

# Robin Bowers

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June, 2025

**Research interests:** Theoretical computer science, algorithmic economics, mechanism design, information aggregation, auction theory, matching, algorithmic fairness.

## EDUCATION

### University of Colorado Boulder

*PhD Student, Computer Science*

Advisors: Bo Waggoner and Rafael Frongillo

Boulder, CO

2021 – present

### University of Colorado Boulder

*Master of Science, Computer Science*

Advisors: Bo Waggoner and Rafael Frongillo

Boulder, CO

2021 – 2024

### Oberlin College

*Bachelor of Arts, Computer Science and Mathematics*

Oberlin, OH

2016 – 2020

### University of Edinburgh

*IFSA-Butler Study Abroad*

Edinburgh, UK

Spring 2019

## WORKING PAPERS

### Prophet Inequalities for Bandits, Cabinets, and DAGs.

Robin Bowers, Elias Lindgren, Bo Waggoner.

### Polynomial-Time Approximation Schemes via Utility Alignment: Unit-demand Pricing and More.

Robin Bowers, Marius Garbea, Emmanouil Pountourakis, Samuel Taggart.

## PUBLICATIONS

Authors listed alphabetically unless marked with \*.

### Matching with Nested and Bundled Pandora Boxes.

Robin Bowers, Bo Waggoner, *Conference on Web and Internet Economics (WINE)*, 2024.

### High-Welfare Matching Markets via Descending Price.

Robin Bowers, Bo Waggoner, *Conference on Web and Internet Economics (WINE)*, 2023.

### Loom Pedals: Retooling Jacquard Weaving for Improvisational Design Workflows.\*

Shanel Wu, Xavier A Corr, Xi Gao, Sasha De Koninck, Robin Bowers, Laura Devendorf, *Conference on Tangible and Embedded Interaction (TEI)*, 2024.

### Machine Learning Based MIMO Equalizer for High Frequency (HF) Communications.\*

S. Spillane, K. H. Jung, Bowers, T. Peken, M. H. Marefat and T. Bose, *2020 International Joint Conference on Neural Networks (IJCNN 2020)*.

## PROFESSIONAL ACTIVITIES & SERVICE

### Teaching Assistant – Winter School on Data Economics

*Moroccan Center for Game Theory, UM6P*

January 2025

Rabat, Morocco

- Wrote problem set on value of information and data economics in machine learning
- Lead afternoon workshop session

### Co-Organizer – EC Gender Inclusion Workshop

*Workshop at Conference on Economics and Computation (EC'24, '25)*

Summer 2024, 2025

New Haven, CT; Stanford, CA

- Co-organized 2025 workshop on gender inclusion with Natalie Collina, Mirah Shi, and Kunhe Yang
- Co-organized 2024 workshop on gender inclusion with Yeganeh Alimohammadi, Natalie Collina, Kate Donahue, Bailey Flanigan, and Maneesha Papireddygar

### Founder/Coordinator – CU Boulder Algorithmic Fairness Reading Group

*University of Colorado Boulder*

Fall 2023 – Fall 2024

Boulder, CO

- Wrote a syllabus of papers for each semester, coordinated discussions of papers

<b>Participant – SLMath Summer School</b> <i>SLMath</i>	Summer 2023 <i>Berkeley, CA</i>
<ul style="list-style-type: none"> <li>Participant in the summer school <u>Mathematics and Computer Science of Market and Mechanism Design</u></li> </ul>	
<b>Coordinator – Algorithmic Economics Reading Group</b> <i>University of Colorado Boulder</i>	2022 – 2023 <i>Boulder, CO</i>
<ul style="list-style-type: none"> <li>Planned and scheduled reading group meetings</li> </ul>	
<b>CU Boulder Graduate Peer Mentor</b> <i>University of Colorado Boulder</i>	2022 – present <i>Boulder, CO</i>
<ul style="list-style-type: none"> <li>Matched with incoming PhD and Master's students through both Graduate School and Computer Science Department mentorship programs</li> <li>Helped introduce students to research and the CU Boulder course system</li> <li>Helped international students adjust to Boulder</li> </ul>	
<b>CU Boulder Graduate Prospective Student Mentor</b> <i>University of Colorado Boulder</i>	Fall 2022, 2023, 2024 <i>Boulder, CO</i>
<ul style="list-style-type: none"> <li>Matched to prospective students applying to graduate schools</li> <li>Provided feedback on application materials and guidance on CU Boulder's graduate program application process and expectations</li> </ul>	
<b>Reviewing</b>	
EAAMO'25, EC'25, FAccT'25, EAAMO'24	

## AWARDS

<b>Outstanding Service Award</b> <i>University of Colorado Boulder, Computer Science Department</i>	2024 <i>Boulder, CO</i>
<b>Outstanding Teaching Assistant Award</b> <i>University of Colorado Boulder, Computer Science Department</i>	2022 <i>Boulder, CO</i>
<b>Department Research Expo – Work In Progress Award</b> <i>University of Colorado Boulder, Computer Science Department</i>	2022 <i>Boulder, CO</i>
<b>R.J. Thomas Computer Science Teaching Assistant Award</b> <i>Oberlin College</i>	May 2020 <i>Oberlin, OH</i>
<b>John F. Oberlin Scholarship</b> <i>Oberlin College</i>	2016 – 2020 <i>Oberlin, OH</i>

## TEACHING

<b>Guest Lecture – Discrete Math</b> <i>CU Boulder</i> Professor Bo Waggoner	Fall 2024 <i>Boulder, CO</i>
<b>Two Guest Lectures – Graduate Algorithms</b> <i>CU Boulder</i> Professor Sriram Sankaranarayanan	Fall 2024 <i>Boulder, CO</i>
<b>Teaching Assistant – Graduate Algorithms</b> <i>University of Colorado Boulder</i> <ul style="list-style-type: none"> <li>Contributed to writing homework solutions and grading, held weekly office hours.</li> </ul>	Fall 2024 <i>Boulder, CO</i>
<b>Teaching Assistant – Principles of Programming Languages</b> <i>University of Colorado Boulder</i> <ul style="list-style-type: none"> <li>Led weekly practice sessions on functional programming and programming language construction</li> </ul>	Fall 2023 <i>Boulder, CO</i>
<b>Teaching Assistant – Algorithms</b> <i>University of Colorado Boulder</i> <ul style="list-style-type: none"> <li>Led weekly practice sessions on course topics</li> </ul>	Spring 2022 <i>Boulder, CO</i>

- Wrote weekly problem sets and solutions presented in all TA sections
- Received a departmental teaching assistant award for my contributions

## Teaching Assistant – Algorithms

2019 – 2020

*Oberlin College*

*Oberlin, OH*

- Wrote worksheets for and led weekly practice sessions on course topics
- Transferred problem session material online for distance learning
- Received a departmental teaching assistant award for my contributions

## Grader – Discrete Math

Fall 2018, Spring 2020

*Oberlin College*

*Oberlin, OH*

- Graded homework and quizzes weekly for class size of 30-80 students for in-person and distance learning classes
- Provided written feedback to students on mathematical reasoning and clarity

## INVITED TALKS

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### Prophet Inequalities for Bandits, Cabinets, and DAGs.

- Boston College Theory Seminar (July 2025)
- UT Austin Theory Seminar (June 2025)

## POSTERS & TALKS

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### Matching with Nested and Bundled Pandora Boxes

Robin Bowers, Bo Waggoner, Poster presented at ACM Conference on Economics and Computation (EC), 2024; Talk presented at WINE 2024.

### High-Welfare Matching Markets via Descending Price

Robin Bowers, Bo Waggoner, Poster presented at Marketplace Innovation Workshop, 2023; Simons Institute Workshop on Societal Considerations and Applications, 2022; ACM Conference on Economics and Computation, 2022. Talk presented at WINE 2023.

## OTHER EXPERIENCE

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### Undergraduate Research Assistant

2019 – 2020

*Oberlin College*

*Oberlin, OH*

- Conducted research in economic game theory
- Proved setting-specific performance lower-bounds for several auction algorithms
- Obtained complexity results on computing lower bounds for performance of auctions in specific settings

### Research Internship – NSF REU

Summer 2019

*University of Arizona Department of Electrical and Computer Engineering*

*Tucson, AZ*

- Conducted study on “Machine Learning Based MIMO Equalizer for High Frequency (HF) Communications”
- Created mathematical models of long-range radio systems in MATLAB
- Implemented machine-learning algorithms to dynamically adjust system behavior for best performance
- Communicated professionally with other students to coordinate project and goals

### Software Internship

Summer 2018

*Blendid*

*Sunnyvale, CA*

- Worked with Universal Robots robotic arm designing and optimizing movement paths in automated food kiosk
- Handled emergency kiosk malfunctions and daily prototype operations