

Computer Science
Columbia University
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Kira Goldner

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APPOINTMENTS:

Columbia University, New York, NY July 2019 – Present
NSF Mathematical Sciences Postdoctoral Research Fellow
Data Science Institute Postdoctoral Fellow
Host: Tim Roughgarden

The Simons Institute, Berkeley, CA Aug. 2019 – Oct. 2019
Research Fellow
Program: Online and Matching-Based Market Design

EDUCATION:

University of Washington, Seattle, WA 2014 – 2019
Ph.D. in Computer Science and Engineering
Dissertation: Mechanism Design for a Complex World: Rethinking Standard Assumptions
Advisor: Anna Karlin

Masters in Computer Science and Engineering 2016
Advisor: Anna Karlin

Oberlin College, Oberlin, OH 2010 – 2014
Bachelor of Arts: Mathematics Major, Computer Science Minor

Budapest Semesters in Mathematics, Budapest, Hungary Fall 2013
Honors, Study Abroad

RESEARCH INTERESTS:

My interests lie in algorithmic mechanism design and approximation, in particular, in *mechanism design for social good*, including (1) developing to the theoretical foundations of this area and (2) addressing domain-specific questions in this area, e.g. within health insurance and carbon markets. In addition, I am interested in core challenges in algorithmic mechanism design, e.g., within (3) foundational revenue maximization problems beyond single-parameter and (4) designing simple and robust yet approximately-optimal mechanisms.

AWARDS, SCHOLARSHIPS, AND DISTINCTIONS:

ACM-EC Best Presentation by a Student or Postdoctoral Researcher 2020
NSF Mathematical Sciences Postdoctoral Research Fellowship 2019
Columbia Data Science Institute Postdoctoral Fellowship
ACM-EC Best Paper with a Student Leader Author
Simons Institute Research Fellowship for Online and Matching Based Market-Design
Microsoft Research PhD Fellowship 2017
Facebook Fellowship Finalist
UW Society for Women Engineers Evening with Industry Outstanding Female Award
Google Anita Borg Memorial Scholarship 2016
NSF Graduate Research Fellowship Program: Honorable Mention
National Defense in Science and Engineering Fellowship: Alternate Selectee
NSF Graduate Research Fellowship Program: Honorable Mention 2015
Phi Beta Kappa 2014

NSF S-STEM Scholar in Computation and Modeling at Oberlin College	2012
John F. Oberlin merit scholarship for \$25,000 annually for four years (top level awarded)	2010

CONFERENCE PUBLICATIONS:

On Multi-Dimensional Gains from Trade Maximization, with Yang Cai, Steven Ma, and Mingfei Zhao. To appear in *Proceedings of the 32nd ACM-SIAM Symposium on Discrete Algorithms* (SODA 2021).

Optimal Mechanism Design for Single-Minded Agents, with Nikhil R. Devanur, Raghuvansh R. Saxena, Ariel Schvartzman, and S. Matthew Weinberg. In *Proceedings of the 21st ACM Conference on Economics and Computation* (EC 2020).

Best Presentation by a Student or Postdoctoral Researcher.

Reducing Inefficiency in Carbon Auctions with Imperfect Competition, with Nicole Immorlica and Brendan Lucier. In *Proceedings of the 11th Conference on Innovations in Theoretical Computer Science* (ITCS 2020).

Bulow-Klemperer-Style Results for Welfare-Maximization in Two-Sided Markets, with Moshe Babaioff and Yannai A. Gonczarowski. In *Proceedings of the 31st ACM-SIAM Symposium on Discrete Algorithms* (SODA 2020).

Combinatorial Auctions with Interdependent Valuations: SOS to the Rescue, with Alon Eden, Michal Feldman, Amos Fiat, and Anna R. Karlin. In *Proceedings of the 20th ACM Conference on Economics and Computation* (EC 2019).

Best Paper with a Student Lead Author.

Simple and Approximately Optimal Pricing for Proportional Complementarities, with Yang Cai, Nikhil R. Devanur, and R. Preston McAfee. In *Proceedings of the 20th ACM Conference on Economics and Computation* (EC 2019).

Interdependent Values without Single-Crossing, with Alon Eden, Michal Feldman, and Amos Fiat. In *Proceedings of the 19th ACM Conference on Economics and Computation* (EC 2018).

Revenue Maximization with an Uncertainty-Averse Buyer, with Shuchi Chawla, J. Benjamin Miller, and Emmanouil Pountourakis. In *Proceedings of the 29th ACM-SIAM Symposium on Discrete Algorithms* (SODA 2018).

A Prior-Independent Revenue-Maximizing Auction for Multiple Additive Bidders, with Anna Karlin. In *Proceedings of the 12th Conference on Web and Internet Economics* (WINE 2016).

The FedEx Problem, with Amos Fiat, Anna Karlin, and Elias Koutsoupias. In *Proceedings of the 17th ACM Conference on Economics and Computation* (EC 2016).

Minimal Partial Languages and Automata, with F. Blanchet-Sadri and Aidan Shackleton. In *Proceedings of the 19th International Conference on Implementation and Applications of Automata* (CIAA 2014).

Different Optimal Solutions in Shared Path Graphs, with Sean McCulloch. In *Proceedings of the 2012 Midstates Conference for Undergraduate Research in Computer Science and Mathematics* (MCURCSM 2012).

JOURNAL PUBLICATIONS:

Simple and Approximately Optimal Pricing for Proportional Complementarities, with Yang Cai, Nikhil R. Devanur, and R. Preston McAfee. In submission to *Operations Research*.

Minimal Partial Languages and Automata, with F. Blanchet-Sadri and Aidan Shackleton. In *RAIRO – Theoretical Informatics and Applications*, Volume 51, Number 1, 2017.

PREPRINTS, WORKSHOP PUBLICATIONS, AND BULLETINS:

Non-Adaptive Matroid Prophet Inequalities, with Shuchi Chawla, Anna R. Karlin, and J. Benjamin Miller. *Preprint* 2020.

A Report on YoungEC ‘19. In *ACM SIGecom Exchanges*, 18.1, July 2020.

When to Limit Entry Under Mandatory Purchase, with Meryem Essaidi and S. Matthew. In *the 3rd Workshop on Mechanism Design for Social Good* (MD4SG 2019).

Mechanism Design for Social Good, with Rediet Abebe. In *ACM SIGAI AI Matters*, 4.3, October 2018.

A Report on the Workshop on Mechanism Design for Social Good, with Rediet Abebe. In *ACM SIGecom Exchanges*, 16.2, June 2018.

CONFERENCE, WORKSHOP, TUTORIAL, AND INITIATIVE ORGANIZATION:

The 1st ACM Conference on Equity in Algorithms, Mechanisms, and Optimization (by MD4SG) October 2021
Executive Committee, Virtual

The 4th Workshop on Mechanism Design for Social Good August 2020
Steering Committee, Virtual

Tutorial on the Menu Size of Precise and Approximate Revenue-Maximizing Auctions June 2018
Organizer and Presenter, with Yannai A. Gonczarowski at ACM-EC, Ithaca, NY

The 2nd Workshop on Mechanism Design for Social Good June 2018
Organizer and PC Chair, with Rediet Abebe at ACM-EC, Ithaca, NY

Tutorial on Mechanism Design for Social Good Dec. 2017
Organizer and Presenter, at WINE, Bangalore, India

The 1st Workshop on Mechanism Design for Social Good June 2017
Organizer and PC Chair, with Rediet Abebe at ACM-EC, Cambridge, MA

The Mechanism Design for Social Good Initiative 2016-2018
Organizer and Co-Founder, with Rediet Abebe
A multi-institutional, interdisciplinary research initiative working to improve access to opportunity for historically undeserved and disadvantaged communities.

RESEARCH INTERNSHIPS AND LONG-TERM VISITS:

Visitor, Microsoft Research Herzliyah, hosted by Moshe Babaioff Dec. 2018 – Jan. 2019

Research Intern, Microsoft Research New England, hosted by Brendan Lucier Summer 2018

Visitor, Tel Aviv University, hosted by Michal Feldman and Amos Fiat Nov. 2017 – Mar. 2018

Visitor, Princeton University, hosted by Matt Weinberg Oct. – Nov. 2017

Research Intern, Microsoft Research Redmond, hosted by Nikhil Devanur Summer 2017

Visitor, Tel Aviv University, hosted by Michal Feldman and Amos Fiat Jan. – Feb. 2017

Visitor, University of Wisconsin-Madison, hosted by Shuchi Chawla Oct. – Nov. 2016

Visitor, The Simons Institute, hosted by the Algorithms & Uncertainty Semester Aug. – Sept. 2016

Visitor , The Simons Institute, hosted by the Economics & Computation Semester	Fall 2015
Undergraduate Research Assistant , UNC Greensboro NSF REU, hosted by Francine Blanchet-Sadri	Summer 2013
Undergraduate Research Assistant , Oberlin College, hosted by Robert Bosch	Spring 2013
Undergraduate Research Assistant , Ohio Wesleyan NSF REU, hosted by Sean McCulloch	Summer 2012

INVITED WORKSHOPS:

Rising Stars in EECS, UC Berkeley, Virtual	Nov. 2020
Workshop on Algorithm Design, Policy, and Law, Simon's Institute, Virtual	July 2020
Young Researcher Workshop on Economics and Computation, Tel Aviv University, Israel	Jan. 2020
Workshop on Algorithms for Learning and Economics, Rhodes, Greece	July 2019
Plenary Speaker at Data Science for Social Good Workshop, Georgia Tech, Atlanta, GA	Apr. 2019
Northwestern Quarterly Theory Workshop, Evanston, IL	Nov. 2018
Bellairs Workshop on Algorithmic Game Theory, Holetown, Barbados	Apr. 2018
Heidelberg Laureate Forum, Heidelberg, Germany	Sept. 2017
Greece Economic and Algorithmic Theory Week, Ikaria, Greece	July 2017
Young Researcher Workshop on Economics and Computation, Tel Aviv University, Israel	Jan. 2017
Women in Theory Workshop, Berkeley, CA	May 2016
CRA-W Grad Cohort Conference, San Francisco, CA	Apr. 2015

INVITED TALKS:

Maximizing Gains From Trade in Two-Sided Markets

Israel Algorithmic Game Theory Seminar, Virtual	Dec. 2020
INFORMS Annual Meeting, Virtual	Nov. 2020
University of Maryland CATS Lecture Series, Virtual	Oct. 2020
Harvard TOC Seminar, Virtual	Sept. 2020

Optimal Mechanism Design for Single-Minded Agents

Conference on Web and Internet Economics, Virtual	Dec. 2020
ACM Conference on Economics and Computation, Virtual	June 2020
INFORMS Annual Meeting, Phoenix, AZ	Nov. 2018
Georgia Tech ACO Student Seminar, Atlanta, GA	Apr. 2018
UW Theory Seminar, Seattle, WA	Apr. 2018
Hebrew University of Jerusalem Computation and Economics Seminar, Jerusalem, Israel	Jan. 2018
Tel Aviv University Algorithms Seminar, Tel Aviv, Israel	Dec. 2017

Mechanism Design for Social Good

Columbia Data Science Institute Data & Society Council, Virtual	Dec. 2020
NYU Tandon CS Department Seminar, Virtual	Oct. 2020
Worcester Polytechnic Institute CS Department Colloquia Series, Virtual	Sept. 2020
Data Science Institute and Data for Good Scholars Weekly Meetup Series, Columbia, Virtual	July 2020
Technion Game Theory Playtime Seminar, Haifa, Israel	Dec. 2019
Washington University CS Department Colloquia Series, St. Louis, MO	Nov. 2019
Workshop on Algorithms for Learning and Economics, Rhodes, Greece	July 2019
Data Science for Social Good Workshop, Georgia Tech, Atlanta, GA	Apr. 2019

Interdimensional Mechanism Design

STOC TCS Women Spotlight Workshop “Rising Star” Talk, Virtual	June 2020
Northwestern Quarterly Theory Workshop, Evanston, IL	Nov. 2018
UW Allen School Colloquium, Seattle, WA	Oct. 2018
AmosFest, Tel Aviv, Israel	Nov. 2017
Reducing Inefficiency in Carbon Auctions with Imperfect Competition	
Innovations in Theoretical Computer Science, Seattle, WA	Jan. 2020
Young Researcher Workshop on Economics and Computation, Tel Aviv University, Israel	Jan. 2020
Social Responsibility of Algorithms Interdisciplinary Workshop, Paris, France	Dec. 2019
Marketplace Innovation Workshop, Palo Alto, CA	June 2019
Data Science for Social Good Workshop, Atlanta, GA	Apr. 2019
Mechanism Design under Interdependent Valuations	
MIT Algorithms and Complexity Seminar, Cambridge, MA	Oct. 2019
Stanford Theory Seminar, Palo Alto, CA	May 2019
Simple and Approximately Optimal Pricing for Proportional Complementarities	
ACM Conference on Economics and Computation, Phoenix, AZ	June 2019
Minisymposium on Algorithmic Game Theory at CANADAM, Vancouver, BC, Canada	May 2019
Hebrew University of Jerusalem Computation and Economics Seminar, Jerusalem, Israel	Jan. 2019
INFORMS Annual Meeting, Phoenix, AZ	Nov. 2018
Interdependent Values without Single-Crossing	
Bellairs Workshop on Algorithmic Game Theory, Barbados	Apr. 2018
The FedEx Problem	
Princeton Mechanism Design Reading Group, Princeton, NJ	Oct. 2017
Conference of the International Federation of Operational Research Societies, Quebec, Canada	July 2017
STOC Workshop on Bayesian Mechanism Design, Montreal, Canada	June 2017
Hebrew University of Jerusalem Lo Letzot Seminar, Jerusalem, Israel	Jan. 2017
Weizmann Institute Foundations of Computer Science Seminar, Rehovot, Israel	Jan. 2017
Young Researcher Workshop on Economics and Computation, Tel Aviv, Israel	Jan. 2017
UW-Madison Theory Seminar, Madison, WI	Nov. 2016
Microsoft Research Theory Seminar, Redmond, WA	Oct. 2016
UC Berkeley Theory Lunch, Berkeley, CA	Sept. 2016
Stanford University Theory Lunch, Palo Alto, CA	Sept. 2016
ACM Conference on Economics and Computation, Maastricht, Netherlands	July 2016
Google Scholar’s Retreat, Mountain View, CA	June 2016
UW Theory Seminar, Seattle, WA	May 2016
Revenue Maximization with an Uncertainty-Averse Buyer	
Microsoft Research Theory Lunch, Redmond, WA	Sept. 2017
UW Theory Lunch, Seattle, WA	May 2017
A Prior-Independent Revenue-Maximizing Auction for Multiple Additive Bidders	
Conference on Web and Internet Economics, Montreal, Canada	Dec. 2016
UW Theory Seminar, Seattle, WA	Jan. 2016
Incentives and the Bitcoin Protocol	
Heidelberg Laureate Forum: Workshop on Transactions and Blockchains, Heidelberg, Germany	Sept. 2017

UW CSE Women's Day, Seattle, WA	Jan. 2016
UW CSE Women's Day, Seattle, WA	May 2015
CRA-W Grad Cohort, San Francisco, CA	Apr. 2015

Minimal Partial Language and Automata

Conference on Implementation and Application of Automata, Germany	July 2014
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Different Optimal Solutions in Shared Path Graphs

Midstates Conference for Undergraduate Research in Computer Science and Mathematics	Nov. 2012
5 Colleges of Ohio Summer Research Symposium	July 2012

SERVICE AND OUTREACH:

Program Committee for FORC '21, EC '21	2021
Member , Columbia DEI Committee and Bits for Justice addressing Systemic Anti-Black Racism	2020
Program Committee for ITCS '21, EC '20, WINE '20, Tackling Climate Change with ML at ICLR 2020	2020
Ambassador for Global Challenges in Economics and Computation	2020
External Reviewer for GEB, SODA '21, FOCS '20	2020
Program Committee for AAAI '20, EC '19, NetEcon '19, MD4SG '19 (Theory area chair)	2019
External Reviewer for JACM, JAIR, SODA '20, FOCS '19	2019
Program Committee for AIES '19	2018
External Reviewer for TEAC, STOC '19, ITCS '19, SODA '19, WINE '18, ESA '18	2018
Member , PhD Admissions Committee, University of Washington CSE	2017 – 2019
External Reviewer for STOC '18, SODA '18, WINE '17, ESA '17, ICALP '17	2017
External Reviewer for IPCO '17, STACS '17, SODA '17, WINE '16, EC '16	2016
Co-Chair , Graduate Women's Organization, University of Washington CSE	2015 – 2016
Co-Chair , Graduate Prospective Student Committee, University of Washington CSE	
Founder and Mentor , Mentoring Program for Undergraduate Women, University of Washington CSE	
Member , Graduate Prospective Student Committee, University of Washington CSE	2014 – 2015
Founder and Co-Chair , Women in Math and Computer Science, Oberlin College	Spring 2014

TEACHING ASSISTANTSHIPS:

Applied Algorithms (Professional Masters Program), University of Washington	Spring 2015
Foundations of Computing II, University of Washington	Fall 2014
Theory of Computer Science, Oberlin College	Spring 2014
Introduction to Computer Science, Oberlin College	Spring 2013
Introduction to Computer Science, Oberlin College	Spring 2012