

# Sarah H. Cen

(609) 356-6965 | shcen@mit.edu | <https://shcen.github.io/>

RESEARCH INTERESTS	Responsible Algorithms, Algorithmic Auditing, Causal Inference, Statistical Inference, Mechanism Design, Human & Machine Decisions, AI Governance	
EDUCATION	<b>Massachusetts Institute of Technology, Cambridge, MA</b>	
	Ph.D. in Electrical Engineering and Computer Science	Expected 2024
	Advised by Prof. Aleksander Mądry & Prof. Devavrat Shah	
	<b>University of Oxford, Oxford, UK</b>	
	M.Sc. by Research in Engineering Science	August 2018
	Advised by Prof. Paul Newman Thesis: “Radar-only Ego-Motion Estimation and Localization”	
	<b>Princeton University, Princeton, NJ</b>	
	B.S.E. in Mechanical Engineering	June 2016
	Certificate in Computer Science & Robotics Advised by Prof. Naomi Leonard Thesis: “Leader selection in dynamic networks”	
FELLOWSHIPS	<b>Hugh Hampton Young Memorial Fund Fellowship</b> , MIT fellowship	2020
	<b>Chyn Duog Shiah Memorial Fellowship</b> , MIT fellowship	2020
	<b>Edwin S. Webster Fellowship</b> , MIT EECS fellowship	2018
	<b>Ida M. Green Fellowship</b> , MIT fellowship	2018
	<b>Daniel M. Sachs '60 Scholarship</b> , Oxford scholarship given to one student	2016
SELECTED AWARDS	<b>Thriving Star</b> , MIT EECS	2022
	<b>Best Student Talk</b> , LIDS Conference	2022
	<b>MacCracken Senior Thesis Award</b> , top thesis in Princeton SEAS	2016
	<b>McKinzie '93 Senior Thesis Prize</b> , top thesis in Princeton Mechanical Eng.	2016
	<b>Sau-Hai Lam *58 Prize</b> , top student in Mechanical & Aerospace Eng.	2016
	<b>Phi Beta Kappa, Sigma Xi, Tau Beta Pi</b>	2015-2016
	<b>Palantir Scholarship for Women in Engineering</b> , finalist	2015
	<b>Shapiro Prize for Academic Excellence</b> , top 3 percent of Princeton class	2014
TEACHING & MENTORSHIP	<b>Teaching Assistant</b> , Science & Technology Policy Bootcamp (MIT)	2021
	Instructor: Bill Bonvillian	
	<b>Teaching Assistant</b> , Inference and Information (MIT)	2020
	Instructors: Prof. Gregory Wornell and Prof. Lizhong Zheng	
	<b>Instructor &amp; Organizer</b> , MOSTEC workshop for high school students	2019
	<b>Instructor</b> , Oxford Centres for Doctoral Training, Robotics Workshop	2018
	<b>Panelist</b> , MIT EECS panel for incoming students	2022, 2023
	<b>Research Mentor for Undergraduates</b> , seven students	2020-2023

PROFESSIONAL EXPERIENCE	<b>Deep Learning for Imperfect Information Games</b>	2021
	DeepMind, Research Intern   Supervised by Prof. Karl Tuyls	
	<b>Particle Filtering for Satellite Image Reconstruction</b>	2014
	MIT Lincoln Lab, Research Intern   Supervised by Dr. Yaron Rachlin	
	<b>Software Design for Real-Time Energy Monitoring</b>	2013
	Wattvision, Software Engineer   Supervised by Savraj Singh	
PUBLICATIONS	<b>Peer-Reviewed &amp; Archival Publications</b> (*Marks first-author contribution)	
	12. Anish Agarwal, <b>Sarah H. Cen*</b> , Devavrat Shah, and Christina Lee Yu. “Network Synthetic Interventions: A Framework for Panel Data with Network Interference.” Submitted to <i>Operations Research</i> . <a href="#">Link</a> .	
	11. Cindy Zhang*, <b>Sarah H. Cen*</b> , and Devavrat Shah. “Matrix Estimation for Individual Fairness.” International Conference on Machine Learning (ICML), 2023. <a href="#">Link</a> .	
	10. <b>Sarah H. Cen*</b> , Aleksander Mądry, and Devavrat Shah. “A User-Driven Framework for Regulating and Auditing Social Media.” arXiv, 2023. <a href="#">Link</a> .	
	9. <b>Sarah H. Cen*</b> and Manish Raghavan. “The Right to Be an Exception to a Data-Driven Rule.” MIT Case Studies in Social and Ethical Responsibilities of Computing (SERC), 2023. Invited paper. <a href="#">Link</a> .	
	8. <b>Sarah H. Cen*</b> , Andrew Ilyas*, and Aleksander Mądry. “A Game-Theoretic Perspective on Trust in Recommendation.” In preparation for submission to <i>Operations Research</i> . Responsible Decision Making in Dynamic Environments Workshop at International Conference on Machine Learning (ICML), 2022. <b>Oral</b> . <a href="#">Link</a> .	
	7. Julien Perolat*, Bart de Vylder*, <b>et al.</b> “Mastering the game of Stratego with model-free multiagent reinforcement learning.” <i>Science</i> , 2022. <a href="#">Link</a> .	
	6. <b>Sarah H. Cen*</b> and Devavrat Shah. “Regulating algorithmic filtering on social media.” Neural Information Processing Systems (NeurIPS), 2021. <b>Spotlight</b> . <a href="#">Link</a>	
	5. <b>Sarah H. Cen*</b> and Devavrat Shah. “Regret, stability & fairness in matching markets with bandit learners.” International Conference on Artificial Intelligence and Statistics (AISTATS), 2022. <a href="#">Link</a> .	
	4. <b>Sarah H. Cen*</b> and Paul Newman. “Radar-only ego-motion estimation in difficult settings via graph matching.” IEEE International Conference on Robotics and Automation (ICRA), 2019. <a href="#">Link</a> .	
	3. Rob Weston*, <b>Sarah H. Cen</b> , and Ingmar Posner. “Probably unknown: Deep inverse sensor modelling radar.” IEEE International Conference on Robotics and Automation (ICRA), 2019. <a href="#">Link</a> .	
	2. <b>Sarah H. Cen*</b> and Paul Newman. “Precise ego-motion estimation with millimeter-wave radar under diverse and challenging conditions.” IEEE International Conference on Robotics and Automation (ICRA), 2018. <a href="#">Link</a> .	

1. **Sarah H. Cen\***, Vaibhav Srivastava, and Naomi Ehrich Leonard. “On robustness and leadership in markov switching consensus networks.” IEEE Conference on Decision and Control (CDC), 2017. [Link](#).

### In Preparation

2. **Sarah H. Cen\***, Andrew Ilyas\*, and Aleksander Mądry. “A Game-Theoretic Perspective on Trustworthy Data-Driven Algorithms.” In preparation for submission to *Operations Research*.
1. **Sarah H. Cen\***, Asu Ozdaglar, and James Siderius\*. “Why Social Media Platforms Shape What Users Think.” In preparation for submission to *Operations Research*.

### Blogs & Public Testimonies

5. *Blog series on AI Accountability & Transparency* (September 2023)  
Written by **Sarah H. Cen**, Cosimo L. Fabrizio, Dan Huttenlocher, Aleksander Mądry, Martha Minow, and James Siderius. (\*Marks first-author contribution)
  1. \*Introduction: AI Accountability & Transparency ([link](#))
  2. \*AI Risk Scores: What Do They Mean? ([link](#))
  3. \*How Much Access Is Needed to Audit an AI System? ([link](#))
  4. Ensuring an Adequate Mechanism of Relief for AI-Induced Harms
  5. A Public Health Approach to AI Regulation
4. *Blog Series on AI Deployment* ([April-August 2023](#))  
Written by **Sarah H. Cen**, Aspen Hopkins, Andrew Ilyas, Aleksander Mądry, Isabella Struckman, and Luis Videgaray. (\*Marks first-author contribution)
  1. We need to talk about AI deployment ([link](#))
  2. \*AI supply chains and why they matter ([link](#))
  3. +Who will provide AI to the world? ([link](#))
  4. \*How Upstream AI impacts Downstream AI ([link](#))
  5. \*Three Proposals for Regulating AI ([link](#))
3. Aleksander Mądry’s Testimony to the Senate Committee on Judiciary ([link](#)).  
Written by **Sarah H. Cen**, Andrew Ilyas, Aleksander Mądry, and Luis Videgaray. Subcommittee Hearing on Human Rights and the Law. “[Artificial Intelligence and Human Rights](#).” June 13, 2023.
2. Aleksander Mądry’s Testimony to the House Committee on Oversight and Accountability ([link](#)). Written by **Sarah H. Cen**, Andrew Ilyas, Aleksander Mądry, and Luis Videgaray. Subcommittee on Cybersecurity, Information Technology, and Government Innovation. “[Advances in AI: Are We Ready For a Tech Revolution?](#)” March 8, 2023.

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<sup>+</sup> Was not an author on this blog post only. It is included for completeness of the series.

1. *Blog Series on Social Media* ([December 2022](#))

Written by **Sarah H. Cen**, Andrew Ilyas, and Aleksander Mądry. (First authorship shared with Andrew Ilyas on all posts)

1. Social Media Platforms & the Information Exchange They Run ([link](#))
2. What's To Know About Regulating Social Media in the US? ([link](#))
3. Why Can't We Regulate Social Media Like Previous Media? ([link](#))
4. Regulating Social Media: Lessons from Existing Regulation ([link](#))

SELECTED  
TALKS  
& POSTERS

**Invited Talks**

Session on Fairness in Platforms & Recommendation, INFORMS	2023
Session on Decisions Under Not-So-Perfect Data, INFORMS	2023
Cornell Young Researchers Workshop	2023
Computing & Society, Stanford CS	2023
Thriving Stars of AI, MIT EECS	2022
AI & Humanity Program, Berkeley Simons Institute	2022
AI Ethics Reading Group, MIT	2022
Session on Online Platforms, INFORMS	2022

**Conference Talks**

Marketplace Innovations Workshop	2023
Responsible Decision-Making Workshop at ICML	2022
Harvard Ethical Issues in Computing & AI	2022
Privacy Law Scholars Conference	2022
Information Credibility Workshop at ICWSM	2021
Stanford GSB Rising Scholars	2020
IEEE Conference on Decision & Control	2017

**MIT Talks**

LIDS Student Conference	2022, 2023
Econometrics Seminar	2022
LIDS Stats and Tea	2021, 2022, 2023
Machine Learning at MIT	2020
MLxMIT Retreat	2020
Graduate Women in EECS Research Summit	2019

**Posters**

American Causal Inference Conference (ACIC)	2023
Marketplace Innovations Workshop (MIW)	2023
MIT Social & Ethical Responsibilities of Computing Symposium	2023
Causality for Real-World Impact Workshop at NeurIPS	2022
Responsible Decision-Making Workshop at ICML ( <b>Oral</b> )	2022
Berkeley Simons Institute	2022
NeurIPS ( <b>Spotlight</b> )	2021
Women in Data Science	2020, 2021
IEEE Int'l Conference on Robotics & Automation (ICRA)	2018, 2019

MEDIA & PUBLICITY	<b>Forbes Article</b> ( <a href="#">link</a> ), by Lance Eliot “AI Ethics Fighting Passionately For Your Legal Right To Be An Exception”	2022
	<b>Profile in MIT News</b> ( <a href="#">link</a> ), by Grace Chua “Living better with algorithms”	2022
	<b>MIT EECS Article</b> ( <a href="#">link</a> ), by Rachel Yang “Thriving Stars of AI”	2022
SERVICE & OUTREACH	<b>Conference, Workshop &amp; Session Organizer</b>	
	Session Chair, INFORMS	2023
	Founding Organizer, MIT Women in EECS Research Summit	2019
	Program Chair, MIT Global Startup Workshop (~1000 people)	2019
	Lead Organizer, Oxford Conference for Females in Science & Technology	2018
	Associate Editor & Session Organizer, IEEE ITS Conference	2018
	<b>Program Committee</b>	
	NeurIPS Workshop on Data Attribution At Scale	2023
	Conference on Fairness, Accountability, and Transparency (FAccT)	2022, 2023
	IEEE Int’l Conference on Intelligent Transportation Systems (ITSC)	2018
	<b>Department Service &amp; Outreach</b>	
	PhD Admissions reviewer, MIT EECS	2019
	Mentor, MIT EECS Graduate Application Assistance Program (GAAP)	2022
	Organizer, MIT LIDS & IDSS DEI Book Club	2021
	Mentor, MIT IDSS Graduate Application Assistance Program (GAAP)	2020
	Organizer, MIT IDSS Graduate Application Assistance Program (GAAP)	2020
	Instructor & Organizer, MIT workshop for high school students	2019
SELECTED ACTIVITIES	<b>Leadership</b>	
	Co-president, MIT AI Ethics Reading Group	2019-2021
	DEI Chair, MIT IDSS Student Committee	2020-2021
	Executive board, MIT LIDS Social Committee	2019-2020
	Co-president, MIT Graduate Women in EECS	2019
	Content Lead, MIT Global Startup Workshop	2018-2019
	<b>Tennis</b>	
	Varsity player, Oxford University Tennis Team	2016-2018
	President & captain, Princeton University Club Tennis Team	2014-2016
	Founding organizer, Princeton University Club Tennis Team	2014
	<b>Miscellany</b>	
	Member, MIT Science Policy Congressional Visit Days	2023
	Team lead, Princeton Robotics Club	2015
	Web editor, The Daily Princetonian	2013-2014
	News writer, The Daily Princetonian	2012-2013