

Shai VARDI

ASSISTANT PROFESSOR

Management

Purdue University

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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

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

JOURNAL PUBLICATIONS

Link to [Google Scholar](#)

1. Junjie Qin, Shai Vardi and Adam Wierman
MINIMIZATION FRACTIONAL PROPHET INEQUALITIES FOR SEQUENTIAL PROCUREMENT
Mathematics of Operations Research, to appear
2. Thomas Kesselheim, Christos-Alexandros Psomas and Shai Vardi
ON HIRING SECRETARIES WITH STOCHASTIC DEPARTURES
Operations Research, 2023
3. Palma London, Shai Vardi, Reza Eghbali and Adam Wierman
BLACK-BOX ACCELERATION OF CONVEX PROGRAM SOLVERS
Operations Research, 2022
4. Ben Moseley and Shai Vardi
THE FAIRNESS-EFFICIENCY BALANCE OF ROUND ROBIN SCHEDULING
Operations Research Letters, 2021
5. Shai Vardi, Alexandros Psomas and Eric Friedman
DYNAMIC FAIR RESOURCE DIVISION
Mathematics of Operations Research, 2021
6. 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
7. Yishay Mansour, Boaz Patt-Shamir and Shai Vardi
CONSTANT-TIME LOCAL COMPUTATION ALGORITHMS
Theory of Computing Systems, 2018, invited
8. Avinatan Hassidim, Yishay Mansour and Shai Vardi
LOCAL COMPUTATION MECHANISM DESIGN
ACM Transactions on Economics and Computation, 2016, invited
9. 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. Palma London, Shai Vardi and Adam Wierman
LOGARITHMIC COMMUNICATION FOR DISTRIBUTED OPTIMIZATION IN MULTI-AGENT SYSTEMS
SIGMETRICS 2020
2. Thomas Kesselheim, Christos-Alexandros Psomas and Shai Vardi
HOW TO HIRE SECRETARIES WITH STOCHASTIC DEPARTURES
Conference on Web and Internet Economics (WINE), 2019
3. Aleksandr M. Kazachkov and Shai Vardi
ON TANKING AND COMPETITIVE BALANCE
Conference on Algorithmic Decision Theory (ADT), 2019
4. Shai Vardi
RANDOMLY COLORING GRAPHS OF LOGARITHMICALLY BOUNDED PATHWIDTH
International Conference on Randomization and Computation (RANDOM), 2018
5. Artur Czumaj, Yishay Mansour and Shai Vardi
SUBLINEAR GRAPH AUGMENTATION FOR FAST QUERY IMPLEMENTATION
Workshop on Approximation and Online Algorithms (WAOA), 2018
6. 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
7. Palma London, Shai Vardi, Adam Wierman and Hanling Yi
A PARALLELIZABLE ACCELERATION FRAMEWORK FOR PACKING LINEAR PROGRAMS
AAAI Conference on Artificial Intelligence, 2018
8. Omer Tamuz, Shai Vardi and Juba Ziani
NON-EXPLOITABLE PROTOCOLS FOR REPEATED CAKE CUTTING
AAAI Conference on Artificial Intelligence, 2018
9. Eric Friedman, Christos-Alexandros Psomas and Shai Vardi
CONTROLLED DYNAMIC FAIR DIVISION
ACM Conference on Economics and Computation (EC), 2017
10. Aviad Rubinfeld and Shai Vardi
SORTING FROM NOISIER SAMPLES
ACM-SIAM Symposium on Discrete Algorithms (SODA), 2017
11. Yishay Mansour, Boaz Patt-Shamir and Shai Vardi
CONSTANT-TIME LOCAL COMPUTATION ALGORITHMS
Workshop on Approximation and Online Algorithms (WAOA), 2015
12. Eric Friedman, Christos-Alexandros Psomas and Shai Vardi
DYNAMIC FAIR DIVISION WITH MINIMAL DISRUPTIONS
ACM Conference on Economics and Computation (EC), 2015

13. Shai Vardi
THE RETURNING SECRETARY
Symposium on Theoretical Aspects of Computer Science (STACS), 2015
14. Avinatan Hassidim, Yishay Mansour and Shai Vardi
LOCAL COMPUTATION MECHANISM DESIGN
ACM Conference on Economics and Computation (EC), 2014
15. Yishay Mansour and Shai Vardi
A LOCAL COMPUTATION APPROXIMATION SCHEME TO MAXIMUM MATCHING
Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX), 2013
16. 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
17. Noga Alon, Ronitt Rubinfeld, Shai Vardi and Ning Xie
SPACE-EFFICIENT LOCAL COMPUTATION ALGORITHMS
ACM-SIAM Symposium on Discrete Algorithms (SODA), 2012
18. Ronitt Rubinfeld, Gil Tamir, Shai Vardi and Ning Xie
FAST LOCAL COMPUTATION ALGORITHMS
Innovations in Theoretical Computer Science (ITCS), 2011

WORKING PAPERS

1. Thành Nguyen and Alexander Teytelboym and Shai Vardi
DYNAMIC COMBINATORIAL ASSIGNMENT
Submitted.
2. Shai Vardi and William B. Haskell
THE PRICE OF FAIRNESS OF SCHEDULING A SCARCE RESOURCE
Submitted.
3. Shai Vardi and Weilong Wang
THE ECONOMIC IMPACTS OF LOTTERIES FOR OVER-DEMANDED GOODS
Submitted.
4. Yu Su, Xiaoqi Ren, Shai Vardi and Adam Wierman
COMMUNICATION-AWARE SCHEDULING OF PRECEDENCE-CONSTRAINED TASKS ON RELATED MACHINES
Submitted.
5. Chris Parker and Shai Vardi
EX-POST EQUILIBRIUM MARKET RECOMMENDATIONS: IMPLICATIONS FOR INDIAN AGRICULTURE
In preparation.
6. Parinaz Naghizadeh, Thành Nguyen and Shai Vardi
THE IMPACTS OF PREDICTION TECHNOLOGIES ON RELATIONAL CONTRACTS
In preparation.
7. Shai Vardi
IS DETECTING FAKE REVIEWS WORTH THE EFFORT?
In preparation.

SELECTED INVITED TALKS

Is detecting fake reviews worth the effort?

Apr 2023 | **Theory in Economics of Information Systems (TEIS)**

The Impact of Intermediaries on Online Sequential Sales

Oct 2022 | **Conference on Information Systems and Technology (CIST)**

June 2022 | Tel Aviv University

Ex-Post Equilibrium Market Recommendations: Implications for Indian Agriculture

July 2022 | **Israel Association for Information Systems (ILAIS) Conference**

Dec 2020 | **Workshop on Information Systems and Economics (WISE)**

The Impacts of Prediction Technologies on Relational Contracts

July 2020 | Indiana University

Dec 2019 | **Workshop on Information Systems and Economics (WISE)**

How to Hire Secretaries with Stochastic Departures

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

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

Stepwise Presidential Election Reform

May 2018 | Caltech SISL seminar

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
Reviewer (J)	Management Science, 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), Information Systems Research (ISR), Theory of Computing Systems (TOCS), SIAM Journal on Computing (SICOMP) Theoretical Computer Science (TCS) .
Reviewer (C)	ICIS, STOC, SODA, ICALP, ITCS, SPAA, ESA, DISC, PODC, STACS, SAGT.

TEACHING

- 2020 – 2022 **Computing for Analytics**, *Purdue University*
MASTER'S OUTSTANDING TEACHER , 2020
- 2019 – 2022 **Introduction to Management Information Systems**, *Purdue University*
UNDERGRADUATE OUTSTANDING TEACHER , 2020
- 2018 **Advanced Topics in MIS** - PhD Doctoral Seminar, *Purdue University*
- 2011 – 2015 Teaching assistant, **Algorithms**, *Tel Aviv University*
OUTSTANDING TEACHING ASSISTANT IN COMPUTER SCIENCE, 2015
TEACHING EVALUATIONS: *typically top 10% in overall assessment*
- 2014 Teaching assistant, **Algorithmic Game Theory**, *Tel Aviv University*
- 2010 Teaching assistant, **Data Structures and Algorithms**, *Tel Aviv University*
- 2008 – 2010 Bass and Music Theory, *Ramat Efal Conservatory of Music*
- 2005 – 2007 Music Theory and Jazz, *Arison School of The Arts, Tel Aviv*

OTHER

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