

Shai VARDI

ASSISTANT PROFESSOR

Management Information Science

Purdue University

610 Purdue Mall, West Lafayette IN 47907

PERSONAL

PHONE: (626) 365 7282

EMAIL: svardi@purdue.edu

WEB: www.shaivardi.com

RESEARCH INTERESTS

Game theory; large-scale optimization; dynamic systems; fair division; elections

ACADEMIC EMPLOYMENT

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

Management Information Science (MIS)

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. Yishay Mansour, Boaz Patt-Shamir and Shai Vardi
CONSTANT-TIME LOCAL COMPUTATION ALGORITHMS
Theory of Computing Systems, 2018, **invited**
2. Avinatan Hassidim, Yishay Mansour and Shai Vardi
[LOCAL COMPUTATION MECHANISM DESIGN](#)
ACM Transactions on Economics and Computation, 2016, **invited**
3. Omer Reingold and Shai Vardi
NEW TECHNIQUES AND TIGHTER BOUNDS FOR LOCAL COMPUTATION ALGORITHMS
Journal of Computer and System Sciences, 2016

REFEREED CONFERENCE PUBLICATIONS

Link to [Google Scholar](#)

1. Shai Vardi
RANDOMLY COLORING GRAPHS OF LOGARITHMICALLY BOUNDED PATHWIDTH
International Conference on Randomization and Computation (RANDOM), 2018
2. Artur Czumaj, Yishay Mansour and Shai Vardi
SUBLINEAR GRAPH AUGMENTATION FOR FAST QUERY IMPLEMENTATION
Workshop on Approximation and Online Algorithms (WAOA), 2018
3. 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
4. Palma London, Shai Vardi, Adam Wierman and Hanling Yi
A PARALLELIZABLE ACCELERATION FRAMEWORK FOR PACKING LINEAR PROGRAMS
AAAI Conference on Artificial Intelligence, 2018
5. Omer Tamuz, Shai Vardi and Juba Ziani
NON-EXPLOITABLE PROTOCOLS FOR REPEATED CAKE CUTTING
AAAI Conference on Artificial Intelligence, 2018
6. Eric Friedman, Christos-Alexandros Psomas and Shai Vardi
[CONTROLLED DYNAMIC FAIR DIVISION](#)
ACM Conference on Economics and Computation (EC), 2017
7. Aviad Rubinfeld and Shai Vardi
SORTING FROM NOISIER SAMPLES
ACM-SIAM Symposium on Discrete Algorithms (SODA), 2017

8. Yishay Mansour, Boaz Patt-Shamir and Shai Vardi
CONSTANT-TIME LOCAL COMPUTATION ALGORITHMS
Workshop on Approximation and Online Algorithms (WAOA), 2015
9. Eric Friedman, Christos-Alexandros Psomas and Shai Vardi
DYNAMIC FAIR DIVISION WITH MINIMAL DISRUPTIONS
ACM Conference on Economics and Computation (EC), 2015
10. Shai Vardi
THE RETURNING SECRETARY
Symposium on Theoretical Aspects of Computer Science (STACS), 2015
11. Avinatan Hassidim, Yishay Mansour and Shai Vardi
LOCAL COMPUTATION MECHANISM DESIGN
ACM Conference on Economics and Computation (EC), 2014
12. Yishay Mansour and Shai Vardi
A LOCAL COMPUTATION APPROXIMATION SCHEME TO MAXIMUM MATCHING
Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX), 2013
13. 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
14. Noga Alon, Ronitt Rubinfeld, Shai Vardi and Ning Xie
SPACE-EFFICIENT LOCAL COMPUTATION ALGORITHMS
ACM-SIAM Symposium on Discrete Algorithms (SODA), 2012
15. Ronitt Rubinfeld, Gil Tamir, Shai Vardi and Ning Xie
FAST LOCAL COMPUTATION ALGORITHMS
Innovations in Theoretical Computer Science (ITCS), 2011

WORKING PAPERS AND UNDER SUBMISSION

1. Palma London, Niangjun Chen, Shai Vardi and Adam Wierman
DISTRIBUTED OPTIMIZATION VIA LOCAL COMPUTATION ALGORITHMS
submitted, 2018
2. Thomas Kesselheim, Christos-Alexandros Psomas and Shai Vardi
HOW TO HIRE SECRETARIES WITH STOCHASTIC DEPARTURES
submitted, 2018
3. Junjie Qin, Ram Rajagopal, Shai Vardi and Adam Wierman
CONVEX PROPHET INEQUALITIES
submitted, 2018
4. Shai Vardi
EXPANDING THE BATTLEGROUND: A GAME-THEORETIC APPROACH TO PRESIDENTIAL ELECTION REFORM
submitted, 2019

PATENTS

Shai Vardi and Rachel Cummings
NEEDLESTACK—A METHOD FOR PROTECTING BROWSING PRIVACY
provisional patent, filed 2017

SELECTED INVITED TALKS

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

- 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

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**
- June 2014 | ACM Conference on Economics and Computation (EC)
- June 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 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

- July 2017 | **Conf. of the Int. Fed. of Operational Research Societies (IFORS)**
- June 2017 | ACM Conference on Economics and Computation (EC)
- April 2017 | Caltech SISL seminar
- Nov 2016 | **SoCal. Symp. on Network Economics and Game Theory (NEGT)**

Sublinear Graph Augmentation for Fast Query Implementation

- March 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

SERVICE

PC Reviewer	ACM Conference on Economics and Computation (EC) 2017, 2018 Algorithmica, SIAM Journal on Computing (SICOMP), Transactions on Network Science and Engineering (TNSE), Journal of Computer and System Sciences (JCSS), Distributed Computing (DIST), Theory of Computing Systems (TOCS), Theoretical Computer Science (TCS).
Subreviewer	SODA, ICALP, SPAA, ESA, DISC, PODC, STACS, SAGT.

TEACHING

2019	Introduction to Management Information Systems , <i>Purdue University</i>
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 TEACHING EVALUATIONS: <i>typically top 10% in overall assessment</i>
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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