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**Moshe Tennenholtz**

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and

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• **Personal Information**

- Born: August 13<sup>th</sup> 1960, in Haifa, Israel.
- Status: Married + 3.
- Current address: 19 Beilis, Haifa

• **Academic Degrees**

- 1981 – 1985: B.Sc. in Mathematics, Tel-Aviv university, Tel-Aviv.
- 1986 to 1987: M.Sc. in Applied Mathematics and Computer Science, Weizmann Institute of Science, Rehovot.
- 1987 to 1991: Ph.D in Applied Mathematics and Computer Science, Weizmann Institute of Science, Rehovot.

• **Academic Appointments**

- 2005–current: Incumbent of the Sondheimer Technion Academic Chair.
- 2004–current: Professor, Faculty of Industrial Engineering and Management, Technion.
- 1998 – 2004 : Associate Professor (with tenure), Faculty of Industrial Engineering and Management, Technion.
- 1999 – 2002: Visiting Associate Professor, Computer Science Department, Stanford University.
- 1995 – 1998 : Senior Lecturer, Faculty of Industrial Engineering and Management, Technion.

- 1993 – 1995 : Lecturer, Faculty of Industrial Engineering and Management, Technion.
- 1992 – 1993: Research Associate, Robotics Lab, Computer Science Department, Stanford University.
- 1991 – 1992: Post-doctoral research affiliate, Robotics Lab, Computer Science Department, Stanford University.

- **Industrial Experience**

- 2008-current: Principle Researcher, Microsoft Israel Israel Center (on sabbatical)
- 2006–current: Co-Founder, My6Sense, Herzlia, Israel (My6Sense provides a solution to the problem to information consumption in mobile phones, by providing a ranking of messages and information sources).
- 2000-2002: Co-Founder and Chief Scientist, Cariocas, California. (Cariocas provides a configurable promotions platform, introducing mechanisms that address issues ranging from product launch and promotional sales to brand engagement and loyalty building.)
- 2000- Strategic consultant for advanced market design, Ariba, California.
- 1999-2000: Strategic consultant for advanced market design, TradingDynamics (acquired by Ariba), California.
- 1993-1999: Consultant for product management and control, IDF, Israel.
- 1985–1991: Consultant for information systems for inventory management, IDF, Israel.
- 1985 – 1986: Systems analyst and project leader, Advanced Technology, Atidim, Tel-Aviv.
- 1978 – 1984: Project leader, software analyst, designer, and engineer in the Israeli’s army computer center.

- **Research Interests** Bridging the gap between economics/game theory and computer science/artificial intelligence; electronic market design; computational mechanism design; theories of coordination; learning in multi-agent systems; emergent behavior in multi-agent systems;

the foundations of decision theory; the axiomatic approach to ranking, trust, recommendation, reputation systems; foundations for computational advertisement and computational social networks.

- **Courses and academic programs and responsibilities**

- 2007–2008, Coordinator of graduate studies, Faculty of Industrial Engineering and Management, Technion.
- 2003-2005: Associate Dean of Research, Faculty of Industrial Engineering and Management, Technion
- 2002–2003: Head, Information Systems Engineering Program, Joint program of the CS and the IE and Management faculties, Technion
- 2002–2003: Head, Knowledge Engineering and Information Systems Program, Faculty of Industrial Engineering and Management, Technion
- 1998-1999: Head, Information Systems area, Faculty of Industrial Engineering and Management, Technion
- Introduced, prepared, and taught a variety of courses for IE and management students, and CS students, on the topics of systems analysis, decision making, artificial intelligence, and e-commerce.
- Led (with O. Etzion, and D. Dori) the development of the first graduate program in Information Systems at the Technion.
- Served as the head of the information systems area in the Technion, developing the undergraduate and graduate programs in information systems at the faculty of IE and management.
- Established a joint information systems/economics course (with D. Monderer) in the faculty of IE and management, bridging computer science and economic theory in the context of decision making.

- **Public Professional Activities**

- Editor-In-Chief, Journal of Artificial Intelligence Research, 2005–2007

- Associate Editor-In-Chief, Journal of Artificial Intelligence Research, 2003–2005
- Advisory board, Journal of Artificial Intelligence Research (starting January 2002).
- Associate Editor, Journal of Artificial Intelligence Research, 1999-2002
- Moderator for the Computing Research Repository on "Computer Science and Game Theory".
- Editorial Board, Games and Economic Behavior
- Editor for a special issue of Games and Economic Behavior devoted to EC-07, 2007 (with David Parkes).
- Guest Editor for a special issue of Games and Economic Behavior on Economics and Artificial Intelligence, 2001 (with Dov Monderer and Hal Varian).
- Editorial Board, AI Magazine (until 2008)
- Editorial Board, Journal of Machine Learning Research
- Editorial Board, International Journal of Autonomous Agents and Multi-Agent Systems
- Guest Editor, Special issue of Intelligent Information Systems on Information Technologies and Systems.
- Editorial Board, Journal of Artificial Intelligence Research (until 1999)
- Committee member, Israeli Science Foundations CS grants, 1998.
- Referee for a wide variety of journals in computer science, artificial intelligence and game theory.

- **Other public activities (partial list):**

- Program Co-Chair, the 11th ACM conference on Electronic Commerce (EC )
- Program Chair, the 9th conference on Theoretical Aspects of Rationality and Knowledge (TARK).

- Program Chair, the 2nd workshop on Next Generation Information Technologies and Systems.
- Organizer (with R. Muller, P. Krampton, E. Tardos), the Dagstuhl Seminar on "Computational Social Systems and the Internet", Germany, 2007.
- Consultant to the UK project on "Market-Based Control", 2008.
- Area Chair, IJCAI-2011.
- Senior Program Committee, AAI-2011
- Program Committee, TARK-2011.
- Program Committee, LOFT 2010.
- Senior Program Committee, IJCAI 2009
- Program Committee, the 13th National Conference (AAAI) on Artificial Intelligence
- Program Committee, the 14th National Conference (AAAI) on Artificial Intelligence
- Program Committee, The 6th conference on Theoretical Aspects of Reasoning about Knowledge.
- Program Committee, Learning and Adaptation in Multi-Agent Systems.
- Program Committee, The 4th international conference on Artificial Intelligence and Mathematics.
- Program Committee, the Symposium on Qualitative Decision Theory
- Program Committee, the 7th International Conference on Artificial Intelligence and Information-Control Systems of Robots
- Program Committee, Artificial Life VI, 1998
- Organizing Committee, the ECAI workshop on Artificial Intelligence and Decision Theory, 1998
- Program Committee, the 16th International Joint Conference on Artificial Intelligence (IJCAI99); responsible for the Distributed Artificial Intelligence area.

- Program Committee, the Bar-Ilan Symposium on Foundations of Artificial Intelligence (BISFAI-99), 1999
- Program Committee, the International Conference on Multi-Agent Systems (ICMAS-2000), 2000
- Program Committee, the 16th conference on Uncertainty in Artificial Intelligence (UAI), 2000
- Program Committee, Agents Learning, 2000
- Program Committee, Agents Learning, 2001
- Program Committee, the 18th National Conference (AAAI) on Artificial Intelligence, 2002
- Program Committee, the 18th conference on Uncertainty in Artificial Intelligence (UAI), 2002
- Program Committee, the 19th conference on Uncertainty in Artificial Intelligence (UAI), 2003
- Program Committee, ACM EC-03, 2003
- Program Committee, the 19th National Conference (AAAI) on Artificial Intelligence, 2004
- Program Committee, the 20th conference on Uncertainty in Artificial Intelligence (UAI), 2004
- Co-chair for a track on "Game Theory and AI", the Artificial Intelligence and Mathematics Conference (AI-Math), 2004
- Senior Program Committee, the 21st conference on Uncertainty in Artificial Intelligence (UAI), 2005
- Program Committee, the Artificial Intelligence and Mathematics Conference (AI-Math), 2006
- Program Committee, the 21st National Conference (AAAI) on Artificial Intelligence, 2006
- Program Committee, the 22nd conference on Uncertainty in Artificial Intelligence (UAI), 2006
- Program Committee, ACM EC-07, 2007

- **Honors**

- AAAI fellow, 2010.
- Honorable mention, the Kalai Prize for best paper in CS and game theory, for "Program Equilibrium".
- 2009 – AAMAS best paper award
- 1999 – Taub Award for research excellence
- 1996 – Gutwirth Fellowship.
- 1987 – 1991: Eshkol Fellowship.

- **Graduate Students**

- Noa Kfir, "Multi-Agent Belief Revision", MSc., 1996.
- Arnon Licht, "Distributed Problem Solving Using Multi-Stage Negotiation", MSc., 1996.
- Ori Ben-Yitzhak, "Applying a Social Model to the Motion Problem in Multi-Agent Environments", MSc., 1996.
- Michal Rimon, "Fair Resource Allocation for Rational Agents with Failures", MSc., 1998.
- David Fitoussi, "Choosing Social Laws for Multi-Agent Systems: Minimality and Simplicity", MSc. 1998,
- Ran Kestelman, "Optimal Organizational Structures for Problem Solving: Help Desks" (joint with Avishai Mandelbaum (primary advisor)), MSc., 2000.
- N. Kfir-Dahav, "Resource Bounded Mechanism Design" (primary advisor; joint with Dov Monderer), PhD, 2004.
- Itai Ashlagi, "The Value of Correlation in Strategic Form Games" (joint with Dov Monderer), MSc., 2005.
- Gal Bachar, "Information Elicitation in Multi-Agent Systems", MSc. 2007.
- Old Rozenfeld, "Strong Equilibrium in Congestion Games", MSc., 2007.
- Maria Polukarov. "Congestion Games with Failures" , PhD (joint with M. Penn), 2007.

- Alon Altman, "Ranking Systems", PhD, 2007.
- Itai Ashlagi, "Pre-Bayesian Games", PhD, (joint with D. Monderer), 2008.
- Avivit Boden-Bercovici, "Learning in ensembles of decision problems", MSc, 2007.
- Ola Rozenfeld, "Mediators", PhD (in progress).
- Danny Kuminov, "An agent-centric perspective on multi-agent systems", MSc., 2008.
- Roy Fox, "Reinforcement Learning in Costly Observable Markov Decision Processes", MSc., 2008.
- Andrey Klinger, "Stability against group deviations in non-cooperative computation", MSc., 2008.

- **Research Grants**

BSF, 2007 – current, Learning in Multi-Agent Systems (joint with Y. Shoham), \$17000/year.

ISF, 2006 – current, Ranking Systems, approximately \$35000/year.

GIF, 2006 – current, Generalized Congestion Games: Analysis, Computation, and Evolution (joint with Dov Monderer and Berthold Vocking), approximately 60000EURO/year.

AGENTLINK, EU-network of excellence, 2003–2005

ISF, 2003 – 2006 , Issues in protocol design for non-cooperative environments (joint with A. Ronen), approximately \$36000/year.

ISF, 2002–2006, Efficient Learning in Multi-Agent Systems (joint with R. Brafman), approximately \$30000/year.

DARPA Task project, 2000-2003 (joint with Y. Shoham and D. Koller, Stanford University), approximately \$220,000/year.

U.S. - Israel Binational Science Foundations, 1997–1999 (joint with Y. Shoham, Stanford University), approximately \$19,000/year.

Adapting Economic Models to the Internet (the Israeli Ministry of Science ; with Dov Monderer et. al.), 1997-1999, approximately \$110,000/year.

Hybrid Models for Industrial Plants, 1998–1999 (a joint France-Israel grant; with Amir Pnueli and Oded Maler), approximately \$20,000/year.

- **Theses:**

1. M.Sc. Thesis: On Computing and Counting in Interactive Proof Systems. Weizmann Institute of Science, Rehovot.
2. Ph.D. Thesis: Efficient Representation and Reasoning in Multi-Agent Systems. Weizmann Institute of Science, Rehovot.

• **Refereed Journal Papers:**

1. Safra, S. Tennenholtz, M., “On Planning while Learning”. *Journal of Artificial Intelligence Research, Volume 2, pages 111-129, 1994.*
2. Schaerf, A., Shoham, Y. and Tennenholtz, M., “Adaptive Load Balancing: A Study in Multi-Agent Learning”. *Journal of Artificial Intelligence Research, Volume 2, pages 475-500, 1994*
3. Shoham, Y. and Tennenholtz, M., “On Social Laws for Artificial Agent Societies: Off-Line Design”. *Artificial Intelligence, Volume 73, pages 231-252, 1995.*
4. Tennenholtz, M., “On Computational Social Laws for Dynamic Non-Homogeneous Social Structures”. *Journal of Experimental and Theoretical Artificial Intelligence, Volume 7, pages 379-390, 1995.*
5. Tennenholtz, M., “Goal Evaluation: Problems and Solutions”. *Information and Systems Engineering, Vol. 2(1), pages 121-131, 1995.*
6. Moses, Y. and Tennenholtz, M., “Artificial Social Systems”. *Computers and Artificial Intelligence, Volume 14, pages 533-562, 1995.*
7. Moses, Y. and Tennenholtz, M., “Multi-Entity Models”. *Machine Intelligence Volume 14, pages 63-88, 1995*
8. Brafman, R. and Tennenholtz, M., “On Partially Controlled Multi-Agent Systems”. *Journal of Artificial Intelligence Research, Volume 4, pages 477-507, 1996.*
9. Moses, Y. and Tennenholtz, M., “Off-Line Reasoning for On-Line Efficiency”. *Artificial Intelligence, Vol. 83, pages 229-239, 1996*
10. Tennenholtz, M., “Convention Evolution in Organizations and Markets”, *Computational and Mathematical Organization Theory, Volume 2 (4), pages 261-283, 1996.*
11. Tennenholtz, M., “On Planning while Executing in Stationary Environments”, *Journal of Experimental and Theoretical Artificial Intelligence, Volume 9, pages 37-50, 1997.*
12. Shoham, Y. and Tennenholtz, M., “On the Emergence of Social Conventions: Modelling, Analysis, and Simulations”, *Artificial Intelligence, Vol. 94, pages 139-166, 1997.*

13. Brafman, R. and Tennenholtz, M., “Modelling Agents as Qualitative Decision Makers”, *Artificial Intelligence, Volume 94*, pages 217–268, 1997.
14. Ben-Yitzhak, O. and Tennenholtz, M., “On the Automatic Synthesis of Social Laws for Mobile Robots: A Study in Artificial Social Systems (Part I)”. *Journal of Computers and Artificial Intelligence, Volume 16(4)*, pages 355–375, 1997.
15. Onn, S. and Tennenholtz, M., “Determination of Social Laws for Multi-Agent Mobilization”. *Artificial Intelligence, Volume 95(1)*, pages 155–167, 1997.
16. Ben-Yitzhak, O. and Tennenholtz, M., “On the Automatic Synthesis of Social Laws for Mobile Robots: A Study in Artificial Social Systems (Part II)”. *Journal of Computers and Artificial Intelligence, Volume 16(5)*, pages 445–463, 1997.
17. Monderer, D., and Tennenholtz, M., “Dynamic non Bayesian Decision Making”, *Journal of Artificial Intelligence Research, Volume 7*, pages 231–248, 1997.
18. Tennenholtz, M., “On Stable Social Laws and Qualitative Equilibria”, *Artificial Intelligence, Vol. 102*, 1998.
19. Tennenholtz, M., “On Social Constraints for Rational Agents”, *Computational Intelligence, Vol. 15 (4)*, 1999.
20. Monderer, D., and Tennenholtz, M., “Distributed Games”, *Games and Economic Behavior, Vol. 27*, pages 55–72, 1999.
21. Monderer, D., and Tennenholtz, M., “Dynamic Non-Bayesian Decision-Making in Multi-Agent Systems”, *Annals of Mathematics and Artificial Intelligence, Vol. 25*, pages 91–106, 1999.
22. Fitoussi, D., and Tennenholtz, M., “Choosing Social Laws for Multi-Agent Systems: Minimality and Simplicity”, *Artificial Intelligence, Vol. 119(1–2)*, pages 61–101, 2000.
23. Monderer, D., and Tennenholtz, M., “Optimal Auctions Revisited”, *Artificial Intelligence, Vol. 120(1)*, pages 29–42, 2000.
24. Brafman, R. and Tennenholtz, M., “A Near-Optimal Polynomial Time Algorithm for Learning in Certain Classes of Stochastic Games”, *Artificial Intelligence, Vol. 121 (1–2)*, pages 31–47, 2000

25. Monderer, D., and Tennenholtz, M., “K-Price Auctions”, *Games and Economic Behavior*, Vol. 31 , pages 220–244, 2000.
26. Brafman, R. and Tennenholtz, M., “An Axiomatic Treatment of Three Qualitative Decision Criteria”, *Journal of the ACM*, Vol. 47(3), 2000
27. Penn, M. and Tennenholtz, M., “Constrained Multi-Object Auctions”, *Information Processing Letters*, Vol. 75, pages 29–34, 2000.
28. Shoham, Y., and Tennenholtz, M., “On Rational Computability and Communication Complexity”, *Games and Economic Behavior*, Vol. 35, 197–211, 2001.
29. Tennenholtz, M., “Tractable Combinatorial Auctions and b-matching”, *Artificial Intelligence*, Vol. 140(1/2): 231-243, 2002.
30. Bergman, A., and Tennenholtz, M., “On the Natural Selection of Market Choice”, *International Journal of Autonomous Agents and Multi-Agent Systems*, Vol. 5(4), 387–395, 2002
31. Brafman, R., and Tennenholtz, M. “Competitive Safety Analysis: robust decision-making in multi-agent systems”, *Journal of Artificial Intelligence Research*, Volume 17, pages 363-378, 2002.
32. Brafman, R., and Tennenholtz, M. “R-max – A General Polynomial Time Algorithm for Near-Optimal Reinforcement Learning”, *Journal of Machine Learning Research*, Vol. 3,213–231, 2002.
33. Brafman, R., and Tennenholtz, M. “Learning to Coordinate Efficiently”, *Journal of Artificial Intelligence Research*, Vol. 19, pages 11-23, 2003.
34. Bergman, A., and Tennenholtz, M., “Episodic Learning: Towards the Emergence of Partial Cooperation”, *ComplexUs*, Vol. 1, 112–116, 2003.
35. Monderer, D., and Tennenholtz, M., “K-Implementation”, *Journal of Artificial Intelligence Research*, Vol 21, pages 37–62, 2004.
36. Holzman, R., Kfir-Dahav, N., Monderer, D., and Tennenholtz, M., “Bundling Equilibrium in Combinatorial Auctions”, *Games and Economic Behavior*. Vol. 47, pages 104–123, 2004.

37. Monderer, D., and Tennenholtz, M., “K-Price Auctions: revenue inequalities, utility equivalence, and competition in auction design”, *Economic Theory*, Vol. 24, pages 255-270, 2004.
38. Porter, R., Shoham, Y., and Tennenholtz, M., “Fair Imposition”, *Journal of Economic Theory*, Vol. 118(2), 209–228, 2004.
39. Brafman, R., and Tennenholtz, M. “Efficient Learning Equilibrium”, *Artificial Intelligence*, Vol. 59, 27–47, 2004.
40. Tennenholtz, M., “Program Equilibrium”, *Games and Economic Behavior*, Vol. 49, 363–373, 2004.
41. Shoham, Y., and Tennenholtz, M., “Non-Cooperative Computing: Boolean Functions with Completeness and Exclusivity ”, *Theoretical Computer Science*, Vol. 343, pages 97–113, 2005.
42. Feinberg, Y., and Tennenholtz, M. “Anonymous bidding and Revenue Maximization”, *The B.E. Journals in Theoretical Economics–Topics in Theoretical Economics*, Vol. 5(1), 2005.
43. Smorodinsky, R., and Tennenholtz, M., ”Overcoming Free Riding in Multi-Party Computations - The Anonymous Case”, *Games and Economic Behavior*, Volume 55(2), pages 385–406, 2006.
44. Altman, A., and Tennenholtz. M., ”Axiomatic Foundations for Ranking Systems”, *Journal of Artificial Intelligence Research*, Volume 31, pages 473-495, 2008.
45. Porter, R., Ronen, A., Shoham, Y., and Tennenholtz, M., Fault tolerant mechanism design, *Artificial Intelligence*, Volume 172, Issue 15, Pages 1783-1799, 2008.
46. Ashlagi, I., Monderer, D., and Tennenholtz, M., The Value of Correlation, *Journal of Artificial Intelligence Research*, Volume 33, pages 575-613, 2008.
47. Monderer, D., and Tennenholtz, M., Two-terminal routing games with unknown active players, *Artificial Intelligence*, Volume 173 , Issue 15, 1441-1455, 2009.
48. Dov Monderer, Moshe Tennenholtz: Strong mediated equilibrium. *Artif. Intell.* 173(1): 180-195, 2009.

49. Michal Penn, Maria Polukarov, and Moshe Tennenholtz, Taxed Congestion Games with Failures, *Annals of Artificial Intelligence and Mathematics*, 56(2): 133-151, 2009.
50. Michal Penn, Maria Polukarov, and Moshe Tennenholtz, Congestion Games with Load-Dependent Failures: Identical Resources, *Games and Economic Behavior*, 67(1): 156–173, 2009.
51. Michal Penn, Maria Polukarov, and Moshe Tennenholtz, Random Order Congestion Games, *Mathematics of Operations Research*, 34(3): 706-725, 2009.
52. Altman, A., and Tennenholtz, M., “An Axiomatic Approach to Personalized Ranking Systems”, *Journal of the ACM*, Vol. 57, No. 4, Article 26, 2010.
53. Noga Alon, Michal Feldman, Ariel D. Procaccia, and Moshe Tennenholtz, A Note on Competitive Diffusion Through Social Networks. In *Information Processing Letters* 110:221-225, Jan 2010.
54. Itai Ashlagi, Mark Braverman, Ron Lavi , Avinatan Hassidim, and Moshe Tennenholtz, Position Auctions with Budgets: Existence and Uniqueness, *The B.E. Journal of Theoretical Economics*, Vol. 10 : Iss. 1 (Advances), Article 20, 2010.
55. Michal Feldman and Moshe Tennenholtz, Adding Structure to Resource Selection Games, Accepted to ACM TIST, 2010.
56. Noga Alon, Michal Feldman, Ariel Procaccia and Moshe Tennenholtz, Strategyproof Approximation of the Minimax on Networks. *Mathematics of Operations Research* 35(3):513-526, 2010.
57. Noga Alon, Michal Feldman, Ariel Procaccia and Moshe Tennenholtz, Walking in circles, *Discrete Mathematics* 310(23):3432-3435, 2010.

- **Technical Reports**

1. Moses, Y., and Tennenholtz, M., “Artificial Social Systems Part I: Basic Principles”, Weizmann Institute, CS90-12, May 1990
2. Moses, Y., and Tennenholtz, M., “Barriers, Tools, and the Qualitative Complexity of Processes”. Weizmann Institute, Israel, 1991. A preliminary version appeared in BISFAI89

3. Moses, Y., and Tennenholtz, M., “Formal Aspects of Artificial Social Systems”, Weizmann Institute, CS91-01, 1991
4. Shoham, Y. and Tennenholtz, M., “Co-Learning and the Evolution of Social Activity”. Stanford University, STAN-CS-TR-94-1511, 1994
5. Brafman, R. and Tennenholtz, M., “Embedded Teaching of Reinforcement Learners”. Stanford University, STAN-CS-TR-95-1552, 1995

• **Invited Papers**

1. D. Monderer, M. Tennenholtz, and H. Varian, Game Theory and Artificial Intelligence, introduction to a special issue of Games and Economic Behavior, Vol. 35, 2001.
2. R. Aylet, K. Dautenhahn, J. Doran, M. Luck, S. Moss, and M. Tennenholtz, “Can models of agents be transformed between different areas?” In *Knowledge Engineering Review*, 1999.
3. K. Decker, M. Fisher, M. Luck, and M. Tennenholtz, “Continuing research in multi-agent systems”, In *Knowledge Engineering Review*,, 1999.
4. Tennenholtz, M., “Electronic Commerce: From Game-Theoretic and Economic Models to Working Protocols”, In the Proceedings of the International Joint Conference on Artificial Intelligence (IJ-CAI), 1999.
5. M. Tennenholtz, “Economics and Artificial Intelligence”, LNAI devoted to the best of UKMAS, 2002
6. D. Monderer, M. Tennenholtz, ”Learning Equilibrium as Learning to Optimize”, to appear in a special issue of Artificial Intelligence, 2007.
7. M. Tennenholtz, ”Game-theoretic recommendations: some progress in an uphill battle”, AAMAS-2008.

• **Patents**

1. P. La Mura, Y. Shoham, and M. Tennenholtz, Enhanced online game mechanisms, US Pat. 6676521

2. P. La Mura, Y. Shoham, and M. Tennenholtz, System and method for enhanced online transactions using shopping games, US Pat. 6565442
3. P. La Mura, Y. Shoham, and M. Tennenholtz, System and method for enhanced online transactions using shopping games – CIP, US Pat. 6468159
4. P. La Mura, Y. Shoham, and M. Tennenholtz, Enhanced auction mechanism for online transactions US Pat. 7058602

• **Plenary Talks**

1. AAMAS-2008, "Game-theoretic recommendations: some progress in an uphill battle", 2008.
2. COMPSOC-2008, "Computational Social Systems: An Axiomatic Approach to Ranking, Trust, and Recommendations Systems", 2008.
3. The Workshop on Optimization in Multi-Agent Systems, "Learning to Optimize: R-max and Learning Equilibrium", 2008.
4. Lunteren-2007, "Ranking Systems", Netherlands, 2007.
5. Lunteren-2007, "Pre-Bayesian Games", Netherlands, 2007.
6. The 7th Conference on Logic and the Foundations of Game and Decision Theory (LOFT 06), "Pre-Bayesian Games", Liverpool, UK, 2006.
7. The International Game Theory Conference, Stonybrook, July 2004.
8. The Snowbird Learning Conference, Utah, 2002, Title: "Efficient Reinforcement Learning in Hostile Environments".
9. Games-2000, Bilbao, 2000. Title: "Mechanism Design for Computational Settings".
10. The International Joint Conference on Artificial Intelligence (IJ-CAI), Stockholm, 1999. Title: "Electronic Commerce: from Game-Theoretic and Economic Mechanisms to Working Protocols".
11. The United-Kingdom Multi-Agent Systems Conference (UKMAS), Manchester, 1998. Title: "Economics and Artificial Intelligence".

12. Artificial Intelligence and Information Control Systems of Robots'97, Bratislava, 1997. Title: "The off-line design and on-line evolution of social laws."

- **Invited Talks**

1. Dagstuhl workshop on Markets and Computation, Dagstuhl, Germany, 2005.
2. The Stanford Institute of Theoretical Economics (SITE) conference, Stanford University, California, August 2004.
3. The "Economics and Complexity" workshop, Yale University, New Haven, 2003. Title: "Communication Efficiency vs. Economic Efficiency in the VCG Mechanisms".
4. The Stanford Institute of Theoretical Economics (SITE) conference, Stanford University, California, 2002. Title: "Bundling Equilibrium in Combinatorial Auctions".
5. The Americas School on Agents and Multi-Agent Systems, Los Angeles, California, Title: "Introduction to Game Theory and Auctions", 2002.
6. The North American Summer School in Logic, Language, and Information (NASSLLI), Stanford, California. Title: "Introduction to Mechanism Design", 2002.
7. The Micro Economics Conference, Kellogg, Northwestern University, 1999. Title: "Electronic Commerce: from Game-Theoretic and Economic Mechanisms to Working Protocols".
8. The national seminar on Artificial Intelligence, Israel, 1998. Title: "Economics and Artificial Intelligence."
9. The AAAI symposium on qualitative decision theory, Stanford, 1997. Title: "Foundations for qualitative decision theory."

- **Papers in Refereed Conference Proceedings:**

1. Feige, U., Shamir, A., and Tennenholtz, M., "The Noisy Oracle Problem". *Proceedings of Crypto*, 1988.

2. Moses, Y. and Tennenholtz, M., “On Cooperation in a Multi-Entity Model”. *Proceedings of the 11th International Joint Conference on Artificial Intelligence (IJCAI)*, 1989.
3. Moses, Y. and Tennenholtz, M., “Cooperation in Uncertain Territory Using a Multi-Entity Model”. *Artificial Intelligence and Computer Vision, Elsevier Science Publishers*, 1991.
4. Shoham, Y. Tennenholtz, M., “Emergent Conventions in Multi-Agent Systems: initial experimental results and observations”. *Proceedings of the 3rd International Conference on Principles of Knowledge Representation and Reasoning (KR)*, 1992.
5. Shoham, Y. Tennenholtz, M., “On the Synthesis of Useful Social Laws for Artificial Agent Societies”. *Proceedings of the 10th National Conference on AI (AAAI)*, 1992.
6. Shoham, Y. Tennenholtz, M., “On Traffic Laws for Mobile Robots”. *Proceedings of the 1st International Conference on AI Planning Systems (AIPS)*, 1992.
7. Moses, Y. and Tennenholtz, M., “On Computational Aspects of Artificial Social Systems”. *Proceedings of DAI-92*.
8. Moses, Y. and Tennenholtz, M., “Off-Line vs. On-Line in Artificial Systems”. *Proceedings of the 13th International Joint Conference on Artificial Intelligence (IJCAI)*, 1993.
9. Brafman, R. and Tennenholtz, M., “Belief Ascription and Mental-Level Modeling”. *Proceedings of the 4th International Conference on Principles of Knowledge Representation and Reasoning (KR)*, 1994.
10. Brafman, R. and Tennenholtz, M., “Modeling at The Mental-Level – Some ideas and some challenges”. *Proceedings of the AAAI spring symposium*, 1995.
11. Brafman, R. and Tennenholtz, M., “Towards Action Prediction Using a Mental-Level Model”. *Proceedings of the 14th International Joint Conference on Artificial Intelligence (IJCAI)*, 1995.
12. Brafman, R. and Tennenholtz, M., “Embedded Teaching of Reinforcement Learners”. *Proceedings of the ML95 workshop on Agents that Learn from Other Agents*, 1995.

13. Kfir-Dahav, N. and Tennenholtz, M., “Multi-Agent Belief Revision”, *Proceedings of the 6th Conference on Theoretical Aspects of Knowledge and Rationality, 1996*
14. Brafman, R. and Tennenholtz, M., “On the Foundations of Qualitative Decision Theory”. *Proceedings of the 13th national conference on artificial intelligence (AAAI-96)*, 1996.
15. Tennenholtz, M., “On Stable Social Laws and Qualitative Equilibrium for Risk-Averse Agents”. *Proceedings of the 5th conference on principles of knowledge representation and reasoning (KR-96)*, 1996.
16. Brafman, R. and Tennenholtz, M., “Axiom Systems for Qualitative Decision Criteria”. *Proceedings of the AAAI Symposium on Qualitative Decision Theory, March 1997*.
17. Brafman, R. and Tennenholtz, M., “On the Axiomatization of Qualitative Decision Criteria”. *Proceedings of the 14th national conference on artificial intelligence (AAAI-97)*, 1997.
18. Tennenholtz, M., “The Off-line Design and On-Line Evolution of Social Laws”, *Proceedings of the 7th international conference on artificial intelligence and information-control systems of robots (AIICSR-97)*, 1997.
19. Tennenholtz, M., “On Stable Multi-Agent Behavior in Face of Uncertainty”, *Proceedings of the 13th conference on uncertainty in artificial intelligence (UAI-97)*, 1997.
20. Monderer, D., and Tennenholtz, M., “Optimal Auctions Revisited”, *Proceedings of the 15th national conference on artificial intelligence (AAAI-98)*, 1998.
21. Fitoussi, D., and Tennenholtz, M., “Minimal Social Laws”, *Proceedings of the 15th national conference on artificial intelligence (AAAI-98)*, 1998.
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