

# **Hammaad Adam**

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## **RESEARCH INTERESTS**

My research focuses on questions at the intersection of machine learning and healthcare equity. My current work is driven by two key goals: (1) identifying racial and other disparities in healthcare using statistical and causal inference, and (2) investigating novel ways to use machine learning to create more equitable systems. I am particularly passionate about the second, as it goes beyond auditing bias and actively addresses existing inequity. Methodologically, I am interested in causal inference, probabilistic machine learning, algorithmic fairness, and natural language processing.

## **EDUCATION**

**Massachusetts Institute of Technology**, Cambridge, MA Aug 2020-Present

- PhD student in Social and Engineering Systems at the Institute for Data, Systems, and Society (IDSS); GPA: 4.0/4.0
- Advisor: Dr. Marzyeh Ghassemi
- Coursework: probability theory, mathematical statistics, machine learning, causal inference, natural language processing, market design, econometrics

**Columbia University**, New York, NY Aug 2018-Dec 2019

- Master of Science in Data Science, GPA: 4.1/4.0
- Coursework: graphical models, approximate inference, Bayesian statistics, algorithms

**Yale University**, New Haven, CT Aug 2012-May 2016

- Bachelor of Science in Applied Mathematics; GPA: 3.9/4.0, magna cum laude

## **WORK EXPERIENCE**

**Research Intern, Microsoft Research**, Cambridge, MA May 2022-Aug 2022

- Assess the fairness implications of early stopping rules in clinical trials and A/B testing, and develop more equitable methods
- Mentors: Allison Koenecke, Lester Mackey, Lorin Crawford, Neil Tenenholz, Fan Yin

**Senior Analyst, Altman Vilandrie & Company**, Boston, MA Sep 2016-May 2018

- Provided strategy consulting and M&A advisory for telecom, media, and technology firms
- Led data analysis, financial modeling, and client presentations on a variety of projects

## **PUBLICATIONS**

**Adam, H.**, Yang, M.Y., Cato, K., Baldini, I., Senteio, C., Celi, L.A., Zeng, J., Singh, M. and Ghassemi, M., 2022. Write It Like You See It: Detectable Differences in Clinical Notes By Race Lead To Differential Model Recommendations. In *Proceedings of the 2022 AAAI/ACM Conference on AI, Ethics, and Society (AIES'22)*. <https://doi.org/10.1145/3514094.3534203>

Rube, H.T., Rastogi, C., Feng, S., Kribelbauer, J.F., Li, A., Becerra, B., Melo, L.A., Do, B.V., Li, X., **Adam, H.** and Shah, N.H., 2022. Prediction of protein–ligand binding affinity from sequencing data with interpretable machine learning. *Nature Biotechnology*, pp.1-8.

## **WORKING PAPERS**

Machine Learning for Demand Estimation in Long Tail Markets

With Fanyin Zheng and Pu He

Major revision, *Management Science*

Preprint: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3702093](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3702093)

Should I Stop or Should I Go: Early Stopping of Randomized Experiments on Heterogeneous Populations  
With Fan Yin, Neil Tenenholtz, Lorin Crawford, Lester Mackey, and Allison Koenecke  
Accepted to *CoDE@MIT 2022*

Just Following AI Orders: When Unbiased People Are Influenced By Biased AI  
With Aparna Balagopalan, Emily Alsentzer, Fotini Christia, and Marzyeh Ghassemi  
Revise & resubmit, *Communications Medicine*

Fair Organ Allocation Learning  
With Rene Bermea, Ming Ying Yang, Leo Celi, and Marzyeh Ghassemi  
In preparation

## **HONORS AND AWARDS**

MIT Jameel Clinic Grant (with PI: Dr. Marzyeh Ghassemi), 2021  
MIT IBM Watson AI Lab Grant (with PI: Dr. Marzyeh Ghassemi), 2021  
MIT Bose Fellowship, 2020

## **PRESENTATIONS**

AIES, August 2022  
MIT-MGB AI Cures Poster Session, April 2022  
MIT Jameel Clinic Seminar, March 2022  
Empirical Operations Workshop, INFORMS, October 2021  
Empirical Operations Management Workshop, INFORMS, November 2020

## **MENTORSHIP**

MIT Undergraduate Research Opportunities Program (Ming Ying Yang, Srinidhi Narayanan)

## **SKILLS & INTERESTS**

Avid skier, novice curler, retired rugby player  
Former college classic rock radio show host