

# JINGYAN WANG

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## RESEARCH OVERVIEW

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My research interests are in *statistical machine learning* and *fairness*. Specifically, my research studies the foundations of high-stakes decision-making and evaluation processes, such as hiring, admissions and peer review. I consider three components that play critical roles in such processes — algorithms, people, and policies. I draw inspirations from psychology to model real-world phenomena, develop theoretical guarantees using tools from statistics and computer science, conduct crowdsourcing experiments, and implement policy changes that have practical impacts.

## PROFESSIONAL EXPERIENCE

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### Georgia Institute of Technology

2021 – present

*Ronald J. and Carol T. Beerman President's Postdoctoral Fellow*

*Algorithms and Randomness Center (ARC) Postdoctoral Fellow*

H. Milton Stewart School of Industrial and Systems Engineering

Host: Ashwin Pananjady

### Simons Institute for the Theory of Computing

11.2021

*Visiting postdoc*

Program: Computational Complexity of Statistical Inference

## EDUCATION

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### Carnegie Mellon University

2015 – 2021

*Ph.D. in Robotics*

*Master of Science in Robotics*

Thesis: "Towards Understanding and Mitigating Biases"

Advisor: Nihar B. Shah

### University of California, Berkeley

2011 – 2015

*Bachelor of Science in Electrical Engineering and Computer Sciences*

Minor in Mathematics

Graduated with Highest Honors

## AWARDS

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Rising Stars in Data Science Workshop, University of Chicago

2022

Best Lightning Talk from College of Engineering, Fall 2022 Georgia Tech Postdoc Research Symposium

2022

Best Research Talk from College of Engineering, Spring 2022 Georgia Tech Postdoc Research Symposium

2022

Ronald J. and Carol T. Beerman President's Postdoctoral Fellowship, Georgia Tech

2021

ARC (Algorithms & Randomness Center) Fellowship, Georgia Tech

2021

Best Paper Award Nomination, AAMAS 2019

Best Student Paper Award, AAMAS 2019

Travel scholarship, AAAI 2020, AAMAS 2019, WiML and HCML workshops at NeurIPS 2019

Departmental Citation, UC Berkeley

2015

*Recognition of outstanding undergraduate achievement within the department awarded to one graduating senior annually*

James H. Eaton Memorial Scholarship, UC Berkeley <i>For a keen sense of creativity and inventiveness</i>	2015
Kevin K. Gong Memorial Scholarship for Bright Minds and Big Hearts, UC Berkeley <i>For passion about using technology to better the world</i>	2015
Arthur M. Hopkin Award, UC Berkeley <i>For seriousness of purpose and high academic achievement</i>	2014
Berkeley Club of Hong Kong Undergraduate Scholarship, UC Berkeley	2014
Edward Frank Kraft Award for Freshmen, UC Berkeley	2012

## JOURNAL PUBLICATIONS AND UNDER REVIEW

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- Jingyan Wang, Ashwin Pananjady  
*Modeling and Correcting Bias in Sequential Evaluation*  
Under review at Operations Research, 2022.
- Jingyan Wang, Ivan Stelmakh, Yuting Wei, Nihar B. Shah  
*Debiasing Evaluations That Are Biased by Evaluations*  
Accepted with minor revisions at Journal of Machine Learning Research (JMLR), 2022.

## CONFERENCE PUBLICATIONS AND PREPRINTS (\* indicates authors in alphabetical order)

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- Austin Xu, Andrew D. McRae, Jingyan Wang, Mark A. Davenport, Ashwin Pananjady  
*Parametric Adjustment Queries: A New Paradigm for Human Data Elicitation with Applications to Metric Learning*  
Working paper, 2023.
- Jingyan Wang, Ashwin Pananjady  
*Modeling and Correcting Bias in Sequential Evaluation*  
ACM Conference on Economics and Computation (EC), 2023.
- Gregory Kehne\*, Ariel D. Procaccia\*, Jingyan Wang\*  
*Recruitment Strategies That Take a Chance*  
The Conference on Neural Information Processing Systems (NeurIPS), 2022.
- Jingyan Wang, Carmel Baharav, Nihar B. Shah, Anita Williams Woolley, R. Ravi  
*Allocation Schemes in Analytic Evaluation: Applicant-Centric Holistic or Attribute-Centric Segmented?*  
AAAI Conference on Human Computation and Crowdsourcing (HCOMP), 2022.
- Komal Dhull, Jingyan Wang, Nihar B. Shah, Yuanzhi Li, R. Ravi  
*A Heuristic for Statistical Seriation*  
The Conference on Uncertainty in Artificial Intelligence (UAI), 2021.
- Jingyan Wang, Ivan Stelmakh, Yuting Wei, Nihar B. Shah  
*Debiasing Evaluations That Are Biased by Evaluations*  
AAAI Conference on Artificial Intelligence (AAAI), 2021.
- Jingyan Wang, Nihar B. Shah, R. Ravi  
*Stretching the Effectiveness of MLE from Accuracy to Bias for Pairwise Comparisons*  
International Conference on Artificial Intelligence and Statistics (AISTATS), 2020.
- Jingyan Wang, Nihar B. Shah  
*Your 2 is My 1, Your 3 is My 9: Handling Arbitrary Miscalibrations in Ratings*  
International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2019.

## Best Student Paper Award

### Nomination for Best Paper Award

Appeared as “Ranking and Rating Rankings and Ratings” at AAAI 2020 Sister Conference Track.

- Jingyan Wang, Olga Russakovsky, Deva Ramanan  
*The More You Look, the More You See: towards General Object Understanding through Recursive Refinement*  
Winter Conference on Applications of Computer Vision (WACV), 2018.
- KV Rashmi, Preetum Nakkiran, Jingyan Wang, Nihar B. Shah, Kannan Ramchandran  
*Having Your Cake and Eating It Too: Jointly Optimal Codes for I/O, Storage and Network-bandwidth in Distributed Storage Systems.*  
Conference on File and Storage Technologies (FAST), 2015.  
**Picked as the Best Paper by StorageMojo**
- Lei Tian, Jingyan Wang, Laura Waller  
*3D differential phase-contrast microscopy with computational illumination using an LED array*  
Optics Letters 39, 1326-1329, 2014.

## TALKS

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- *Understanding and Improving Evaluation: People, Algorithms, and Design*  
Ethics & Algorithms Seminar, University of California, Santa Cruz 2023  
Peking University 2023  
Carnegie Mellon University 2022
- *Modeling and Correcting Bias in Sequential Evaluation*  
Rising Stars in Data Science Workshop, University of Chicago 2022  
INFORMS Annual Meeting 2022  
Information Theory and Applications Workshop (ITA) 2022
- *Debiasing Evaluations That Are Biased by Evaluations*  
Women in EconCS, International Joint Conference on Theoretical Computer Science (IJTCS) 2021
- *Towards Understanding and Mitigating Biases*  
Georgia Institute of Technology 2021  
Harvard University 2021  
Nanyang Technological University 2021  
Peking University 2019
- *Understanding Biases in Assessment Problems*  
The Auton Lab, Carnegie Mellon University 2019
- *The More You Look, the More You See: Towards General Object Understanding through Recursive Refinement*  
National Robotics Engineering Center (NREC) 2017

## SERVICE

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Reviewer: FAccT (2023), Journal of Artificial Intelligence Research (2022, 2023), Annals of Statistics (2020), ISIT (2021), AAAI (2021, 2022, 2023), STOC (2020), WiML NeurIPS (2019)  
Program committee member: HCOMP (2022, 2023), Learning with Strategic Agents workshop, AAMAS (2022)  
Qualifier committee member: Subhdeep Mitra (MS in Robotics, 2019)  
Undergraduate student mentoring: Komal Dhull, Carmel Baharav  
High school student mentoring: Charlotte Zhou (Bronx High School of Science, NY)

Admissions committee member: Robotics Institute Summer Scholars (2019)

Student volunteer: AAAI (2020), AAMAS (2019), ICML (2016)

## OUTREACH

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Speaker, Seminar on Diversity, Equity, Inclusion (DEI) and Bias, GT INFORMS Student Chapter	2022
Presenter, Mission Possible Summer Camp, Georgia Tech	2022
<i>Led activities for high-school students in the summer camp to learn about industrial engineering research</i>	
Grand award judge, Regeneron International Science and Engineering Fair (ISEF)	2022
Panelist, Tea with Summer Undergraduates, CMU	2019
Interview participant, the Girls Who Code	2019
<i>Featured in the article <a href="https://womeninics.github.io/future.html">https://womeninics.github.io/future.html</a></i>	
Student volunteer, PhD student open house, CMU	2019, 2021
Graduate student mentor, Robotics Institute Summer Scholars (RISS), CMU	2018
<i>Mentored undergraduate students through the graduate school application process and provided suggestions on the writing material</i>	
Outreach officer and webmaster, Society of Women Engineers (SWE)	2011 – 2015
<i>Organized middle and high school outreach events and designed the chapter's website</i>	
Member, Eta Kappa Nu Honor Society (HKN)	2013 – 2015

## TEACHING EXPERIENCE

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• Guest lecturer	
IST402 (Crowdsourcing and Crowd-AI Systems), Penn State	Spring 2023
PIC 16B (Python with Applications II), UCLA	Winter 2023
ISYE 6740 (Computational Data Analysis), Georgia Tech	Fall 2022
• Teaching assistant, 16-720 (Computer Vision), CMU	Fall 2017
• Lab assistant, EE 20N (Signals and Systems), UC Berkeley	Fall 2013

## INDUSTRIAL EXPERIENCE

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<b>Facebook Inc.</b>	6.2014 – 8.2014
Software Engineering Intern, Privacy Infrastructure Team	
<b>EMC Corporation</b>	6.2013 – 8.2013
Software Engineering Intern, Advanced Storage Division	