Michael Huang

https://mh3166.github.io/

Contact Information

Bridge Hall 401J
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Education

University of Southern California, Los Angeles, CA **2017-2022** (Expected)
Ph.D. Student in Data Sciences and Operations
Thesis: Data-driven optimization for the small-data regime
Advisors: Vishal Gupta, Paat Rusmevichientong

Columbia University, New York, NY **2011-2016**
M.S. in Operations Research 2016
B.S. in Operations Research, Minor in Computer Science 2015

Research Interests

Large-scale, data-driven optimization with scarce data and algorithm design with applications in transportation, healthcare, and recommender systems.

Publications

C. W. Chan, M. Huang, V. Sarhangian, "Dynamic server assignment in multiclass queues with shifts, with application to nurse staffing in emergency departments." *Operations Research, 2021.*

M. Huang and C. Stein. Extending Search Phases in the Micali-Vazirani Algorithm. 16th International Symposium on Experimental Algorithms, pp. 10:1–10:19, 2017.

Working Papers

V. Gupta, M. Huang, P. Rusmevichientong, "Learning Policy Performance in the Small-Data, Large-Scale Optimization Regime."
Manuscript in Preparation. Targeted Journal Management Science

Projects

Emergency Department Nurse Scheduler **2016-2017**
- Implemented web application to schedule nurses for a trial at Weill Cornell Medicine which significantly reduced wait times in the Emergency department.
- Developed data-driven nurse scheduling policies by studying the discrete-time fluid control problem for a multiclass queuing system that minimizes holding cost

Professional Experience

IBM, Yorktown Heights, NY **2020**
Research Intern
- Developed a gradient-based, end-to-end learning decision tree framework for classification and regression settings specialized for high dimensional settings.

Mora, Boston, MA **2019**
Co-founder, Data Scientist
- Accepted into Harvard Business School Rock Incubator Venture Program
- Developing a matching algorithm to improve the quality of behavioral healthcare experience and referral process. Currently collaborating with Harvard University Health Services.

Aquant Capital Management, LLC, New York, NY **2016**
Consultant
- Replicated a private equity fund strategy through a risk-adjusted portfolio of small, value stocks
- Built a tool to numerically solve a game theory problem for use in a trading strategy

Haidar Capital, New York, NY **2014-2015**
Generalist Intern

- Constructed VBA macros to automate P&L reconciliations and provide other operational support
- Researched competitor funds focusing on macro strategy to identify potential and untapped ideas

Commodity Futures Trading Commission, New York, NY **2014**
Surveillance Analyst Intern
- Developed tools and quantitative models to detect disruptive trading signals

Teaching Experience

Columbia University
Teaching Assistant, CSOR 4231 Analysis of Algorithms I **Fall 2016**
Course Assistant, IEOR 4405 Production Scheduling **Spring 2016**

University of Southern California
Instructor, BUAD 311 Operations Management **Fall 2020**
Teaching Assistant, BUAD 311 Operations Management **Spring 2020**

Honors and Awards

1st Place, Correlation One Datathon, Southern California **2017**

2nd Place, Correlation One Datathon, West Coast Regional **2020**
Data science competition with over 125 selected participants that used real datasets to answer open-ended problems with the 1st prize of $20,000. We used statistical and network analysis models to answer questions about transportation like Uber and Citibike and offer policy suggestions

Marshall/Graduate School Fellowship **2017-2022**
Competitive fellowship for graduate students to support their doctoral work, covering their tuition and stipend.

The Robert Gartland Fellowship **2016**
Fellowship to support M.S. students in the Columbia IEOR department, who have demonstrated academic excellence and professional promise in engineering and its business applications.

Conferences & Invited Talks

"Learning Policy Performance in the Small-Data, Large-Scale Optimization Regime"
- INFORMS Annual Meeting, Virtual **Nov. 2020**

"Decomposition Methods for Small-Data, Large-Scale Discrete Optimization"
- INFORMS Annual Meeting, Seattle, WA **Oct. 2019**

"Extending Search Phases in the Micali-Vazirani Algorithm"
- Symposium on Experimental Algorithms, London, UK **Jun. 2017**

Services

Conference Organization: INFORMS Session Chair 2019

Computing

Python, R, Julia, C/C++, SQL, Mathematica, Matlab, Gurobi