CHARLOTTE PARK

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RESEARCH INTERESTS

Algorithmic Fairness, AI Ethics, Applied Modeling, Human-AI Communication, Alignment, Theoretical ML

EDUCATION

Massachusetts Institute of Technology, Ph.D. in Computer Science — May 2024 - Present

Massachusetts Institute of Technology, S.M. in Computer Science — August 2022 - May 2024
Thesis: Exploiting Observation Bias To Improve Matrix Completion

California Institute of Technology, B.S. in Computer Science — October 2018 - June 2022
GPA: 4.1/4.3

The University of Edinburgh, Exchange Student — Fall 2020
School of Informatics

PUBLICATIONS

1. **C. Park**, K. Donahue, M. Raghavan, "When to Ask a Question: Understanding Communication Strategies in Generative AI Tools." Under review at Foundations of Responsible Computing (FORC), 2026. Previously presented at FairUMAP Workshop 2025.
2. S. Jain, **C. Park**, M. M. Vianna, A. Wilson, D. Calacci, "How Does Interaction Context Shape Sycophancy in LLMs?" Under review at CHI, 2026.
3. K. L. Clarkson, L. Horesh, T. Ito, **C. Park**, P. Ram, "Finding Clustering Algorithms in the Transformer Architecture." Under review at Nature Communications, 2025.
4. S. H. Cen, A. Ilyas, H. Driss, **C. Park**, A. K. Hopkins, C. Podimata, and A. Madry, "Longitudinal Study of Large Language Models During the 2024 US Elections." Preprint, 2025.
5. Y. Jedra*, S. Mann*, **C. Park***, D. Shah, "Exploiting Observation Bias to Improve Matrix Completion." Preprint, 2024.

APPLICABLE SKILLS

Languages	Python, Java, C, MATLAB, Mathematica, Javascript
Libraries and Frameworks	Pytorch, Keras/Tensorflow, Git, Jupyter

RESEARCH EXPERIENCE

Massachusetts Institute of Technology — August 2024 - Present
Graduate Researcher (PhD Student) — *Cambridge, MA*
Advised by Prof. Mainsh Raghavan and Prof. Ashia Wilson

- Conducting research on algorithmic problems relating to the social impact of AI.
- Currently working detecting discrimination in human-AI decision-making.
- Past projects have focused on (1) long-context sycophancy in large language models and (2) human-AI communication.

Massachusetts Institute of Technology — August 2022 - February 2024
Graduate Researcher (SM Student) — *Cambridge, MA*
Advised by Prof. Devavrat Shah

- Worked to develop method for matrix completion in the missing not at random data model.

- Exploited shared information between the pattern of observation and outcomes themselves to achieve better performance.
- Used theoretical techniques from linear algebra and high-dimensional statistics to give bound on max norm error of estimates.
- Validated theoretical results promised by algorithm with data from e-commerce platform.

California Institute of Technology October 2021 - June 2022
Undergraduate Researcher *Pasadena, CA*
Advised by Prof. Leonard Schulman

- Worked on causal inference and causal identification algorithms in the DAG framework.
- Presented final work as senior thesis counting towards B.S. in Computer Science.
- Provided formal proof of the 3 rules of Do-Calculus, resulting in a document presented at the Causality Bootcamp workshop hosted by the Simons Institute.
- Rigorously proved hedge criterion in proof of correctness for the Sipser/Pearl causal identification algorithm.

Massachusetts Institute of Technology June 2021 - August 2021
Visiting Undergraduate Researcher *Cambridge, MA*
Advised by Prof. Charles E. Leiserson

- Optimized ray tracing engine in C while generating reproducible results.
- Parallelized code using OpenCilk and obtained profiling results on machines with up to 8 cores.
- Performed work-span analysis to analyze potential for parallelism. Optimized both serial and parallel code to obtain runtimes up to 75 times as fast as original code.

Massachusetts Institute of Technology June 2020 - August 2020
Visiting Undergraduate Researcher *Cambridge, MA*
Advised by Prof. Charles E. Leiserson

- Worked on optimization of child filtering in spatial partition trees using uncompressed and compressed tries.
- Examined various algorithmic techniques for constructing theoretically optimal tries.
- Developed and implemented heuristic algorithm for reordering trie codes in C.

PROFESSIONAL EXPERIENCE

IBM Research June 2024 - September 2024
Research Intern *Yorktown Heights, NY*

- Worked on in-context clustering with transformers.
- Provided theoretical proof of existence of weights such that transformers can emulate Lloyd's algorithm in-context.
- Showed via experimentation that transformers cannot reasonably learn such weight matrices without imposing additional structure on the learning problem.
- Aimed to use this disconnect to further understand expressive capabilities of transformers.

Akamai Technologies June 2019 - September 2019
Software Engineering Intern *Cambridge, MA*

- Developed Java-based server for generating blame file detailing revision history of customer metadata.
- Integrated Git's blame feature in project to improve upon existing diff tool within Property Manager service available directly to customers.
- Attended daily Scrum Team meetings which provided a collaborative environment to discuss ideas and allow for a greater understanding of other projects within the company.

TEACHING EXPERIENCE

AI, Decision Making, & Society (6.3950) September 2025 - December 2025
Teaching Assistant

- Instructors: Marzyeh Ghassemi and Ashia Wilson

Inference and Information (6.7800) February 2024 - May 2024
Grader

- Instructor: Greg Wornell

Algorithms (CS 38) March 2022 - June 2022
Head Teaching Assistant

- Instructor: Peter Schröder

Machine Learning and Data Mining (CS/CNS/EE 155) January 2022 - March 2022
Teaching Assistant, Graduate Level

- Instructor: Yisong Yue

Algorithms (CS 38) March 2021 - June 2021
Teaching Assistant

- Instructor: Peter Schröder

Introduction to Programming Methods (CS 2) January 2021 - March 2021
Teaching Assistant

- Instructor: Adam Blank

HONORS AND AWARDS

- GEM Fellow (2024)
- Siebel Scholar (2024)
- MIT Presidential Fellow (2022)
- School of Engineering Exemplary Scholar, MIT (2022)

PROJECTS

Projection of COVID-19 Cases

- Developed model to project COVID-19 case rates given changes in policy.
- Trained LGBM model with state- and county-level data.
- Model could predict case rates n weeks in the future for arbitrary county and state datasets.

OUTREACH AND LEADERSHIP

MIT Office of Religious, Spiritual, and Ethical Life September 2025 - Present
Graduate Community Fellow

- Working part time with for the MIT Office of Religious, Spiritual, and Ethical Life to help organize and promote interfaith conversations.
- Assist in event planning and promotion and help run weekly small groups to foster dialogue for students.

MindHandHeart September 2024 - May 2025
Graduate Community Fellow

- Worked part time with the MindHandHeart office, the group in charge of promoting the MIT Values.
- Provided a graduate student perspective during event planning, helped promote and run monthly events, and read applications for grants through the office.

MIT Graduate Student Coaching September 2023 - January 2024
Coach Fellow

- Facilitated weekly peer coaching groups for graduate students in EECS and MechE.
- Helped facilitate d a 3-day Coaching Skills for Engineers workshop open to all MIT graduate students.

LIDS DEI Committee May 2023 - May 2024
Student Representative

- Student representative on committee aiming to assess the state of community, climate, and diversity at MIT LIDS (Laboratory for Information and Decision Systems).
- Working to understand, identify, and recommend ways of improving inclusion and belonging at LIDS.

MSRP (MIT Summer Research Program) January 2023 - Present
Application Reader

- Read applications and help select next cohort of MSRP participants, a summer program which offers research opportunities to students from underrepresented groups.

GAAP (Graduate Application Assistance Program) September 2022 - December 2024
Mentor

- Mentor students applying to PhD programs in EECS from underrepresented backgrounds.

Ruddock House Executive Committee February 2020 - February 2022
Social Manager

- Plan social events, manage events budget, and maintain social media for Ruddock House, one of the eight undergraduate houses at Caltech.