

Alex Huang

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Education

- PhD Georgia Institute of Technology**, Machine Learning, Home Unit: ISyE Starting Sept 2026
- MS University of Chicago**, Applied Mathematics Sept 2022 – May 2025
- GPA: 3.9/4.0
 - Selected Coursework: Functional Analysis, Online Learning, Combinatorics, Algorithms, Nonlinear Optimization, Machine Learning, Deep Learning Systems, Computer Vision, Numerical Linear Algebra
- BS Columbia University**, Operations Research: Financial Engineering Sept 2018 – June 2022
- Minor: Applied Mathematics
 - GPA: 3.95/4.0
 - Selected Coursework: Real Analysis, PDE, Game Theory, Stochastic Processes, Statistics, Linear & Convex Optimization, Simulation Modelling, Applications Programming

Research Experience

- Research Intern – Chicago, Illinois** Mar 2025 – Apr 2026
- Advised by Dr. Pranav Nuti (Postdoc) and Prof. Rad Niazadeh
- University of Chicago Booth School of Business
 - Working on relaxing the uniform random arrival order assumption in secretary problem variants, specifically for matchings over edge-weighted bipartite graphs with vertex arrivals
 - Developed an optimal algorithm for the online edge-weighted bipartite matching problem with adversarial grouping that extends to a fixed time horizon setting ([draft](#))
- Master's Thesis – Chicago, Illinois** Sept 2024 – Apr 2025
- Advised by Prof. Cong Ma
- Studied convergence properties of scaled gradient descent (ScaledGD) and investigated performance for low-rank adaptation (LoRA) fine-tuning in large language models
 - Investigated the impact of condition numbers and different initialization strategies on performance

Work Experience

- Machine Learning Engineer**, Fireball Information Technologies – New York, New York July 2022 – Jan 2024
- Developed a ray casting module that utilizes digital elevation models (DEMs) and camera metadata to both calibrate cameras and pinpoint fires in positive detections
 - Assisted in developing and fine-tuning the ML model that forms the core wildfire detection model; developed additional machine learning models to reduce false positives

Independent & Course Projects

- Modeling NYC Taxi Profitability – New York, New York** June 2021
- Joint work with Dr. Aapeli Vuorinen
- Analyzed NYC Open Data on taxi trips to model neighborhood-level profitability based on discounted future profits, accounting for probable next destinations via a PageRank-like concept

Teaching

IEOR 4307 (Statistics and Data Analysis) Teaching Assistant

Fall 2020

Columbia University; Instructor: Kaizheng Wang

IEOR 3609 (Advanced Optimization) Teaching Assistant

Spring 2021

Columbia University; Instructor: Shipra Agrawal

Volunteering

Head Cook/Kitchen Organizer, St. Stanislaus Kostka Church – Chicago, Illinois Sept 2023 – June 2024

- Committed six hours every Monday for eight months, while training and onboarding new volunteers to sustain kitchen operations
- Organized and served meals for over 150 community members per session during Chicago's migrant crisis

Skills

Programming Languages & Databases: Python, PostgreSQL, LaTeX

Other Interests: Cooking, Competitive Tetris, Tennis

Awards & Honors

Magna Cum Laude, Columbia University; Latin Honors

June 2022

Tau Beta Pi, Columbia University; Academic Honor Society Inductee

2021-2022

Dean's List, Columbia University

2018-2022