

Shai VARDI

ASSISTANT PROFESSOR

Management

Purdue University

610 Purdue Mall, West Lafayette IN 47907

PERSONAL

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RESEARCH INTERESTS

Game theory; market design; fair division; online platforms; dynamic allocations

ACADEMIC EMPLOYMENT

2018 – present **Purdue University**, West Lafayette, IN

Management

ASSISTANT PROFESSOR

2016 – 2018 **California Institute of Technology**, Pasadena, CA

Social and Information Sciences Laboratory (SISL)

POSTDOCTORAL SCHOLAR

Mentor: Prof. Adam Wierman

2015 – 2016 **Weizmann Institute of Science**, Israel

Faculty of Applied Mathematics and Computer Science

POSTDOCTORAL SCHOLAR

Mentor: Prof. Uriel Feige

EDUCATION

2011 – 2015 **Tel Aviv University**, Israel

PHD, *Computer Science*

Thesis: DESIGNING LOCAL COMPUTATION ALGORITHMS AND MECHANISMS.

Advisor: Prof. Yishay Mansour

2009 – 2011 **Tel Aviv University**, Israel

MSC, *Computer Science*, **with honors**

Thesis: LOCAL COMPUTATION ALGORITHMS.

Advisor: Prof. Ronitt Rubinfeld

2002 – 2005 **Rimon School Of Jazz and Contemporary Music**, Israel

JAZZ PERFORMANCE, *Bass*

1998 – 2002 **Tel Aviv University**, Israel

BSC, *Computer Science*, **with honors**

On excellence scholarship.

DISTINCTIONS

2020	MASTERS OUTSTANDING TEACHER – <i>Purdue University</i>
2020	UNDERGRADUATE OUTSTANDING TEACHER – <i>Purdue University</i>
2016 – 2018	LINDE POSTDOCTORAL FELLOWSHIP IN ECONOMICS AND COMPUTATION
2016	INVITED FELLOW – <i>Simons Institute for the Theory of Computation</i>
2015 – 2016	I-CORE IN ALGORITHMS POSTDOCTORAL FELLOWSHIP
2015	OUTSTANDING TEACHING ASSISTANT IN COMPUTER SCIENCE – <i>Tel Aviv University</i>
2015	DEUTSCH PRIZE IN COMPUTER SCIENCE – <i>Tel Aviv University</i>
2012 – 2015	GOOGLE EUROPE FELLOWSHIP IN GAME THEORY
2011	EXCELLENCE AWARD FOR MSc STUDY AND RESEARCH – <i>Tel Aviv University</i>
2002	DEAN HONORS AWARD – <i>Tel Aviv University</i>
2002	BEST SOFTWARE PROJECT AWARD – <i>Tel Aviv University</i>

JOURNAL PUBLICATIONS

Link to [Google Scholar](#)

1. Yu Su, Shai Vardi, Xiaoqi Ren and Adam Wierman
COMMUNICATION-AWARE SCHEDULING OF PRECEDENCE-CONSTRAINED TASKS ON RELATED MACHINES
Operations Research Letters, 2023
2. Junjie Qin, Shai Vardi and Adam Wierman
MINIMIZATION FRACTIONAL PROPHET INEQUALITIES FOR SEQUENTIAL PROCUREMENT
Mathematics of Operations Research, 2023
3. Thomas Kesselheim, Christos-Alexandros Psomas and Shai Vardi
ON HIRING SECRETARIES WITH STOCHASTIC DEPARTURES
Operations Research, 2023
4. Palma London, Shai Vardi, Reza Eghbali and Adam Wierman
BLACK-BOX ACCELERATION OF CONVEX PROGRAM SOLVERS
Operations Research, 2022
5. Ben Moseley and Shai Vardi
THE FAIRNESS-EFFICIENCY BALANCE OF ROUND ROBIN SCHEDULING
Operations Research Letters, 2021
6. Shai Vardi, Alexandros Psomas and Eric Friedman
DYNAMIC FAIR RESOURCE DIVISION
Mathematics of Operations Research, 2021
7. Palma London, Shai Vardi and Adam Wierman
LOGARITHMIC COMMUNICATION FOR DISTRIBUTED OPTIMIZATION IN MULTI-AGENT SYSTEMS
Proceedings of the ACM on Measurement and Analysis of Computing Systems, 2019
8. Yishay Mansour, Boaz Patt-Shamir and Shai Vardi
CONSTANT-TIME LOCAL COMPUTATION ALGORITHMS
Theory of Computing Systems, 2018, **invited**
9. Avinatan Hassidim, Yishay Mansour and Shai Vardi
LOCAL COMPUTATION MECHANISM DESIGN
ACM Transactions on Economics and Computation, 2016, **invited**

10. Omer Reingold and Shai Vardi
NEW TECHNIQUES AND TIGHTER BOUNDS FOR LOCAL COMPUTATION ALGORITHMS
Journal of Computer and System Sciences, 2016

OPEDS AND FEATURED

1. [A bipartisan solution to fix the electoral college](#) (OpEd)
The Hill, 04/02/2019
2. [Expanding the Battleground: A competitive approach to presidential election reform](#)
Krannert Journal Spring 2019

REFEREED CONFERENCE PUBLICATIONS

Link to [Google Scholar](#)

1. Shai Vardi and Vidyanand Choudhary
A RANDOM WALK MODELING FRAMEWORK FOR BOOSTING THE CREATIVITY OF HUMANS AND AI
2nd Annual Business & Generative AI Workshop, 2024
2. Thành Nguyen and Alexander Teytelboym and Shai Vardi
EFFICIENT COMBINATORIAL ASSIGNMENT
7th International Workshop on Matching Under Preferences (Match-up), 2024
3. Chris Parker and Shai Vardi
EX-POST EQUILIBRIUM MARKET RECOMMENDATIONS
Twenty-Fifth ACM Conference on Economics and Computation (EC), 2024
4. Palma London, Shai Vardi and Adam Wierman
LOGARITHMIC COMMUNICATION FOR DISTRIBUTED OPTIMIZATION IN MULTI-AGENT SYSTEMS
SIGMETRICS 2020
5. Thomas Kesselheim, Christos-Alexandros Psomas and Shai Vardi
HOW TO HIRE SECRETARIES WITH STOCHASTIC DEPARTURES
Conference on Web and Internet Economics (WINE), 2019
6. Aleksandr M. Kazachkov and Shai Vardi
ON TANKING AND COMPETITIVE BALANCE
Conference on Algorithmic Decision Theory (ADT), 2019
7. Shai Vardi
RANDOMLY COLORING GRAPHS OF LOGARITHMICALLY BOUNDED PATHWIDTH
International Conference on Randomization and Computation (RANDOM), 2018
8. Artur Czumaj, Yishay Mansour and Shai Vardi
SUBLINEAR GRAPH AUGMENTATION FOR FAST QUERY IMPLEMENTATION
Workshop on Approximation and Online Algorithms (WAOA), 2018
9. Uriel Feige, Boaz Patt-Shamir and Shai Vardi
ON THE PROBE COMPLEXITY OF LOCAL COMPUTATION ALGORITHMS
International Colloquium on Automata, Languages, and Programming (ICALP), 2018

10. Palma London, Shai Vardi, Adam Wierman and Hanling Yi
A PARALLELIZABLE ACCELERATION FRAMEWORK FOR PACKING LINEAR PROGRAMS
AAAI Conference on Artificial Intelligence, 2018
11. Omer Tamuz, Shai Vardi and Juba Ziani
NON-EXPLOITABLE PROTOCOLS FOR REPEATED CAKE CUTTING
AAAI Conference on Artificial Intelligence, 2018
12. Eric Friedman, Christos-Alexandros Psomas and Shai Vardi
CONTROLLED DYNAMIC FAIR DIVISION
ACM Conference on Economics and Computation (EC), 2017
13. Aviad Rubinfeld and Shai Vardi
SORTING FROM NOISIER SAMPLES
ACM-SIAM Symposium on Discrete Algorithms (SODA), 2017
14. Yishay Mansour, Boaz Patt-Shamir and Shai Vardi
CONSTANT-TIME LOCAL COMPUTATION ALGORITHMS
Workshop on Approximation and Online Algorithms (WAOA), 2015
15. Eric Friedman, Christos-Alexandros Psomas and Shai Vardi
DYNAMIC FAIR DIVISION WITH MINIMAL DISRUPTIONS
ACM Conference on Economics and Computation (EC), 2015
16. Shai Vardi
THE RETURNING SECRETARY
Symposium on Theoretical Aspects of Computer Science (STACS), 2015
17. Avinatan Hassidim, Yishay Mansour and Shai Vardi
LOCAL COMPUTATION MECHANISM DESIGN
ACM Conference on Economics and Computation (EC), 2014
18. Yishay Mansour and Shai Vardi
A LOCAL COMPUTATION APPROXIMATION SCHEME TO MAXIMUM MATCHING
Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX), 2013
19. Yishay Mansour, Aviad Rubinfeld, Shai Vardi and Ning Xie
CONVERTING ONLINE ALGORITHMS TO LOCAL COMPUTATION ALGORITHMS
International Colloquium on Automata, Languages, and Programming (ICALP), 2012
20. Noga Alon, Ronitt Rubinfeld, Shai Vardi and Ning Xie
SPACE-EFFICIENT LOCAL COMPUTATION ALGORITHMS
ACM-SIAM Symposium on Discrete Algorithms (SODA), 2012
21. Ronitt Rubinfeld, Gil Tamir, Shai Vardi and Ning Xie
FAST LOCAL COMPUTATION ALGORITHMS
Innovations in Theoretical Computer Science (ITCS), 2011

WORKING PAPERS

1. Shai Vardi and William B. Haskell
THE PRICE OF FAIRNESS OF SCHEDULING A SCARCE RESOURCE
Minor revision at OR.

2. Shai Vardi and Vidyanand Choudhary
A RANDOM WALK MODELING FRAMEWORK FOR BOOSTING THE CREATIVITY OF HUMANS AND AI
Major revision at ISR.
SSRN's Top Ten download list for: PsychRN: Thinking, Reasoning & Decision Making (June 2024)
3. Shai Vardi and Vidyanand Choudhary
IS DETECTING FAKE REVIEWS WORTH THE EFFORT?
In Preparation.
4. Shai Vardi and Weilong Wang
ON THE DESIGN OF WEIGHTED LOTTERIES
In Preparation.
5. Chris Parker and Shai Vardi
EX-POST EQUILIBRIUM MARKET RECOMMENDATIONS
Submitted.
6. Parinaz Naghizadeh, Thành Nguyen and Shai Vardi
THE IMPACTS OF PREDICTION TECHNOLOGIES ON RELATIONAL CONTRACTS
In Preparation.

SELECTED INVITED TALKS

Ex-Post Equilibrium Market Recommendations

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| July 2024 | | ACM Conference on Economics and Computation (EC) |
| July 2022 | | Israel Association for Information Systems (ILAIS) Conference |
| Dec 2020 | | Workshop on Information Systems and Economics (WISE) |

Random Combinatorial Assignment

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| Aug 2023 | | YishayFest |
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Is detecting fake reviews worth the effort?

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| Apr 2023 | | Theory in Economics of Information Systems (TEIS) |
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The Impact of Intermediaries on Online Sequential Sales

- | | | |
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| Oct 2022 | | Conference on Information Systems and Technology (CIST) |
| June 2022 | | Tel Aviv University |

The Impacts of Prediction Technologies on Relational Contracts

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|-----------|--|---|
| July 2020 | | Indiana University |
| Dec 2019 | | Workshop on Information Systems and Economics (WISE) |

How to Hire Secretaries with Stochastic Departures

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| Dec 2019 | | Conference on Web and Internet Economics (WINE) |
| Oct 2019 | | INFORMS Annual Meeting |
| Sep 2019 | | Purdue CS Theory seminar |

Non-Exploitable Protocols for Repeated Cake Cutting

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| Oct 2018 | | INFORMS Annual Meeting |
| Apr 2018 | | Bellairs Workshop on Algorithmic Game Theory |

Meeting the Challenges of Massive Networks and Systems (Job talk)

Dec 2017	Tel Aviv University
Dec 2017	Ben Gurion University
Dec 2017	Bar Ilan University
Dec 2017	Haifa University
Dec 2017	IDC Herzelia
Nov 2017	Purdue University

Dynamic Fair Resource Division

Apr 2019	SCOM seminar, Purdue University
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Stepwise Presidential Election Reform

May 2018	Caltech SISL seminar
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A Parallelizable Acceleration Framework for Packing Linear Programs

Feb 2018	Information Theory and Applications Workshop
Dec 2017	Simons Institute Algorithms and Uncertainty Reunion

Local Computation Mechanism Design

Oct 2017	INFORMS Annual Meeting
Jun 2014	ACM Conference on Economics and Computation (EC)
Jun 2014	6th Israeli Game Theory conference
Feb 2014	UC Berkeley EconCS seminar
Feb 2014	Microsoft Research, Silicon Valley
Jan 2014	TAU EconTheory seminar
Nov 2013	Dagstuhl seminar on Electronic Markets and Auctions

Local Computation Algorithms on High Degree Graphs

Oct 2018	Purdue CS Theory seminar
Oct 2017	UCSD Theory seminar
May 2017	UW Theory seminar
Jan 2017	USC Theory lunch
Dec 2016	Caltech Theory seminar
Oct 2016	Workshop on Local Algorithms (WoLA)

Controlled Dynamic Fair Division

Jul 2017	Conf. of the Int. Fed. of Operational Research Societies (IFORS)
Jun 2017	ACM Conference on Economics and Computation (EC)
Apr 2017	Caltech SISL seminar
Nov 2016	SoCal. Symp. on Network Economics and Game Theory (NEGT)

Sublinear Graph Augmentation for Fast Query Implementation

Mar 2018	Workshop on Data Summarization
Oct 2017	Caltech Theory seminar

New Techniques and Tighter Bounds for Local Computation Algorithms

Feb 2016	University of Wisconsin–Madison Theory seminar
Feb 2016	CMU Theory seminar
Jan 2016	Sublinear Algorithms Workshop
Oct 2016	TAU Theory seminar
May 2015	Weizmann Institute of Science Theory seminar
May 2015	Ben Gurion University Theory seminar

The Returning Secretary

Mar 2015	STACS
Jan 2015	TAU Algorithms seminar
Sep 2014	China Theory Week

Introduction to Local Computation Algorithms

May 2014	French-Israeli Workshop on Foundations of Computer Science (FILOFOCS)
Feb 2014	UC Berkeley Theory lunch
May 2013	Technion Operations Research and Statistics seminar

PATENTS

Shai Vardi and Rachel Cummings

NEEDLESTACK—A METHOD FOR PROTECTING BROWSING PRIVACY

provisional patent, filed 2017

SERVICE

Program Committee	ACM Conference on Economics and Computation (EC) 2017, 2018, 2020, 2021; Conference on Information Systems and Technology (CIST) 2022, 2023, 2024
Discussant	Decision Sciences Institute (DSI) Conference, 2020; Theory in Economics of Information Systems (TEIS), 2024.
Reviewer (J)	Management Science, Information Systems Research (ISR), Mathematics of Operations Research, Operations Research, Journal of Economic Theory, INFORMS Journal on Computing, Transactions on Network Science and Engineering (TNSE), Algorithmica, Journal of Computer and System Sciences (JCSS), Distributed Computing (DIST), Theory of Computing Systems (TOCS), SIAM Journal on Computing (SICOMP) Innovations in Theoretical Computer Science (ITCS).
Reviewer (C)	ICIS, CIST, WINE, STOC, FOCS, SODA, ICALP, ITCS, SPAA, ESA, DISC, PODC, STACS, SAGT.

TEACHING

2020 –	Computing for Analytics , <i>Purdue University</i> MASTERS OUTSTANDING TEACHER, 2020
2019 –	Introduction to Management Information Systems , <i>Purdue University</i> UNDERGRADUATE OUTSTANDING TEACHER, 2020
2018	Advanced Topics in MIS - PhD Doctoral Seminar, <i>Purdue University</i>
2011 – 2015	Teaching assistant, Algorithms , <i>Tel Aviv University</i> OUTSTANDING TEACHING ASSISTANT IN COMPUTER SCIENCE, 2015
2014	Teaching assistant, Algorithmic Game Theory , <i>Tel Aviv University</i>
2010	Teaching assistant, Data Structures and Algorithms , <i>Tel Aviv University</i>
2008 – 2010	Bass and Music Theory, <i>Ramat Efal Conservatory of Music</i>
2005 – 2007	Music Theory and Jazz, <i>Arison School of The Arts, Tel Aviv</i>

OTHER

2005 – 2010	Composer, performer and educator of Jazz music.
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