Ariel Rosenfeld

Curriculum Vitae

Bar-Ilan University
Information Science Department
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Ramat-Gan, Israel
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Research Interests	Artificial Intelligence; Human-Agent Interaction; Machine Learning; Scientometrics.
Education	Ph.D. Computer Science, 2017, Bar-Ilan University, Israel.

IFAAMAS Victor Lesser Distinguished Dissertation Award.

Bar-Ilan University, Israel. Advisor: Professor Sarit Kraus.

B.Sc., Computer Science and Economics *(Magna Cum Laude)*, 2013, Tel-Aviv University, Israel.

Academic Experience

2018 – Today; **Assistant Professor** at Bar-Ilan University, Israel.

2017-2018; **Post-Doctoral Researcher** at Weizmann Institute of Science, Israel.

Hosted by Prof. David Harel.

September-October 2016; **Visiting Researcher** at Carnegie Mellon University (CMU), PA, USA.

Hosted by Prof. Manuela Veloso.

Teaching Experience

2018 – Today; **Lecturer** – Math 1, Electronic Commerce, Decision-Making, Information Retrieval, Big Data, Adv. Programing.
2013 – 2018; **Lecturer and Teaching Assistant** - Introduction to Artificial Intelligence, Algorithms 2.
2016 - 2018; **Lecturer** - Projects Lab, Computational Models.

Bar-Ilan University (Ramat-Gan, Israel).

2018 – 2019; **Lecturer -** Introduction to Information Systems.

Tel-Aviv University (Tel-Aviv, Israel).

2016 – 2017; **Lecturer** - Electronic Commerce.

Ben-Gurion University (Beer-Sheva, Israel).

2016; **Lecturer** – Data Structures and Algorithms 2.

College of Management (Rishon-Lezion, Israel).

2010 – 2016; **Lecturer and Teaching Assistant** - Introduction to Artificial Intelligence, Introduction to Algorithms, Linear Algebra, Discrete Math and Data Structures.

Center of Academic Studies (Or-Yehuda, Israel).

2011-2012; **Grader** - Logic.

Tel-Aviv University (Tel-Aviv, Israel).

2010-2013; **Teacher** - Mathematical and creative thinking.

Dr. Erika Landau Institute for gifted children (Tel-Aviv, Israel).

Professional Activities	**Treasurer of the Israeli Association of Artificial Intelligence (IAAI) 2019-current.**

PC Member/Reviewer

Artificial Intelligence Journal 2020.

ECAI 2020.

ACM Transactions on Knowledge and Data Engineering, 2019.

Multi-Robot and Multi-Agent Systems (MRS) 2019 (Area Chair).

Explainable AI (XAI) 2019.

AAMAS 2019.

AAAI 2019.

KI - Künstliche Intelligenz 2018.

JAAMAS 2018.

JAIR 2018-2019.

AAAI 2018 (SPC).

EAAI 2017.

IROS 2017.

ICRA 2017.

IJCAI 2016 – 2020.

IJCAI Video Competition 2017-2018 (senior reviewer).

PAIR workshop 2017-2019.

TAFA workshop 2017.

ArgMAS special issue on Argument & Computation 2016.

ARG-MINING workshop 2015-2019.

IEEE transaction on cybernetics 2015.

Co-organizer of the First International Workshop on Computational Argument and Cognition, Larnaca, Cyprus, November 2017.
Students Activity Chair at Bar-Ilan Symposium on the Foundations of Artificial Intelligence (BISFAI) 2017.
Co-organizer of the Human-Aware Computational Argumentation workshop, Lorentz Center, Holland, May 2018.
Program co-Chair of the annual symposium of the Israeli Association for Artificial Intelligence (IAAI), May 2018.
Co-organizer of the annual symposium of the Israeli Association for Artificial Intelligence (IAAI), July 2020.

Grants	2018-2020 Misinformation detection in healthcare domain, *Israel-Slovakia Scientific Research Cooperation*, 200,000 Euro (joint with

Prof. Sarit Kraus).

2019-2022 Identifying Markers of Antidepressant response: Advancing Precision Treatment of Depression. *ERA PERMED,* 716,456 Euro (total for consortium), 540,000 NIS (Israeli part, funded by Israeli Ministry of Health).   Sole Israeli PI.

2019 – Can We Reach Zero? A Prediction Model for Preventing 'Never Events' in Operating Rooms in Israel, *Israeli Ministry of Health*, 150,000 NIS (joint with Prof. Racheli Magnezi)

Honors and Scholarships	**IFAAMAS Victor Lesser Distinguished Dissertation Award 2017.**
	The **Koshland Prize** 2018 for Academic Excellence and Scientific Achievements (Weizmann Institute of Science).
	Best Paper Award, The Fifteenth Adaptive Learning Agents Workshop at AAMAS 2017 *(Speeding up Tabular Reinforcement Learning Using State-Action Similarities by Ariel Rosenfeld, Matthew E. Taylor and Sarit Kraus).*
	"**Best Lecturer**" Award for Excellence in Teaching 2017 (Bar-Ilan University).
	The **Rector's Award for Academic Excellence** 2016 (Bar-Ilan University).
	The **Aharon and Efraim Katzir Scholarship** 2015 (Israeli Academy of Sciences and Humanities – The Rothschild foundation).
	Best Robotics Video Award, IJCAI 2015 *(Intelligent Agent Supporting Human-Multi-Robot Team Collaboration).*
	Several Travel Grants.
	The School of Economics **Memorial Scholarship for Excellence in Studies**, 2013 (Tel-Aviv University).
	The Computer Science Department **Award for Excellence in Studies** 2013 (Tel-Aviv University).
	Two Dean Awards for Excellence in Studies 2012, 2013 (Tel-Aviv University).
Deployed Systems	Intelligent traffic police allocation and routing system, deployed in one of Israel's largest precincts since end of 2018 (following publications [19,21]).
	Improved medical internship lottery system, deployed by the Israeli ministry of health since 2019 (following [13]).
	Aifred Health -- **IBM Watson AI XPrize** team (following [2])
Military Service	1st year - Infantry combatant in battalion 931 (transferred due to a leg injury caused by the intense service).
	2nd and 3rd year - Platoon commander and instructor at the IDF School of Computer Professions (BSMCH).

Publications

Books:

1. *Ariel Rosenfeld* and Sarit Kraus. Predicting Human Decision-Making: From Prediction to Action, 2018, Morgan and Claypool Publishers.

   https://sites.google.com/view/predicting-human-dm

Book Chapters:

2. David Benrimoh, Sonia Israel, Kelly Perlman, Nykan Mirchi, *Ariel Rosenfeld*, Sabrina Knappe, Jason Behrmann, Colleen Rollins and Raymond Penh You. Aifred Health, a Deep Learning Powered Clinical Decision Support System for Mental Health. *The NIPS'17 Competition: Building Intelligent Systems.* Springer, 2018. 251-287.

3. *Ariel Rosenfeld*, David Benrimoh, Caitrin Armstrong, Nykan Mirchi, Timothe Langlois-Therrien, Colleen Rollins, Myriam Tanguay-Sela, Joseph Mehltretter, Robert Fratila, Sonia Israel, Emily Snook, Kelly Perlman, Akiva Kleinerman*, Bechara Saab, Mark Thoburn, Cheryl Gabbay and Amit Yaniv-Rosenfeld*. Big Data Analytics and AI in Mental Healthcare (in editing). *Big Data Analytics in Healtchare.* Springer, 2020 (in print).

Journal papers:

4. Amos Azaria, *Ariel Rosenfeld*, Sarit Kraus, Claudia V. Goldman and Omer Tsimhoni. Advice Provision for Energy Saving in Automobile Climate Control Systems, *AI Magazine* 2015.

5. *Ariel Rosenfeld* and Sarit Kraus. Providing Arguments in Discussions on the Basis of the Prediction of Human Argumentative Behavior, *ACM Transactions on Interactive Intelligent Systems (TiiS)*, 2016.

6. *Ariel Rosenfeld*, Noa Agmon, Oleg Maksimov* and Sarit Kraus. Intelligent Agent Supporting Human-Multi-Robot Team Collaboration, *Artificial Intelligence*, 2017.

7. *Ariel Rosenfeld*, Moshe Cohen*, Matthew E. Taylor and Sarit Kraus. Leveraging Human Knowledge in Tabular Reinforcement Learning: A Study of Human Subjects, *Knowledge Engineering Review*, 2018.

8. *Ariel Rosenfeld*. Are Drivers Ready for Traffic Enforcement Drones?, *Accident Analysis and Prevention*, 2019.

9. *Ariel Rosenfeld* and Oleg Maksimov. Optimal Cruiser-Drone Traffic Enforcement Under Energy Limitation, *Artificial Intelligence*, 2019.

10. *Ariel Rosenfeld*, Moshe Cohen*, Sarit Kraus and Joseph Keshet. Online Prediction of Time Series with Assumed Behavior, *Engineering Applications of Artificial Intelligence*, 2020.

11. Akiva Kleinerman*, *Ariel Rosenfeld*, Sarit Kraus and Francesco Ricci. Supporting Users in Finding Successful Matches in Reciprocal Recommender

Systems (Accepted under revision to User Modeling and User-Adapted Interaction).

12. Hanan Rosemarin*, _Ariel Rosenfeld,_ Sarit Kraus, Steven Lapp*. Online Learning-Based Scheduling of Patients to Medical Professionals (under review for ACM Transactions on Computing for Health Care).

13. _Ariel Rosenfeld_ and Avinatan Hassidim. Too Smart for Their Own Good: Trading Trufulness for Efficiency in the Israeli Medical Internship Market (Accepted under revision to Judgment and Decision Making).

14. _Ariel Rosenfeld_, Oleg Maksimov and Sarit Kraus. When Security Games Hit Traffic: A Deployed Optimal Traffic Enforcement System (under review for AIJ).

Papers in highly refereed conferences:

15. _Ariel Rosenfeld_ and Sarit Kraus. Providing Arguments in Discussions Based on the Prediction of Human Argumentative Behavior, AAAI 2015 [26% acceptance rate].

16. _Ariel Rosenfeld_, Amos Azaria, Sarit Kraus, Claudia V. Goldman and Omer Tsimhoni. Adaptive Advice in Automobile Climate Control Systems, AAMAS 2015 [25% acceptance rate] (also presented in AAAI workshop WAIT-2015).

17. _Ariel Rosenfeld_, Noa Agmon, Oleg Maksimov*, Amos Azaria and Sarit Kraus. Intelligent Agent Supporting Human-Multi-Robot Team Collaboration, IJCAI 2015 [28% acceptance rate], (also presented in AAMAS workshop ARMS 2015 & BISFAI 2015). _Best Robotics Video Award._ _https://www.youtube.com/watch?v=mSh67zb0Zm4_

18. _Ariel Rosenfeld_ and Sarit Kraus. Strategical Argumentative Agent for Human Persuasion, ECAI 2016 [27% acceptance rate].

19. _Ariel Rosenfeld_, Joseph Keshet, Claudia Goldman and Sarit Kraus. Online Prediction of Exponential Decay Time Series with Human-Agent Application, ECAI 2016 [27% acceptance rate].

20. _Ariel Rosenfeld_, Matthew E. Taylor and Sarit Kraus. Speeding up Tabular Reinforcement Learning Using State-Action Similarities (_Extended Abstract_), AAMAS 2017 [26% acceptance rate, additional 22% for extended abstracts]. _Best Paper Award_ for the extended version at the Fifteenth Adaptive Learning Agents workshop at AAMAS 2017 [40% acceptance rate].

21. _Ariel Rosenfeld_, Oleg Maksimov and Sarit Kraus. When Security Games Hit Traffic: Optimal Traffic Enforcement under One Sided Uncertainty, IJCAI 2017 [25% acceptance rate], (also presented in AAMAS workshop ADVERSE 2017 and BISFAI 2017).

22. _Ariel Rosenfeld_, Matthew E. Taylor and Sarit Kraus. Leveraging Human Knowledge in Tabular Reinforcement Learning: A Study of Human Subjects, IJCAI 2017 [25% acceptance rate].

23. *Ariel Rosenfeld*, Oleg Maksimov and Sarit Kraus. Optimizing Traffic Enforcement: From the Lab to the Roads, GameSec 2017 [40% acceptance rate].

24. *Ariel Rosenfeld*, Odaya Kardashov*, Orel Zang*. ACAT: A Novel Machine-Learning-Based Tool for Automating Android Application Testing (*Demonstration Paper*), HVC 2017 [34% acceptance rate].

25. *Ariel Rosenfeld*, Odaya Kardashov*, Orel Zang*. Automation of Android Applications Testing Using Machine Learning Activities Classification, MobileSoft 2018 [36% acceptance rate].

26. *Ariel Rosenfeld*, Oleg Maksimov and Sarit Kraus. Optimal Cruiser-Drone Traffic Enforcement Under Energy Limitation, IJCAI 2018 [20% acceptance rate].

27. Akiva Kleinerman*, *Ariel Rosenfeld* and Sarit Kraus. Providing Explanations for Automated Advice in Reciprocal Environments, RecSys 2018 [17.7% acceptance rate].

28. Akiva Kleinerman*, *Ariel Rosenfeld*, Francesco Ricci and Sarit Kraus. Optimizing Interactions in Reciprocal Recommender Systems, RecSys 2018 [17.7% acceptance rate].

29. Hannan Rosemarin*, *Ariel Rosenfeld* and Sarit Kraus. Emergency Department Online Patient-Caregiver Scheduling, AAAI 2019 [16% acceptance rate].

30. David Harel, Assaf Maron, *Ariel Rosenfeld*, Moshe Vardi and Gera Weiss^. Labor Division with Movable Walls: Composing Executable Specifications with Machine Learning and Search, AAAI 2019 (Blue Sky Track), [16% acceptance rate].

31. *Ariel Rosenfeld*. Human-Agent Interaction for Human Space Exploration, UMAP 2019 [25% acceptance rate].

32. Hannan Rosemarin*, *Ariel Rosenfeld*. Playing Chess at a Desired Human Level and Style, HAI 2019 [34% acceptance rate].

Under Review\Working Papers

1. Hannan Rosemarin*, *Ariel Rosenfeld*. Playing Chess and Hex at a Desired Human Level and Style (working journal paper).

2. *Ariel Rosenfeld*, Amit Yaniv-Rosenfeld* and David Benrimoh. Artificial Intelligence in Mental Healthcare: Physicians Views (working journal paper)

3. Noam Hazon, *Ariel Rosenfeld* and Nimrod Talmon. Justified Representation for Perpetual Voting (working journal paper).

4. *Ariel Rosenfeld* and Nimrod Talmon. Participatory Budgeting: What Should We Optimize? (working journal paper).

5. *Ariel Rosenfeld*. Predicting Strategical Decisions under Emotional Stimuli (working paper)

Papers in refereed workshops and seminars:

6. *Ariel Rosenfeld* and Sarit Kraus. Argumentation Theory in the Field - An Empirical Study of Fundamental Notions. In Proceedings of the Frontiers and Connections between Argumentation Theory and Natural Language Processing Seminar (ArgNLP-14), Bertinoro, Italy, July 2014.

7. *Ariel Rosenfeld*. Automated Agents for Advice Provision, IJCAI Doctoral Consortium 2015.

8. *Ariel Rosenfeld*. Strategical Argumentative Agent for Human Persuasion: A Preliminary Report, Dagstuhl Seminar 16161, Germany, April 2016.

9. *Ariel Rosenfeld*. Human-Multi-Robot Team Collaboration using Advising Agents, AAMAS Doctoral Mentoring Program 2016.

10. *Ariel Rosenfeld*, Oleg Maksimov, Sarit Kraus and Noa Agmon. Human-Multi-Robot Team Collaboration for Efficient Warehouse Operation, AAMAS workshop on Autonomous Robots and Multi-Robot System 2016.

11. Federico Cerutti, Alexis Palmer, *Ariel Rosenfeld*, Jan Snajder and Francesca Toni. A Pilot Study in Using Argumentation Frameworks for Online Debates, COMMA workshop on Systems and Algorithms for Formal Argumentation (SAFA) 2016.

12. Noa Agmon, Oleg Maksimov, *Ariel Rosenfeld*, Shai Shlomai and Sarit Kraus. Multiple Robots for Multiple Missions: Architecture for Complex Collaboration, IJCAI 2017 workshop on Architectures for Generality & Autonomy.

13. Emmanuel Hadoux, *Ariel Rosenfeld* and Jean-Baptiste Corrégé. From Psychological Persuasion to Abstract Argumentation: A Step Forward, Computational Models of Natural Argument (CMNA) 2018.

Invited Talks/Tutorials

- Research Overview:

  1. AAMAS-18 Dissertation Award Recipient **Plenary Talk** (1-hour), Stockholm, Sweden, July 2018.

- *Predicting Human Decision-Making: Tools of the Trade (Following book [1])*

Webpage: https://sites.google.com/view/predicting-human-dm

  2. Special Workshop on Constrained Search by Multi-Agents. Ben-Gurion University, Israel, December 2016.
  3. AAAI-17 Tutorial (4hrs) – San-Francisco, CA, USA, February 2017.
  4. The 19th European Agent Systems Summer School (EASSS) Tutorial (4hrs) – Gdansk, Poland, August 2017.
  5. The 3rd Workshop on Conflict Resolution in Decision Making (COREDEMA), in conjunction with IJCAI-17, Melbourne, Australia, August 2017.
  6. The 20th European Agent Systems Summer School (EASSS) Tutorial (4hrs) – Maastricht, Netherlands, June 2018.
  7. IJCAI-18 Tutorial (4hrs) – Stockholm, Sweden, July 2018.

8. The 3rd International Workshop on Decision Making and Recommender Systems, Bozen-Bolzano, Italy, November 2018.
9. The 1st International 'Alan Turing' Conference on Decision Support and Recommender Systems, London, UK, November 2019.

- *Artificial Intelligence and Traffic Enforcement*

10. Data Science for Government and Environment Conference, Bar-Ilan University, October 2018,
11. Israeli Parliament (the "Knesset") Special Session, Jerusalem, Israel, November 2018.

- *The Prediction of Human Argumentative Behavior*

12. The Frontiers and Connections between Argumentation Theory and Natural Language Processing Seminar, Bertinoro, Italy, July 2014.
13. The Israeli Association of Artificial Intelligence (IAAI) Annual Meeting, Ariel University, Israel, October 2015.
14. IBM research lab seminar, Tel-Aviv, Israel, March 2015. Hosted by Dr. Eyal Shnarch.

- *Strategical Argumentative Agents for Human Persuasion*

15. Dagstuhl Seminar 16161- Natural Language Argumentation: Mining, Processing, and Reasoning over Textual Arguments, Dagstuhl, Germany, April 2016.

- *Intelligent Agents Supporting Human-Multi-Robot Team Collaboration*

16. CORAL lab seminar, Carnegie Mellon University (CMU), PA, USA, September 2016. Hosted by Prof. Manuela Veloso.

- *Introduction to Artificial Intelligence*

17. Bar-Ilan's Teen Hackathon, Bar-Ilan University, February 2017.
18. Bar-Ilan's Smart Campus Symposium, Bar-Ilan University, March 2018.

Invitations

1. Invited participant to The Frontiers and Connections between Argumentation Theory and Natural Language Processing Seminar (ArgNLP-14), Bertinoro, Italy, July 2014.

2. Invited participant to Dagstuhl Seminar 16161- Natural Language Argumentation: Mining, Processing, and Reasoning over Textual Arguments, Dagstuhl, Germany, April 2016.

3. Invited presentation at IUI Conference 2017, Limassol, Cyprus, March 2017.

4. Invited participant to the 3rd International Workshop on Decision Making and Recommender Systems, Bozen-Bolzano, Italy, November 2018.

Advising

- ❖ PhD Students

1. Akiva Kleinerman (current)

Interpretability in Multi-User Environments

2. Dana Arad (current)

Predicting never events in operating rooms

3. Guy Kern (current)

4. Shir Aviv (current)

Understanding Authors Perception and Computational Measures of Scholarly Venues: a Mixed Methods Approach

❖ Master Students

1. Akiva Kleinerman, MSc, 2018 (with distinction)

The Effects of Transparency in Reciprocal Recommender Systems

2. Moshe Cohen, MSc, 2018

Human Aspects in Speeding up Reinforcement Learning

3. Zvi Lapp, MSc, 2019

Optimizing Medical Imaging Exposure in Radiologist Worklist

4. Albert Ahronian, MSc, 2019

Learning Algorithms for Understanding Intentions in Autonomous Cars

5. Nitzan Haimovich, MA (Current)

Behavioral Chatbots

6. Ofir Rocach, MA (Current)

❖ Participation in Thesis Committees

○ Mirav Alush, Assisting Children with Special Needs in Their Daily Interaction with Other People, PhD (Computer Science), Ariel University, 2019.

○ 3 MA Committees (Information Science, Management) – Bar Ilan University.

❖ Misc.

5 Master Graduation Projects (without a thesis), Bar-Ilan University.

Over 30 Bachelor Graduation Projects, Bar-Ilan University.

- Two of which won the Rector's Undergraduate Research Award

1 Bachelor Graduation Project (Excellence Program), College of Management.