Hammad Shaikh

416-550-8537 • hammy.shaikh@mail.utoronto.ca
shaikhhammad.com

Education

University of Toronto **Mississauga**
Honours Bachelor of Science, High Distinction *2010–2014*
Majors: Math and Economics, Minor: Statistics

University of Toronto **Toronto**
Masters of Arts, Doctoral Stream *2014–2015*
Economics

University of Toronto **Toronto**
Doctor of Philosophy, Major: Labour, Minor: Econometrics *2015–Expected 2021*
PhD Thesis: Essays in Economics of Education

Advisor: Dr. Rob McMillan

Representative Graduate Coursework

University of Toronto

- ECO2600/2601: Public Economics I and II
- ECO2800/2801: Labour Economics I and II
- STA2102H1: Computational Statistics
- ECO2404H1: Empirical Applications of Economic Theory
- ECO2803H1: Methods for Empirical Microeconomics
- ECO2402H1: Advanced Econometrics (PhD only)
- ECO2403H1: Topics in Econometrics (PhD only)

Research in Progress

Revisiting the Racial Achievement Gap: Evidence from Recent U.S. Panel Data (2017)

The Impact of Information Disclosure on Student Course Selection (2018), with Robert McMillan and Linda Wang

Balancing Student Success and Inferring Personalized Effects in Dynamic Experiments (2019), with Arghavan Modiri, Joseph J. Williams, and Anna Rafferty

Computer Skills

Excel: Intermediate (Teaching)
R: Intermediate (Simulation)
Python: Intermediate (Web scraping)
STATA: Proficient (Econometric analysis)
Matlab: Intermediate (Structural estimation)
LaTeX: Proficient (Paper writing)

References

PhD Supervisor: Dr. Robert McMillan, mcmillan@chass.utoronto.ca

Interest in Artificial Intelligence

Two years ago I decided to make my own chess engine to learn more about advanced algorithms. I read about the minimax algorithm used by popular chess programs and spent a couple of weeks coding own basic chess engine in python. Although the engine worked and played decent chess, I wasn't completely satisfied as it relied on a brute force search and was not really "intelligent". This motivated me to start learning about data driven AI using machine learning.

My first introduction to machine learning is from Andrew Ng's popular course on Coursera. It is a 11 weeks' course that covers the common supervised and unsupervised learning algorithms. I completed the course in August, 2017. As I learnt more about machine learning, I practiced by creating detailed python notebook that implemented the popular Machine Learning algorithms from scratch (i.e. without using the common ML libraries). I posted the notebooks on my GitHub. My repository containing the python notebooks has thousands of unique views and has almost 300 stars on GitHub (link to GitHub: `https://github.com/hammadshaikhha`).

I am currently doing collaborative research with Computer Science faculty on adaptive experiments. I am the lead author on a paper that compares traditional randomized control trials to contextual bandit algorithms (also known as associative reinforcement learning) in online learning environments. In particular we examine the extent to which contextual bandit algorithms can maximize student achievement while still being able to learn the difference in effectiveness across various interventions. A short version of the paper has been accepted in the peer reviewed proceedings of the Educational Data Mining conference to be presented as a poster this July (link to paper: `https://tiny.cc/pcontextual`).