Yevgeniy Vorobeychik
401 Bowling Ave #7, Nashville, TN
eug.vorobey@gmail.com
(773) 562-0148

Research Interests

Algorithmic and behavioral game theory, game theoretic modeling of security, electronic commerce, simulation analysis, social and economic network analysis, optimization, complex systems, multi-agent systems, machine learning, distributed systems, high performance computing.

Education

University of Michigan — Ann Arbor, Michigan
Ph.D. Computer Science & Engineering — August 2008
Intelligent Systems Program
Adviser: Professor Michael P. Wellman
Thesis: Mechanism Design and Analysis Using Simulation-Based Game Models
Nominated for the ACM Dissertation Award
Runner-up for the IFAAMAS-08 Victor Lesser Distinguished Dissertation Award

University of Michigan — Ann Arbor, Michigan
M.S.E. Computer Science & Engineering — May 2004
Intelligent Systems Program

Northwestern University — Evanston, Illinois
B.S. Computer Engineering (with Honors) — June 2002
Economics minor
Graduated summa cum laude (GPA 3.95/4.00)

Professional Experience

August, 2013-Present: Assistant Professor, Computer Science and Computer Engineering, Vanderbilt University, Nashville, TN.

August, 2016-Present: Assistant Professor, Biomedical Informatics, Vanderbilt University Medical Center, Nashville, TN.

January, 2013-August, 2013: Principal Member of Technical Staff, Sandia National Laboratories, Livermore, CA.

June, 2010-January, 2013: Senior Member of Technical Staff, Sandia National Laboratories, Livermore, CA.

July, 2011-February, 2012: Visiting Scholar, University of Michigan, Computer Science and Engineering Division, Ann Arbor, MI.

August, 2008-May, 2010: Postdoctoral Researcher (advised by Professor Michael Kearns), Computer and Information Science Department, University of Pennsylvania, Philadelphia, PA.

Publications

My current and former students are marked with a *.

Refereed Journals

1. Alexander M Sevy, Swetasudha Panda, James E Crowe Jr, Jens Meiler, and Yevgeniy Vorobeychik. Integrating linear optimization with structural modeling to increase HIV neutralization

breadth. In *PLoS Computational Biology*, 2018, to appear.

2. Haifeng Zhang* and Yevgeniy Vorobeychik. Empirically grounded agent-based models of innovation diffusion: A critical review. In *Artificial Intelligence Review*, 2018, to appear.
3. Waseem Abbas, Aron Laszka, Yevgeniy Vorobeychik, and Xenofon Koutsoukos. Scheduling Resource-Bounded Monitoring Devices for Event Detection and Isolation in Networks. In *Transactions on Network Science and Engineering*, 2018, to appear.
4. Aron Laszka, Yevgeniy Vorobeychik, and Xenofon Koutsoukos. A game-theoretic approach for integrity assurance in resource-bounded systems. In *International Journal of Information Security*, 2018, to appear.
5. Xenofon Koutsoukos, Gabor Karsai, Aron Laszka, Himanshu Neema, Bradley Potteiger, Peter Volgyesi, Yevgeniy Vorobeychik, and Janos Sztipanovits. SURE: A Modeling and Simulation Integration Platform for Evaluation of SecUre and REsilient Cyber-Physical Systems. In *Proceedings of the IEEE*, 106(1):93-112, 2018.
6. Weiyi Xia, Zhiyu Wan, Zhijun Yin, James Gaupp, Yongtai Liu, Ellen Wright Clayton, Murat Kantarcioglu, Yevgeniy Vorobeychik, and Bradley A. Malin. It's All in the Timing: Calibrating Temporal Penalties for Biomedical Data Sharing. In *Journal of the American Medical Informatics Association*, 2017.
7. Nika Haghtalab, Aron Laszka, Ariel D. Procaccia, Yevgeniy Vorobeychik, and Xenofon Koutsoukos. Monitoring stealthy diffusions. In *Knowledge and Information Systems*, 52(3):657-685, 2017. **Special issue on best papers from ICDM 2015.**
8. Zhiyu Wan, Yevgeniy Vorobeychik, Murat Kantarcioglu, and Bradley Malin. Controlling the Signal: Practical Protection of Genomic Data Sharing In Beacon Services. In *BMC Medical Genomics*, 10(39):87-100, 2017.
9. Bo Li*, Yevgeniy Vorobeychik, Muqun Li, and Bradley Malin. An iterative classification scheme for sanitizing large-scale datasets. In *IEEE Transactions on Knowledge and Data Engineering*, 29(3):698-711, 2017.
10. Zhiyu Wan, Yevgeniy Vorobeychik, Weiyi Xia, Ellen Wright Clayton, Murat Kantarcioglu, and Bradley Malin. Expanding Access to large-scale genomic data while promoting privacy: a game theoretic approach. In *The American Journal of Human Genetics*, 100(2):316-322, 2017.
11. Andrew Smith, Jian Lou*, and Yevgeniy Vorobeychik. Multidefender security games. In *IEEE Intelligent Systems*, 32(1):50-60, 2017.
12. Yevgeniy Vorobeychik, Zlatko Joveski, and Sixie Yu*. Does communication help people coordinate? In *PLoS One*, 12(2):e0170780, 2017.
13. C. Seshadhri, Andrew M. Smith, Yevgeniy Vorobeychik, Jackson Mayo, and Robert Armstrong. Characterizing short-term stability for Boolean networks over any distribution of transfer functions. In *Physical Review E*, 94:012301, 2016.
14. Muqun Li, David Carrell, John Aberdeen, Lynette Hirschman, Jacqueline Kirby, Bo Li*, Yevgeniy Vorobeychik, Bradley A Malin. Optimizing annotation resources for natural language de-identification via a game theoretic framework. In *Journal of Biomedical Informatics*, 61(C):97-109, 2016.
15. Haifeng Zhang*, Yevgeniy Vorobeychik, Joshua Letchford, and Kiran Lakkaraju. Data-driven agent-based modeling, with application to rooftop solar adoption. In *Journal of Autonomous Agents and Multiagent Systems*, 30(6):1023-1049, 2016.
16. John Nay and Yevgeniy Vorobeychik. Predicting human cooperation. In *PLoS One*, 11(5):e0155656, 2016.
17. Zhiyu Wan, Yevgeniy Vorobeychik, Weiyi Xia, Ellen Clayton, Murat Kantarcioglu, Ranjit Ganta, Raymond Heatherly, and Bradley Malin. A game theoretic framework for analyzing re-identification risk. In *PLoS One*, 10(3):e0120592, 2015.

18. Yevgeniy Vorobeychik and Joshua Letchford. Securing interdependent assets. In *Journal of Autonomous Agents and Multiagent Systems*, 29(2):305-333, 2015.
19. Yevgeniy Vorobeychik, Steven Kimbrough, and Howard Kunreuther. A framework for computational strategic analysis with an application to repeated interdependent security games. In *Computational Economics*, 45(3):469-500, 2015.
20. Yan Deng, Siqian Shen, and Yevgeniy Vorobeychik. Optimization methods for decision making in disease prevention and epidemic control. In *Mathematical Biosciences*, 246(1):213-227, 2013.
21. Jason Tsai, Yundi Qian, Yevgeniy Vorobeychik, Christopher Kiekintveld, and Milind Tambe. Bayesian security games for controlling contagion. In *ASE Human Journal*, 13:168-181, 2013.
22. Yevgeniy Vorobeychik, Daniel M. Reeves, and Michael P. Wellman. Constrained automated mechanism design for infinite games of incomplete information. In *Journal of Autonomous Agents and Multiagent Systems 25(2):313-351*, 2012.
23. Yevgeniy Vorobeychik, Jackson R. Mayo, Robert C. Armstrong, and Joseph R. Ruthruff. Noncooperatively Optimized Tolerance: Decentralized strategic optimization in complex systems. In *Physical Review Letters 107(10):108702*, 2011.
24. C. Seshadhri, Yevgeniy Vorobeychik, Jackson R. Mayo, Robert C. Armstrong, and Joseph R. Ruthruff. Influence and dynamic behavior in random boolean networks. In *Physical Review Letters 107(10):108701*, 2011.
25. Yevgeniy Vorobeychik and Yagil Engel. Average-case analysis of VCG with approximate resource allocation algorithms. In *Decision Support Systems 51(3):648-656*, 2011.
26. Stephen Judd, Michael Kearns, and Yevgeniy Vorobeychik. Behavioral dynamics and influence in networked coloring and consensus. In *Proceedings of the National Academy of Sciences 107(34):14978-14982*, 2010.
27. Yevgeniy Vorobeychik. Probabilistic analysis of simulation-based games. In *ACM Transactions on Modeling and Computer Simulation 20(3): Article 16*, 2010.
28. John Langford, Lihong Li, Yevgeniy Vorobeychik, and Jennifer Wortman. Maintaining equilibria during exploration in sponsored search auctions. In *Algorithmica 58(4):990-1021*, 2010.
29. Yevgeniy Vorobeychik and Isaac Porche. Game-theoretic methods for analysis of tactical decision-making using agent-based combat simulations. In *Military Operations Research 14(4):21-39*, 2009.
30. 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.
31. Yevgeniy Vorobeychik, Michael P. Wellman, and Satinder Singh. Learning payoff functions in infinite games. In *Machine Learning 67:145-168*, 2007.
32. 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.
33. 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. Bryan Wilder and Yevgeniy Vorobeychik. Controlling Elections through Social Influence. In *International Conference on Autonomous Agents and Multiagent Systems*, 2018 (AAMAS 2018).

2. Sixie Yu*, Yevgeniy Vorobeychik, and Scott Alfeld. Adversarial Classification on Social Networks. In *International Conference on Autonomous Agents and Multiagent Systems*, 2018 (AAMAS 2018).
3. Aaron Schlenker, Omkar Thakoor, Haifeng Xu, Milind Tambe, Phebe Vayanos, Fei Fang, Long Tran-Thanh, and Yevgeniy Vorobeychik. Deceiving Cyber Adversaries: A Game Theoretic Approach. In *International Conference on Autonomous Agents and Multiagent Systems*, 2018 (AAMAS 2018).
4. Ayan Mukhopadhyay*, Zilin Wang*, and Yevgeniy Vorobeychik. A Decision Theoretic Framework for Emergency Responder Dispatch. In *International Conference on Autonomous Agents and Multiagent Systems*, 2018 (AAMAS 2018).
5. Chao Yan, Aron Laszka, Bo Li, Yevgeniy Vorobeychik, Daniel Fabbri, and Bradley Malin. Get your workload in order: game theoretic prioritization of database auditing. In *International Conference on Data Engineering*, 2018, to appear (ICDE 2018, to appear).
6. Fabian Prasser, James Gaupp, Zhiyu Wan, Weiyi Xia, Yevgeniy Vorobeychik, Murat Kantarcioglu, Klaus Kuhn, and Bradley Malin. An open source toolkit for game theoretic health data de-identification. In *Annual Symposium of the American Medical Informatics Association*, 2017 (AMIA 2017).
7. Swetasudha Panda* and Yevgeniy Vorobeychik. Near-optimal interdiction of factored MDPs. In *Conference on Uncertainty in Artificial Intelligence*, 2017 (UAI 2017).
8. Andrew M. Smith, Jackson Mayo, Vivian Kammler, Robert C. Armstrong and Yevgeniy Vorobeychik. Using computational game theory to guide verification and security in hardware designs. In *IEEE International Symposium on Hardware Oriented Security*, 2017 (HOST 2017).
9. Haifeng Zhang*, Yevgeniy Vorobeychik, and Ariel Procaccia. Multi-channel marketing with budget complementarities. In *International Conference on Autonomous Agents and Multiagent Systems*, 2017 (AAMAS 2017).
10. Ayan Mukhopadhyay*, Yevgeniy Vorobeychik, Gautam Biswas, and Abhishek Dubey. Prioritized allocation of emergency responders based on a continuous-time incident prediction model. In *International Conference on Autonomous Agents and Multiagent Systems*, 2017 (AAMAS 2017).
11. Waseem Abbas, Aron Laszka, Yevgeniy Vorobeychik, and Xenofon Koutsoukos. Improving network connectivity using trusted nodes and edges. In *American Control Conference*, 2017 (ACC 2017).
12. Bo Li*, Kevin Roundy, Chris Gates and Yevgeniy Vorobeychik. Large-scale identification of malicious singleton files. In *ACM Conference on Data and Application Security and Privacy*, 2017 (CODASPY 2017).
13. Jiarui Gan, Bo An, Yevgeniy Vorobeychik, and Brian Gauch*. Security games on a plane. In *AAAI Conference on Artificial Intelligence*, 2017 (AAAI 2017).
14. Bo Li*, Yining Wang, Aarti Singh, and Yevgeniy Vorobeychik. Data poisoning attacks on factorization-based collaborative filtering. In *Neural Information Processing Systems*, 2016 (NIPS 2016).
15. Ayan Mukhopadhyay*, Yevgeniy Vorobeychik, Chao Zhang, Milind Tambe, Kenneth Pence, and Paul Speer. Optimal allocation of police patrol resources using a continuous-time crime model. In *Conference on Decision and Game Theory for Security*, 2016 (GameSec 2016).
16. Amin Ghafouri, Waseem Abbas, Aron Laszka, Yevgeniy Vorobeychik, and Xenofon Koutsoukos. Optimal thresholds for anomaly-based intrusion detection in dynamical environments. In *Conference on Decision and Game Theory for Security*, 2016 (GameSec 2016).
17. Amin Ghafouri, Waseem Abbas, Yevgeniy Vorobeychik, Xenofon Koutsoukos. Vulnerability of fixed-time control of signalized intersections to cyber-tampering. In *International Symposium on Resilient Control Systems (ISRCS)*, 2016.

18. Yue Yin, Yevgeniy Vorobeychik, Bo An, and Noam Hazon. Optimally protecting elections. In *International Joint Conference on Artificial Intelligence*, 2016 (IJCAI 2016).
19. Aron Laszka, Waseem Abbas, Shankar Sastry, Yevgeniy Vorobeychik, and Xenofon Koutsoukos. Optimal thresholds for intrusion detection systems. In *Symposium and Bootcamp on Science of Security*, 2016 (HotSoS 2016).
20. Jian Lou* and Yevgeniy Vorobeychik. Decentralization and security in dynamic traffic light control. In *Symposium and Bootcamp on Science of Security*, 2016 (HotSoS 2016).
21. Chao Zhang, Victor Bucarey, Ayan Mukhopadhyay*, Arunesh Sinha, Yundi Qian, Yevgeniy Vorobeychik, and Milind Tambe. Using abstractions to solve opportunistic crime security games at scale. In *International Conference on Autonomous Agents and Multiagent Systems*, 2016 (AAMAS 2016).
22. Qingyu Guo, Bo An, Yevgeniy Vorobeychik, Long Tran-Thanh, Jiarui Gan, and Chunyan Miao. Coalitional security games. In *International Conference on Autonomous Agents and Multiagent Systems*, 2016 (AAMAS 2016).
23. Aron Laszka, Bradley Potteiger, Yevgeniy Vorobeychik, Saurabh Amin, and Xenofon Koutsoukos. Vulnerability of transportation networks to traffic-signal tampering. In *International Conference on Cyber-Physical Systems*, 2016 (ICCPS 2016).
24. Liyiming Ke*, Bo Li*, and Yevgeniy Vorobeychik. Behavioral experiments in email filter evasion. In *AAAI Conference on Artificial Intelligence*, 827-833, 2016 (AAAI 2016).
25. Haifeng Zhang* and Yevgeniy Vorobeychik. Submodular optimization with routing constraints. In *AAAI Conference on Artificial Intelligence*, 819-825, 2016 (AAAI 2016).
26. Aron Laszka, Jian Lou*, and Yevgeniy Vorobeychik. Multi-defender strategic filtering against spear-phishing attacks. In *AAAI Conference on Artificial Intelligence*, 537-543, 2016 (AAAI 2016).
27. Bo Li*, Yevgeniy Vorobeychik, Rachel Li, and Bradley Malin. Iterative classification for sanitizing large-scale datasets. In *IEEE International Conference on Data Mining*, 2015 (ICDM 2015).
28. Nika Haghtalab, Aron Laszka, Ariel Procaccia, Yevgeniy Vorobeychik, and Xenofon Koutsoukos. Monitoring stealthy diffusion. In *IEEE International Conference on Data Mining*, 2015 (ICDM 2015).
29. Aron Laszka, Yevgeniy Vorobeychik, and Xenofon Koutsoukos. Resilient observation selection in adversarial settings. In *IEEE Conference on Decision and Control*, 2015 (CDC 2015).
30. Weiyi Xia, Zhiyu Wan, Raymond Heatherly, Murat Kantarcioglu, Yevgeniy Vorobeychik and Bradley Malin. Process-driven data privacy. In *Conference on Knowledge Management*, 2015 (CIKM 2015).
31. Jian Lou* and Yevgeniy Vorobeychik. Equilibrium analysis of multi-defender security games. In *International Joint Conference on Artificial Intelligence*, 2015 (IJCAI 2015).
32. Aron Laszka, Yevgeniy Vorobeychik, and Xenofon Koutsoukos. Integrity Assurance in Resource-Bounded Systems through Stochastic Message Authentication. In *Symposium and Bootcamp on the Science of Security*, 2015 (HotSoS 2015).
33. Swetasudha Panda* and Yevgeniy Vorobeychik. Stackelberg games for vaccine design. In *International Joint Conference on Autonomous Agents and Multiagent Systems*, 1391-1399, 2015 (AAMAS 2015).
34. Haifeng Zhang*, Yevgeniy Vorobeychik, Joshua Letchford, and Kiran Lakkaraju. Data-driven agent-based modeling, with application to rooftop solar adoption. In *International Joint Conference on Autonomous Agents and Multiagent Systems*, 513-521, 2015 (AAMAS 2015).

35. Haifeng Zhang*, Ariel Procaccia, and Yevgeniy Vorobeychik. Dynamic influence maximization under increasing returns to scale. In *International Joint Conference on Autonomous Agents and Multiagent Systems*, 949-957, 2015 (AAMAS 2015). **Best Paper award (finalist)**.
36. Bo Li* and Yevgeniy Vorobeychik. Scalable optimization of randomized operational decisions in adversarial classification settings. In *International Conference on Artificial Intelligence and Statistics*, 599-607, 2015 (AISTATS 2015).
37. Jiarui Gan, Bo An and Yevgeniy Vorobeychik. Security games with protection externalities. In *AAAI Conference on Artificial Intelligence*, 914-920, 2015 (AAAI 2015).
38. Aron Laszka, Yevgeniy Vorobeychik, and Xenofon Koutsoukos. Optimal personalized filtering against spear-phishing attacks. In *AAAI Conference on Artificial Intelligence*, 958-964, 2015 (AAAI 2015).
39. Mason Wright* and Yevgeniy Vorobeychik. Mechanism design for team formation. In *AAAI Conference on Artificial Intelligence*, 1050-1056, 2015 (AAAI 2015).
40. Bo Li* and Yevgeniy Vorobeychik. Feature cross-substitution in adversarial classification. In *Neural Information Processing Systems*, 2087-2095, 2014 (NIPS 2014).
41. Waseem Abbas, Sajal Bhatia, Yevgeniy Vorobeychik, and Xenofon Koutsoukos. Immunization against infection propagation in heterogeneous networks. In *Thirteenth International Symposium on Network Computing and Applications*, 296-300, 2014 (NCA 2014).
42. Waseem Abbas, Yevgeniy Vorobeychik, and Xenofon Koutsoukos. Resilient consensus protocol in the presence of trusted nodes. In *Seventh International Symposium on Resilient Control Systems*, 1-7, 2014 (ISRCS 2014). **Nominated for Best Paper award**.
43. Mark Yampolskiy, Yevgeniy Vorobeychik, Xenofon Koutsoukos, Peter Horvath, Heath Leblanc and Janos Sztipanovits. Resilient distributed consensus for tree topology. In *Third ACM International Conference on High Confidence Networked Systems*, 41-48, 2014 (HiCoNS 2014).
44. Yevgeniy Vorobeychik, Bo An, Milind Tambe, and Satinder Singh. Computing solutions in infinite-horizon discounted adversarial patrolling games. In *Twenty-Fourth International Conference on Automated Planning and Scheduling*, 314-322, 2014 (ICAPS 2014).
45. Yevgeniy Vorobeychik and Bo Li*. Optimal randomized classification in adversarial settings. In *Thirteenth International Conference on Autonomous Agents and Multiagent Systems*, 485-492, 2014 (AAMAS 2014).
46. Jason Tsai, Yundi Qian, Yevgeniy Vorobeychik, Christopher Kiekintveld, and Milind Tambe. Bayesian security games for controlling contagion. In *ASE/IEEE International Conference on Social Computing*, 2013 (SocialCom 2013).
47. Joshua Letchford and Yevgeniy Vorobeychik. Optimal interdiction of attack plans. In *Twelfth International Conference on Autonomous Agents and Multiagent Systems*, 199-206, 2013 (AAMAS 2013).
48. Bo An, Matthew Brown, Yevgeniy Vorobeychik, and Milind Tambe. Security games with surveillance cost and optimal timing of attack execution. In *Twelfth International Conference on Autonomous Agents and Multiagent Systems*, 223-230, 2013 (AAMAS 2013).
49. Jason Tsai, Yundi Qian, Christopher Kiekintveld, Yevgeniy Vorobeychik, and Milind Tambe. Security games for controlling contagion under asymmetric information: the power of simple. (Extended Abstract). In *Twelfth International Conference on Autonomous Agents and Multiagent Systems*, 2013 (AAMAS 2013).
50. Joshua Letchford and Yevgeniy Vorobeychik. Computing optimal security strategies for interdependent assets. In *Twenty-Eighth Conference on Uncertainty in Artificial Intelligence*, 459-468, 2012 (UAI 2012).
51. Yevgeniy Vorobeychik and Satinder Singh. Computing Stackelberg equilibria in discounted stochastic games. In *Twenty-Sixth National Conference on Artificial Intelligence*, 2012 (AAAI 2012).

52. Bo An, David Kempe, Christopher Kiekintveld, Eric Shieh, Satinder Singh, Milind Tambe, and Yevgeniy Vorobeychik. Security games with limited surveillance. In *Twenty-Sixth National Conference on Artificial Intelligence*, 2012 (AAAI 2012).

53. Michael Kearns, Stephen Judd, and Yevgeniy Vorobeychik. Behavioral experiments on a network formation game. In *Thirteenth ACM Conference on Electronic Commerce*, 690-704, 2012 (EC 2012). **Nominated for Best Paper award**.

54. Joshua Letchford and Yevgeniy Vorobeychik. Stackelberg security games on networks. (Extended Abstract). In *Eleventh International Conference on Autonomous Agents and Multiagent Systems*, 1303-1304, 2012 (AAMAS 2012).

55. Yevgeniy Vorobeychik, Bo An, and Milind Tambe. Adversarial patrolling games. (Extended Abstract). In *Eleventh International Conference on Autonomous Agents and Multiagent Systems*, 1307-1308, 2012 (AAMAS 2012).

56. Stephen Judd, Michael Kearns, and Yevgeniy Vorobeychik. Behavioral conflict and fairness in social networks. In *Seventh International Conference on Web, Internet and Network Economics*, 242-253, 2011 (WINE 2011).

57. Yevgeniy Vorobeychik, Jackson R. Mayo, Robert C. Armstrong, Ronald G. Minnich, and Don W. Rudish. Fault oblivious high performance computing with dynamic task replication and substitution. In *Twenty-Sixth International Supercomputing Conference*, 2011 (ISC 2011).

58. Yevgeniy Vorobeychik. A game theoretic bidding agent for the ad auction game. In *Third International Conference on Agents and Artificial Intelligence*, 2011 (ICAART 2011).

59. Yevgeniy Vorobeychik and Yagil Engel. Average-case analysis of incentives under approximate allocation algorithms. In *Sixth International Conference on Web, Internet and Network Economics*, 251-258, 2010 (WINE 2010).

60. Quang Duong, Michael P. Wellman, Satinder Singh, and Yevgeniy Vorobeychik. History-dependent graphical multiagent models. In *Ninth International Conference on Autonomous Agents and Multiagent Systems*, 1215-1222, 2010 (AAMAS 2010).

61. Yevgeniy Vorobeychik and Yagil Engel. Incentive analysis of approximately efficient allocation algorithms. (Short Paper). In *Ninth International Conference on Autonomous Agents and Multiagent Systems*, 1479-1480, 2010 (AAMAS 2010).

62. Jacomo Corbo and Yevgeniy Vorobeychik. Nudging mechanisms for technology adoption. In *Fifth International Conference on Web, Internet and Network Economics*, 505-512, 2009 (WINE 2009).

63. Jacomo Corbo and Yevgeniy Vorobeychik. The effects of quality and price on adoption dynamics of competing technologies. In *Thirtieth International Conference on Information Systems*, Article 40, 2009 (ICIS 2009).

64. Yevgeniy Vorobeychik and Michael P. Wellman. Strategic analysis with simulation-based games. In *Winter Simulation Conference*, 359-372, 2009 (WSC 2009).

65. 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 (IJCAI 2009).

66. Yevgeniy Vorobeychik. Simulation-based game theoretic analysis of keyword auctions with low-dimensional bidding strategies. In *Twenty-Fifth Conference on Uncertainty in Artificial Intelligence*, 583-590, 2009 (UAI 2009).

67. 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 (AAMAS 2008).

68. 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 (AAMAS 2008).

69. 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 (UAI 2007).
70. Yevgeniy Vorobeychik and Daniel M. Reeves. Equilibrium analysis of dynamic bidding in sponsored search auctions. In *Third International Conference on Web, Internet and Network Economics*, 2007 (WINE 2007).
71. Jennifer Wortman, Yevgeniy Vorobeychik, Lihong Li, and John Langford. Maintaining equilibria during exploration in sponsored search auctions. In *Third International Conference on Web, Internet and Network Economics*, 2007 (WINE 2007).
72. 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 (EC 2006).
73. 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 (IJCAI 2005).
74. 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 (CG 2004).
75. 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 (ICAPS 2004).

Refereed Workshops

1. Chang Liu, Bo Li, Yevgeniy Vorobeychik, and Alina Oprea. Robust Linear Regression Against Training Data Poisoning. In *Workshop on AI and Security*, 2017, to appear (AISec 2017). **Best paper award**
2. Jian Lou, Martin Van der Linden, Pranav Batra, Chen Hajaj, Gregory Leo, Yevgeniy Vorobeychik, and Myrna Wooders. Rotating Proposer Mechanisms for Team Formation. In *Workshop on Cooperative Games in Multiagent Systems*, 2017 (CoopMAS-2017). **Visionary paper award**.
3. Aron Laszka, Yevgeniy Vorobeychik, Daniel Fabbri, Chao Yan and Bradley Malin. A game theoretic approach for alert prioritization. In *Workshop on Artificial Intelligence for Cyber Security*, 2017 (AICS-2017).
4. Ayan Mukhopadhyay, Chao Zhang, Yevgeniy Vorobeychik, Milind Tambe, Kenneth Pence and Paul Speer. Optimal allocation of police patrol resources using a continuous-time crime model. In *AAAI Spring Symposium on AI for Social Good*, 2017 (AISOC-2017).
5. Bo Li, Yevgeniy Vorobeychik, Muqun Li and Bradley Malin. Sanitizing large-scale medical records before publishing. In *AAAI Spring Symposium on AI for Social Good*, 2017 (AISOC-2017).
6. Zhiyu Wan, Yevgeniy Vorobeychik, Weiyi Xia, Ellen Clayton, Murat Kantarcioglu and Bradley Malin. Game theory can expand access to genomic data while promoting privacy. In *AAAI Spring Symposium on AI for Social Good*, 2017 (AISOC-2017).
7. Aron Laszka, Waseem Abbas, Shankar Sastry, Yevgeniy Vorobeychik and Xenofon Koutsoukos. Optimal thresholds for intrusion detection systems. In *AAAI Spring Symposium on AI for Social Good*, 2017 (AISOC-2017).
8. Yue Yin, Yevgeniy Vorobeychik, Bo An and Noam Hazon. Optimally Protecting Elections. In *Workshop on Cooperative Games in Multiagent Systems*, 2016 (CoopMAS-2016).

9. Qingyu Guo, Bo An, Yevgeniy Vorobeychik, Long Tran-Thanh and Jiarui Gan. Optimal Interdiction on Cooperative Links to Prevent Attackers from Forming Coalitions. In *Workshop on Cooperative Games in Multiagent Systems*, 2016 (CoopMAS-2016).
10. Bo Li* and Yevgeniy Vorobeychik. Scalable optimization of randomized operational decisions in adversarial classification settings. In *Workshop on Artificial Intelligence and Security*, 2015 (AISec 2015).
11. Waseem Abbas, Aron Laszka, Yevgeniy Vorobeychik, and Xenofon Koutsoukos. Scheduling intrusion detection systems in resource-bounded cyber-physical systems. In *Workshop on Cyber-Physical Systems Security and Privacy*, 2015 (CPS-SPC 2015).
12. Swetasudha Panda* and Yevgeniy Vorobeychik. Stackelberg games for antibody design. In *AAAI 2015 Spring Symposium on Applied Computational Game Theory*, 2015.
13. Mason Wright and Yevgeniy Vorobeychik. Designing Fair, Efficient, and Incentive Compatible Team Formation Markets. In *AAAI 2015 Spring Symposium on Applied Computational Game Theory*, 2015.
14. Haifeng Zhang*, Yevgeniy Vorobeychik, Joshua Letchford, and Kiran Lakkaraju. Predicting rooftop solar adoption using agent-based modeling. In *AAAI 2014 Fall Symposium on Energy Market Prediction*, 2014.
15. Joshua Letchford, Kiran Lakkaraju, and Yevgeniy Vorobeychik. Individual Household Modeling of Photovoltaic Adoption. In *AAAI 2014 Fall Symposium on Energy Market Prediction*, 2014.
16. Yevgeniy Vorobeychik and John Wallrabenstein. Using machine learning for operational decisions in adversarial environments. In *Workshop on Optimization in Multiagent Systems*, 2014.
17. Yue Yin, Bo An, Yevgeniy Vorobeychik, and Jun Zhuang. Optimal Deceptive Strategies in Security Games: A Preliminary Study. In *AAAI Spring Symposium on Applied Computational Game Theory*, 2014.
18. Andrew Smith, Yevgeniy Vorobeychik, and Joshua Letchford. Multi-defender security games on networks. In *Workshop on Pricing and Incentives in Networks and Systems*, 2013.
19. Jason Tsai, Yundi Qian, Yevgeniy Vorobeychik, Christopher Kiekintveld, Milind Tambe. Bayesian Security Games for Controlling Contagion. In *AAMAS-2013 Workshop on Multiagent Interaction Networks*, 2013.
20. Yevgeniy Vorobeychik, Michael Z. Lee, Adam Anderson, Mitch Adair, William Atkins, Alan Berryhill, Dominic Chen, Ben Cook, Jeremy Erickson, Steve Hurd, Ron Olsberg, Lyndon Pierson, and Owen Redwood. FIREAXE: The DHS Secure Design Competition Pilot. In *Eighth Cyber Security and Information Intelligence Research Workshop*, 2013.
21. Bo An, David Kempe, Christopher Kiekintveld, Eric Shieh, Satinder Singh, Milind Tambe, and Yevgeniy Vorobeychik. Security Games with Limited Surveillance: An Initial Report. In *AAAI-2012 Symposium on Game Theory for Security, Sustainability, and Health*, 2012.
22. Yevgeniy Vorobeychik, Bo An, and Milind Tambe. Adversarial patrolling games. In *AAAI-2012 Symposium on Game Theory for Security, Sustainability, and Health*, 2012.
23. Joshua Letchford and Yevgeniy Vorobeychik. Computing randomized security strategies in networked domains. In *AAAI-2011 Workshop on Applied Adversarial Reasoning and Risk Modeling*, 2011.
24. Jacomo 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.
25. Yevgeniy Vorobeychik and Yagil Engel. Incentive analysis of approximately efficient allocation algorithms. In *Agent-Mediated Electronic Commerce*, 2009.

26. 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.
27. Yevgeniy Vorobeychik and Michael P. Wellman. Mechanism design based on beliefs about responsive play. In *EC-2006 Workshop on Alternative Solution Concepts for Mechanism Design*, 2006.
28. 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-2004 Workshop on Trading Agent Design and Analysis*, 2004.
29. Shih-Fen Cheng, Daniel M. Reeves, Yevgeniy Vorobeychik, and Michael P. Wellman. Notes on equilibria in symmetric games. In *AAMAS-2004 Workshop on Game Theory and Decision Theory, 23-28*, 2004.

Funding

(Total: $18,632,295; as PI: $5,036,854)

- Research Grant (2018-2021), co-Principal Investigator "DDDAS-as-a-Service: Dynamic Resource Management Algorithms and Systems Software for an Infosymbiotics Hosting Platform", funded by the Air Force Office for Scientific Research for $606,761/3 years (AY: 0.5 months, Summer: 0.5 months).
- Research Grant (2017-2022), Principal Investigator "CAREER: Adversarial Artificial Intelligence for Social Good", funded by the National Science Foundation for $518,643
- Research Grant (2016-2018), Principal Investigator "Integrated Safety Incident Forecasting and Analysis", funded by the National Science Foundation for $199,993
- Research Grant (2016-2018), key investigator "Crowd Sourcing Labels from Electronic Medical Records to Enable Biomedical Research", funded by the National Institutes of Health for $929,202
- Training Grant (2016-2019), participating faculty "BIDS: Vanderbilt Training Program in Big Biomedical Data Science", funded by the National Institutes of Health for $1,821,798
- Research Grant (2016-2020), key investigator "Genetic Privacy and Identity in Community Settings – GetPreCiSe", funded by the National Institutes of Health for $4,012,640
- Research Grant (2016-2019), Principal Investigator "Designing Resilient Data Processing Systems for Adversarial Environments", funded by the Army Research Office for $360,000/3 years
- Research Grant (2015-2018), Principal Investigator "Protocol Design for Decentralized Coordination", funded by the Office of Naval Research for $416,167/3 years
- Research Grant (2015-2018), Principal Investigator "RI: Small: Theory and Application of Mechanism Design for Team Formation", funded by the National Science Foundation for $442,051/3 years
- Research Grant (2016-2019), co-Principal Investigator "A Risk Management Framework for Identifiability in Genomics Research", funded under the National Institutes of Health for $2,134,592
- Research Grant (2014-2017), co-Principal Investigator "Science of Secure and Resilient Cyber-Physical Systems", funded by Air Force Research Laboratory for $3,810,411/3 years
- Research Grant (2014-2016), Principal Investigator "Optimal Policing Using Game Theory and Big Data", funded under the Vanderbilt University Discovery Grant program for $100,000/2 years
- Research Grant (2013-2016), co-Principal Investigator "Using Machine Learning in Adversarial Environments", funded under the Sandia Laboratory Directed Research and Development Program for $1,500,000/3 years

- Research Grant (2013-2016), Principal Investigator "Design of Social and Economic Incentives and Information Campaigns to Promote Solar Technology Diffusion Through Data-Driven Behavior Modeling", funded under DOE SEEDS Program for $2,300,000/3 years
- Research Grant (2012-2013), Principal Investigator "Resilience and Trust in the Face of Failures in HPC," funded under the Sandia Advanced Simulation and Computing program for $200,000/1 year
- Research Grant (2011-2012), Principal Investigator "Simulation-Based Strategic Analysis of Complex Security Scenarios," funded under the Sandia Laboratory Directed Research and Development Program for $500,000/2 years

Honors and Awards

- NSF CAREER Award, 2017
- Best paper award, AISec 2017
- Visionary paper, Workshop on Cooperative Games in Multiagent Systems, 2017
- Early Career Spotlight Speaker, International Joint Conference on Artificial Intelligence (IJCAI) 2016
- Best paper award, International Conference on Autonomous Agents and Multiagent Systems (AAMAS) 2015 (finalist)
- Nominated for the Sandia Employee Recognition Award (for technical excellence), 2012
- Finalist, Von Neumann Fellowship in Computational Science, 2009
- 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, University of Michigan Computer Science & Engineering 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

Professional Activities

Invited Presentations

- University of Southern California, July, 2017
- Northeastern University, June, 2017
- Workshop on Cooperative Games in Multiagent Systems (**Keynote**), May, 2017
- Harvard University (CS), April, 2017
- University of Texas, Austin (CS), January, 2017
- International Joint Conference on Artificial Intelligence (**Early Career Spotlight talk**), July, 2016
- University of California, Berkeley, June, 2016
- Sandia National Laboratories, June, 2016

- Bar Ilan Symposium on Foundations of Artificial Intelligence (BISFAI 2015; **Keynote**), Bar Ilan University, May, 2015
- University of California, Davis, March 2015
- University of California, Berkeley, March 2015
- University of Southern California (Computer Science), March, 2014
- Naval Postgraduate School (Operations Research), July, 2013
- RPI (Computer Science), March, 2013
- Vanderbilt University (EECS), February, 2013
- Georgia Institute of Technology (Computational Science and Engineering), February, 2013
- Cyber Security and Information Intelligence Research Workshop, January, 2013
- INFORMS Computing Society Meeting, January, 2013
- INFORMS Annual Meeting, October, 2012
- Carnegie Mellon University, March, 2012
- INFORMS Optimization Society Meeting, February, 2012
- INFORMS Annual Meeting, November, 2011
- University of Michigan (School of Information), November, 2011
- University of Michigan (Computer Science and Engineering), October, 2011
- University of Michigan (Industrial and Operations Engineering), October, 2011
- University of Michigan (Center for the Study of Complex Systems), September, 2011
- Indiana University Purdue University Indianapolis (Computer Science), March, 2010
- Naval Postgraduate School (Operations Research), February, 2010
- Sandia National Laboratories, January, 2010
- University of North Carolina, Charlotte (Software and Information Systems), February, 2009
- Workshop on Information in Networks, September, 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

- AAAI Conference on Artificial Intelligence, February, 2018 (Adversarial Machine Learning, together with Bo Li and Dawn Song; >300 **registered attendees**)
- International Conference on Economics and Computation, June, 2017 (Security and Game Theory, joint with Fei Fang and Bo An)
- 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 and Editorial Duties

- *Journals*:
  - Artificial Intelligence Review (Editor)
  - Communications of the ACM
  - ACM Transactions on Economics and Computation
  - Journal of Artificial Intelligence Research
  - Artificial Intelligence Journal
  - Journal of Machine Learning Research
  - Machine Learning
  - Operations Research
  - Discrete Applied Mathematics
  - INFORMS Journal on Computing
  - Games and Economics Behavior
  - Journal of Autonomous Agents and Multiagent Systems
  - Production and Operations Management Journal
  - ACM Transactions on the Web
  - Computational Intelligence
  - IEEE Transactions on Services Computing
  - Information Economics and Policy
  - Computational Economics
  - IEEE Transactions on Cloud Computing
- *Conferences*:
  - Conference on Web, Internet, and Network Economics (program committee, WINE '12)
  - ACM Conference on Economics and Computation (previously Electronic Commerce) (program committee, EC '09, '10, '11, '12, '13, '14, '16)
  - Conference on Uncertainty in Artificial Intelligence (program committee, UAI '09, '10, '12, '15)
  - International Joint Conference on Autonomous Agents and Multiagent Systems (program committee, AAMAS '08, '10, '11, '12, '14, '15; senior program committee, AAMAS '16, '17, '18, **scholarship co-chair**, AAMAS '17, **webmaster**, AAMAS'18)
  - AAAI Conference on Artificial Intelligence (program committee, AAAI '08, '09, '10, '11, '12, '13, '14, '15; senior program committee, AAAI '16-'18)
  - International Joint Conference on Artificial Intelligence (program committee, IJCAI '09, '11; senior program committee, IJCAI '13, '15, '16, '17; **distinguished paper award committee**, IJCAI '15; **tutorials co-chair**, IJCAI '16)
  - International Conference on Artificial Intelligence and Statistics (program committee, AISTATS '11)
  - Annual Cyber Security and Information Intelligence Research Workshop (CSIIRW '12)
  - International Conference on High Confidence Networked Systems (HiCoNS '14)
  - International Conference on Cyber Physical Systems (ICCPS '15)
  - International Conference on Decision and Game Theory for Security (GameSec '14, '15, '16, '17)

Proposal Reviewing

- NSF panel (ICES program, Robust Intelligence, *CISE Expeditions in Computing*)
- DOE Office of Science STTR/SBIR panel (cybersecurity)
- ARO proposal reviewing

Courses Taught

- CS 6368-Computational Economics (Fall, 2013; Spring, 2015, 2017)
- CS 6362-Machine Learning (Spring, 2014, 2016; Fall, 2017)
- CS 4260-Artificial Intelligence (Fall, 2014, 2015, 2016)
- CS 3269-Projects in Artificial Intelligence (Spring, 2014, 2015, 2016)

Current Students and Post Docs

- Diego Mesa (Post doc; **Vanderbilt Academic Pathways Fellow**)
- Chen Hajaj (Post doc; **Vanderbilt Data Science Visions Fellow**)
- Swetasudha Panda (Ph.D. student, Electrical Engineering)
- Jian Lou (Ph.D. student, Computer Science)
- Ayan Mukhopadhyay (Ph.D. student, Computer Science)
- Yi Li (Ph.D. student, Computer Science)
- Liang Tong (Ph.D. student, Computer Science)
- Michael Pritchard (Ph.D. student, Computer Science)
- Anna Epishova (Ph.D. student, Computer Science)
- Sixie Yu (Ph.D. student, Computer Science)
- Rajgopal Venkatasaramani (Ph.D. student, Computer Science)
- Caitlin Snyder (Ph.D. student, Computer Science)
- Zhiyu Wan (Ph.D. student, Computer Science, co-advised with Brad Malin)
- Muqun (Rachel) Li (Ph.D. student, Biomedical Informatics, committee member)
- Anton Dukeman (Ph.D. student, Computer Science, committee member)
- Liyiming (Kay) Ke (undergraduate, Computer Science and Economics)
- Zhongdi (Delia) Qu (undergraduate, Computer Science, Economics, and Mathematics)
- Xuanyang Ge (undergraduate, Computer Science and Physics)
- Brelbi Golam (undergraduate, Computer Engineering)
- Daniel Strizhevsky (undergraduate, Computer Science)
- Jiazhi Zhang (undergraduate, Computer Science)
- Xingnan (Natalie) Xia (undergraduate, Computer Science)
- Max DeGroot (undergraduate, Computer Science)
- Ethan Raymond (undergraduate, Computer Science)
- Jia Xia (undergraduate, Computer Science)
- Luke Mills (undergraduate, Computer Science)
- Sachit Bhat (undergraduate, Computer Science)
- Bumsu Jung (undergraduate, Computer Science)

Alumni

- Bo Li (Ph.D., Computer Science, 2016; **Symantec Research Labs Fellow, 2015**; now at UC Berkeley Computer Science; starting as Assistant Professor at UIUC in Fall, 2018)
- Haifeng Zhang (Ph.D., Computer Science, 2017); now a post doc at Carnegie Mellon University
- Michael Carr Northington V (Ph.D., Mathematics, 2016; committee member; now a post doc at Georgia Tech Mathematics)
- Aron Laszka (Post doc, co-advised with Xenofon Koutsoukos; now Assistant Professor at the University of Houston)
- Waseem Abbas (Post doc, co-advised with Xenofon Koutsoukos)
- Weiyi Xia (Ph.D., Computer Science, 2017, co-advised with Brad Malin); now a post doc at Vanderbilt Biomedical Informatics
- Alexandra Polak (B.S., Computer Engineering, 2016; now at Amazon)
- Brandon Arvanaghi (B.S., Computer Science, 2016; now at Mandiant Consulting)
- Blake Wulfe (B.S., Computer Science, 2014; now a Ph.D. student at Stanford University)
- Royce Mou (B.S., Computer Science, 2016; now at Microsoft)
- Pranav Batra (B.S., Computer Science, 2016)
- Mason Wright (independent study, Computer Science; now a Ph.D. student at the University of Michigan)
- Alden Neely (high school student, Research Experience Program for High School Students)
- Elom Dumenyo (high school student, School for Science and Math at Vanderbilt; now student at the University of Pennsylvania)

Professional Society Memberships

IEEE member, 2015-present
ACM member, 2008-present
AAAI member, 2003-present
AIS member, 2009-2013
INFORMS member, 2010-present
INFORMS ICS member, 2010-present

Citizenship

U.S. Citizen