Theory; Peer Production; Social Networks; Multi-Agent Systems; Decentralized Decision Making Under Uncertainty.

Education

- **Harvard University, Cambridge** 2006 – present
Ph.D. Candidate in Computer Science, degree expected 2011
Master of Computer Science (S.M.), June 2008
Advisor: Dr. David Parkes (Economics & Computer Science Research Group)
- **University of Massachusetts, Amherst** 2004 – 2006
Master of Computer Science (M.S.), May 2006
Advisor: Dr. Shlomo Zilberstein, GPA: 3.97/4.0, Fulbright Scholar
- **University of Freiburg, Germany** 2001 – 2004
Vordiplom (Intermediate Exam) in Computer Science, August 2003
GPA: 3.8/4.0

Fellowships, Awards, and Honors

- Microsoft Research Ph.D. Fellowship, 2009 – 2011
- Harvard Teaching Award: Certificate of Distinction in Teaching, 2008
- Herbert S. Winokur, Jr. Fellowship in Decision Sciences, 2007/2008
- Harvard University Fellowship, 2006/2007
- McKinsey & Company College Fellowship, 2006 – present
- Fulbright Fellowship, 2004/2005
- Fellowship from the German National Academic Foundation (Studienstiftung des Dt. Volkes), awarded to the top 0.3% of German students, 2002 – 2006
- Fellowship from e-fellows.net (awarded to the Computer Science student with the best GPA at the University of Freiburg), 2002 – 2005
- Valedictorian, Konrad-Adenauer High School Kleve (best graduate in 2000)

Additional Education

- **Hebrew University of Jerusalem, Israel** 2007
Summer School on Economic Aspects of Communication and Information
- **German National Academic Foundation, Germany** 2002
Summer School on Chaos Theory

Working Papers

1. Market Design and Analysis for a P2P Backup System. Sven Seuken, Denis Charles, Max Chickering, and Sidd Puri. In preparation for submission.
2. Selfishness vs. Altruism in P2P Networks: A Large-Scale Economics Field Experiment. Sven Seuken, Johan Pouwelse, and David Parkes. In preparation for submission.
3. Hybrid Reputation Mechanisms. Jie Tang, Sven Seuken, and David Parkes. In preparation for submission.
4. Accounting Mechanisms for Distributed Work Systems. Sven Seuken, Jie Tang, and David Parkes. In preparation for submission.
5. Peer-Prediction Markets. Sven Seuken. In preparation for submission.
6. A Dynamic-VCG Mechanism for Partially-Synchronized DEC-MDPs. Sven Seuken and David Parkes. In preparation for submission.

Publications

1. Designing User Interfaces for Hidden Markets. Sven Seuken, Denis Charles, Max Chickering, and Sidd Puri. In *Proceedings of the IJCAI Workshop on Intelligence and Interaction*, Pasadena, CA, July 2009. ([PDF](#))
2. Market Design and Analysis for a P2P Backup System. Sven Seuken, Denis Charles, Max Chickering, and Sidd Puri. In *Proceedings of the Workshop on the Economics of Networks, Systems, and Computation (NetEcon)*, Stanford, CA, July 2009. ([PDF](#))
3. Market Design for a P2P Backup System. Sven Seuken, Denis Charles, Max Chickering, and Sidd Puri. Extended abstract in *Proceedings of the 1st Conference on Auctions, Market Mechanisms and Applications (AMMA)*, Boston, MA, May 2009. ([PDF](#))
4. Handling Interdependent Values in an Auction Mechanism for Enhanced Bandwidth Allocation in Tactical Data Networks. Mark Klein, David Parkes, Daniel Plakosh, Sven Seuken, and Kurt Wallnau. In *Proceedings of the Workshop on the Economics of Networks, Systems, and Computation (NetEcon)*, Seattle, WA, August 2008. ([PDF](#))
5. Partially-Synchronized DEC-MDPs in Dynamic Mechanism Design. Sven Seuken, Ruggiero Cavallo, and David Parkes. In *Proceedings of the 23rd Conference on Artificial Intelligence (AAAI)*, Chicago, Illinois, July 2008. ([PDF](#))
6. Formal Models and Algorithms for Decentralized Decision Making Under Uncertainty. Sven Seuken and Shlomo Zilberstein. In *Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS)*, 17:2, pp. 190-250, 2008. ([PDF](#))
7. Improved Memory-Bounded Dynamic Programming for Decentralized POMDPs. Sven Seuken and Shlomo Zilberstein. In *Proceedings of the 23rd Conference on Uncertainty in Artificial Intelligence (UAI)*, Vancouver, Canada, July 2007. ([PDF](#))
8. Memory-Bounded Dynamic Programming for DEC-POMDPs. Sven Seuken and Shlomo Zilberstein. In *Proceedings of the 20th International Joint Conference on Artificial Intelligence (IJCAI)*, Hyderabad, India, January 2007. ([PDF](#))
9. EMIKA System: Architecture and Prototypic Realization. Guenter Mueller, Torsten Eymann, Norbert Nopper, and Sven Seuken. In *Proceedings of the IEEE International Conference on Systems, Man and Cybernetics (SMC)*, The Hague, The Netherlands, October 2004. ([PDF](#))

(All publications are available online at www.eecs.harvard.edu/~seuken/publications)

Invited Talks and Conference Presentations

1. Handling Interdependent Values in an Auction Mechanism for Enhanced Bandwidth Allocation in Tactical Data Networks. *Workshop on the Economics of Networks, Systems, and Computation (NetEcon)*, Seattle, WA, August 2008.
2. Partially-Synchronized DEC-MDPs in Dynamic Mechanism Design. *23rd Conference on Artificial Intelligence (AAAI)*, Chicago, Illinois, July 2008.
3. Models and Algorithms for Multi-Agent Cooperation. *Self-Organizing Systems Research Group, Harvard School of Engineering and Applied Sciences*, Cambridge, MA, December 2007.
4. An Online Field Experiment: Determinants for Human Cooperation in a Prisoner's Dilemma Game. *Harvard Cooperation Group, Berkman Center for Internet & Society, Harvard University*, Cambridge, MA, November 2007.
5. Selfishness and Altruism in P2P Networks: A Large-Scale Economics Field Experiment. *Market Design Workshop, Harvard Business School*, Cambridge, MA, October 2007.
6. Selfishness and Altruism in P2P Networks: A Large-Scale Economics Field Experiment. *Center for Research on Computation and Society, Harvard School of Engineering and Applied Sciences*, Cambridge, MA, October 2007.
7. Improved Memory-Bounded Dynamic Programming for Decentralized POMDPs, *23rd Conference on Uncertainty in Artificial Intelligence (UAI)*, Vancouver, Canada, July 2007.
8. Improved Memory-Bounded Dynamic Programming for Decentralized POMDPs, *The Second North East Student Colloquium on Artificial Intelligence (NESCAI)*, Cornell University, Ithaca, NY, April 2007.
9. Memory-Bounded Dynamic Programming for DEC-POMDPs. *20th International Joint Conference on Artificial Intelligence (IJCAI)*, Hyderabad, India, January 2007.

Research Experience

- Research Assistant to Dr. David Parkes, Economics & Computer Science Research Group Harvard University, School of Engineering and Applied Sciences, 2006 – present.
Topic: Electronic Market Design.
- Research Assistant to Dr. Shlomo Zilberstein, Resource-Bounded Reasoning Lab University of Massachusetts Amherst, Computer Science Department, 2004 – 2006.
Topic: Decentralized Sequential Decision Making Under Uncertainty.
- Research Assistant to Dr. Sven Behnke, Humanoid Robots Research Group University of Freiburg, Department of Computer Science, 2004.
Topic: Autonomous Behavior Control for Humanoid Robots.
- Research Assistant to Dr. Guenter Mueller, Telematics Research Group University of Freiburg, Department of Computer Science and Social Studies, 2002 – 2004.
Topic: Electronic Markets and Multi-Agent Systems.

Teaching/Advising Experience

- Undergraduate Research Advising, Fall 2007 – Spring 2008
Informativeness and Incentive Compatibility for Reputation Systems.
Co-advised senior thesis of Jie Tang who was awarded the Thomas Temple Hoopes Prize for outstanding scholarly research.
- Teaching Fellow for *Introduction to Optimization: Models and Methods*, Spring 2008
Instructor: Dr. David Parkes, Harvard University
Duties: Helping to prepare homework solutions, grading homework assignments and exams, holding office hours, teaching a weekly section.
Harvard Teaching Award: Certificate of Distinction in Teaching.
- Teaching Fellow for *Artificial Intelligence*, Fall 2005
Instructor: Dr. Shlomo Zilberstein, UMass Amherst
Duties: Helping to prepare homework solutions, grading homework assignments and exams, holding office hours, giving two guest lectures on decision making under uncertainty.
- Teaching Fellow for *Discrete Algebraic Structures*, Spring 2002
Instructor: Dr. Daniel Hug, University of Freiburg
Duties: Grading homework assignments and final exams, teaching a weekly section.

Work Experience

- Research Intern at Microsoft Research, Redmond, WA, 06/2009 – 09/2009.
- Research Intern at Microsoft Live Labs, Bellevue, WA, 07/2008 – 11/2008.
- Associate Intern at McKinsey & Company (Management Consulting), 07/2006 – 09/2006.
- Web Designer for the Big Band of the Konrad-Adenauer High School Kleve, 2001 – 2002.
- Community Service in a hospital (Rheinische Kliniken, Bedburg-Hau), 10/2000 – 08/2001.
- Web Designer for “Weisses Kreuz e.V.” 06/2000 – 05/2003.

Relevant Graduate Courses

Microeconomic Theory I + II	Artificial Intelligence
Computational Mechanism Design	Probabilistic AI Techniques
Market Design	Probability Theory
Dynamic Contracts and Games	Distributed Systems
Optimization Methods	Distributed Multi-Agent Systems
Theory of Algorithms	Reinforcement Learning
Random Processes and Algorithms	Machine Learning
Online and Approximation Algorithms	Computation Theory

CS Skills

- Programming Languages: Java, C++, C#, Delphi, Python, PHP, JavaScript, HTML
- Other Tools/Operating Systems: LaTeX, Matlab, SPSS, Excel, Access, Windows, Linux

Professional Service

- Referee, *Electronic Commerce Research*, 2009.
- Referee, *21st International Joint Conference on Artificial Intelligence (IJCAI)*, 2009.
- Organizing committee member, *Multiagent Sequential Decision-Making Workshop at 8th International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, 2009.
- Referee, *Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS)*, 2008.
- Referee, *23rd Conference on Artificial Intelligence (AAAI)*, 2008.
- Referee, *7th Intl. Conf. on Autonomous Agents and Multiagent Systems (AAMAS)*, 2008.
- Referee, *3rd North East Student Colloquium on AI (NESCAI)*, 2008.

Departmental and Lab Services

- Author (with David Parkes), grant proposals to National Science Foundation, 2007 – 2008
- Member of Graduate Student Junior Faculty Search Committee, 2008
- Organizer of EconCS Research Seminar, Harvard University, 2006 – 2007
- Monday Morning Coffee, UMass Amherst, Spring 2005

Personal Information

- Citizenship: German
- Languages: German (native), English (fluent), French, Spanish, Dutch
- Hobbies: Playing piano and drums, traveling, salsa dancing, running, basketball

References

- Dr. David Parkes (Professor)
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- Dr. Shlomo Zilberstein (Professor)
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- Dr. Max Chickering (Principal Scientist)
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