

ZINOVI RABINOVICH, PH.D.

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SHORT BIO

Zinovi Rabinovich is currently a Senior Algorithms Engineer at Mobileye Vision Technologies Ltd. His industrial work is successfully combined with academic research. In 2015 he has published 10 Conference and Workshop articles, and 5 articles have appeared in 2016 thus far. These articles highlight two key directions of his current research agenda: social behaviour analysis; and choice manipulation. The latter, applied to Security Games via strategic information disclosure, was published in several seed papers in 2015. It has since gathered an independent following. The academic record of Dr. Rabinovich also includes two post-doctoral appointments (2007-2010 at the University of Southampton; and 2010-2011 at the Bar-Ilan University), and a PhD from the Hebrew University of Jerusalem (2008). His teaching experience and skill was also developed at the Hebrew University of Jerusalem, where he has taught, in various capacities, multiple subjects across the Computer Science discipline.

EDUCATION

- **Ph.D.** in Computer Science, Hebrew University of Jerusalem, Israel, 2008.
Thesis: “*Dynamics Based Control and Continual Planning*”, supervised by Prof. Jeffrey S. Rosenschein.
- **M.Sc.** in Computer Science, Hebrew University of Jerusalem, Israel, 2002.
Thesis: “*Inapproximability of Decentralized Control*”, supervised by Prof. Jeffrey S. Rosenschein.
- **B.Sc.** in Computer Science and Mathematics, Hebrew University of Jerusalem, Israel, 1998.

QUALIFICATIONS

- PhD in Computer Sciences with specialisation in Artificial Intelligence.
- Over 15 years experience in theoretical and applied AI research.
- Citation indices (Google Scholar): 289 citations, h-index of 10
- Over 7 years of teaching and supervision experience
- Expertise in inter-disciplinary knowledge integration towards innovation.
- Experience in human user studies and human behaviour integration.
- Proven group administration and research management skills, adaptable to changing priorities and pressure.
- Industrial Research and Development experience: from theoretical development to an operational product
- Extensive experience in international collaborations
- Fluent in several human languages: English, Hebrew and Russian.

RESEARCH AND DEVELOPMENT EXPERIENCE

Information as a strategic resource and means of control

- Established information disclosure as a means to increased security
- Created models of open manipulation of adaptive and learning algorithms

Formal interaction modelling and solutions

- Described implicit manipulation of voting procedures
- Developed teaching methods by implicit modification of a learner’s environment
- Engineered computational methods for equilibria computation

Human behaviour modelling and exploitation

- Formulated models of human response to open manipulation
- Developed methods for persuasive advice provision to humans

Advanced control algorithm designs

- A fault-tolerant controller scheme for continuous and discrete environments
- A multi-tasking controller with adjustable task coordination
- A family of teamwork oriented controllers
- A fully distributed emergent behaviour controller

Guidance and control based on visual cues

- Visual features detection, e.g. road surface markings, human body, etc
- (re)Construction of high level driver guidance

RESEARCH INTERESTS: INTERACTION (DYNAMICS) CONTROL

- Manipulative and strategic interactions, inclusive of machine-human interactions
- Control and planning in multi-agent and robotic systems

EMPLOYMENT HISTORY

Senior Algorithms Engineer, MobilEye Vision Technologies Ltd., Israel **August 2012-present**

Algorithms Developer, MobilEye Vision Technologies Ltd., Israel **April 2012-July 2012**

- Guidance and control based on visual cues
- Large scale visual (weekly structured) features detection
- Development and deployment of Deep Neural Network (DNN) based solutions
- Hybrid algorithmic solutions
- Client support in matching algorithmic and regulation system requirements

Postdoctoral Researcher, Department of Computer Science, Bar-Ilan University, Israel **2010-2011**

- Formal open manipulation and persuasion method by information disclosure and/or direct advice of action
- Modelling techniques of human response to a manipulative companion
- Augmentation of formal persuasion methods and application to human subjects
- Interfacing the technology with the industrial partner (GM Advanced Research Centre)
- Publication of non-copyrighted material

Research Fellow, “Market Based Control” project, ECS, University of Southampton, United Kingdom .. **2007-2010**

- Computational methods for complex equilibria with application to auction analysis
- Development of a novel formal teacher-learner framework
- Development of fault-tolerant control methods
- Publication of research outcomes

Manager of the Assistant Teaching Staff, Hebrew University of Jerusalem, Isreal **2006–2007**

- Efficient support staff administration
- Coordination of multiple course delivery strands
- Support of the web-based learning and the on-line student community

Teacher, Hebrew University of Jerusalem, Isreal **2005–2006**

- Re-design of an “Artificial Intelligence” course curriculum
- Design and delivery of lecture series

Teaching Assistant, Hebrew University of Jerusalem, Isreal **1999–2005**

PUBLIC AND PROFESSIONAL SERVICE

- Advisory Committee Member, AAMAS Workshop on Multiagent Sequential Decision Making Under Uncertainty (MSDM), 2014-2015
- Co-Organiser of Conference Tutorials

- “Decision Making in Multiagent Settings” Tutorial, AAMAS’08-’14
- “Voting and Candidacy Games” Tutorial AAMAS’15
- Senior Program Committee Member
 - International Joint Conference on Artificial Intelligence (IJCAI) 2016
 - **Endorsed** by peers for performance
- Program Committee Member
 - Conferences
 - Autonomous Agents and Multiagent Systems (AAMAS) Conference Series 2006-2008, 2012- 2016
 - Association for the Advancement of Artificial Intelligence Conference (AAAI) 2015, 2016
 - Mexican International Conference on Artificial Intelligence 2011
 - IEEE International Conference on Systems, Man, and Cybernetics 2013
 - Workshops
 - Modelling Others from Observations (MOO) Workshop 2004
 - Multiagent Sequential Decision Making (MSDM) Workshop 2006-2015
 - International Workshop on Optimisation in Multi-Agent Systems (OptMAS) 2008
 - Agent-Mediated Electronic Commerce (AMEC) Workshop 2011, 2012, 2014
- Reviewer
 - Conferences
 - International Joint Conference on Artificial Intelligence (IJCAI) for years 2005-2015
 - Association for the Advancement of Artificial Intelligence Conference (AAAI) (formerly the American Association for Artificial Intelligence) 2005, 2006, 2010, 2011, 2014
 - Journals
 - Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS)
 - Artificial Intelligence Journal
 - Transactions on Autonomous and Adaptive Systems
 - Computational Intelligence Journal
 - Robotics and Autonomous Systems Journal
 - Annals of Operations Research
 - Workshops
 - Interactive Decision Theory and Game Theory (IDTGT) Workshop 2011
 - Agents and Data Mining Interaction (ADMI) Workshop 2012

RESEARCH GRANTS: PARTICIPATION IN GRANT PROPOSAL WRITING

- “Autonomous Agent Control and Coordination: A Discrete Stochastic Approach using System Dynamics”, along with Prof. J. S. Rosenschein of the Hebrew University of Jerusalem. The proposal was **granted** 4-year funding by the Israel Science Foundation from 2005 to 2009.

RESEARCH SCHOLARSHIPS AND HONOURS

- Research Scholarship from the Leibniz Center for Research in Computer Science, 2002