

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

PROFESSIONAL EXPERIENCE	Deep Learning for Imperfect Information Games	2021
	DeepMind, Research Intern Supervised by Prof. Karl Tuyls	
	Particle Filtering for Satellite Image Reconstruction	2014
	MIT Lincoln Lab, Research Intern Supervised by Dr. Yaron Rachlin	
	Software Design for Real-Time Energy Monitoring	2013
	Wattvision, Software Engineer Supervised by Savraj Singh	
PUBLICATIONS	Peer-Reviewed & Archival Publications (*Marks first-author contribution)	
	12. Anish Agarwal, Sarah H. Cen* , Devavrat Shah, and Christina Lee Yu. "Network Synthetic Interventions: A Framework for Panel Data with Network Interference." Submitted to <i>Operations Research</i> . Link .	
	11. Cindy Zhang*, Sarah H. Cen* , and Devavrat Shah. "Matrix Estimation for Individual Fairness." International Conference on Machine Learning (ICML), 2023. Link .	
	10. Sarah H. Cen* , Aleksander Mądry, and Devavrat Shah. "A User-Driven Framework for Regulating and Auditing Social Media." arXiv, 2023. Link .	
	9. Sarah H. Cen* 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. Link .	
	8. Sarah H. Cen* , 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. Oral . Link .	
	7. Julien Perolat*, Bart de Vylder*, et al. "Mastering the game of Stratego with model-free multiagent reinforcement learning." <i>Science</i> , 2022. Link .	
	6. Sarah H. Cen* and Devavrat Shah. "Regulating algorithmic filtering on social media." Neural Information Processing Systems (NeurIPS), 2021. Spotlight . Link	
	5. Sarah H. Cen* and Devavrat Shah. "Regret, stability & fairness in matching markets with bandit learners." International Conference on Artificial Intelligence and Statistics (AISTATS), 2022. Link .	
	4. Sarah H. Cen* and Paul Newman. "Radar-only ego-motion estimation in difficult settings via graph matching." IEEE International Conference on Robotics and Automation (ICRA), 2019. Link .	
	3. Rob Weston*, Sarah H. Cen , and Ingmar Posner. "Probably unknown: Deep inverse sensor modelling radar." IEEE International Conference on Robotics and Automation (ICRA), 2019. Link .	
	2. Sarah H. Cen* 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. Link .	

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

3. **Sarah H. Cen***, Andrew Ilyas*, and Aleksander Mądry. “User Strategization and Trustworthy Algorithm Design.” In preparation for submission to *Operations Research*. Draft [here](#).
2. **Sarah H. Cen***, Andrew Ilyas*, Hannah Li, Jennifer Allen, David G. Rand, and Aleksander Mądry. “Measuring Strategization in Recommendation: Users Adapt Their Behavior to Shape Future Content.” In preparation for submission to *Management Science*. Draft [here](#).
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.

⁺ 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 Mađry. (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

Cornell Tech Digital Life Initiative (DLI)	2023
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

Conference on Digital Experimentation (CODE)	2023
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 (Oral)	2022
Berkeley Simons Institute	2022
NeurIPS (Spotlight)	2021
Women in Data Science	2020, 2021
IEEE Int'l Conference on Robotics & Automation (ICRA)	2018, 2019

MEDIA & PUBLICITY	Forbes Article (link), by Lance Eliot	2022
	“AI Ethics Fighting Passionately For Your Legal Right To Be An Exception”	
	Profile in MIT News (link), by Grace Chua	2022
	“Living better with algorithms”	
	MIT EECS Article (link), by Rachel Yang	2022
	“Thriving Stars of AI”	
SERVICE & OUTREACH	Conference, Workshop & Session Organizer	
	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
	Program Committee	
	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
	Department Service & Outreach	
	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	Leadership	
	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
	Tennis	
	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
	Miscellany	
	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