# Michael L. Hamilton

mh3461@columbia.edu | 201-919-2142

**Education**

**Columbia University**, New York, NY — Fall 2014 - Present
*Ph.D. Candidate* in Industrial Engineering & Operations Research
Advisor: Adam N. Elmachtoub

**Rutgers University**, New Brunswick, NJ — Fall 2010 - Spring 2014
B.S Mathematics with High Honors
Minors: Computer Science, Operations Research

**Professional Experience**

**MediaMath**, New York, NY — Summer 2017
*Research Science Intern*
- Designed and prototyped budget aware bidding algorithms for demand side platforms (DSP's) participating in real-time ad auctions.

**Amazon Research**, Seattle WA. — Summer 2016
*Research Science Intern*
- I was a member of the Inventory Planning and Control (IPC) group on the topology team. I designed and prototyped a scalable, clustering based preprocessing method for use in facility location problems.

**North Carolina State University**, Raleigh, NC — Summer 2013
*Undergraduate Researcher*
- I participated in the mathematics REU program under the supervision of Prof. Hien Tran, in collaboration with MIT Lincoln Labs. I worked on applying machine learning techniques to the problem of baseball pitch prediction.

**Papers & Publications**

Elmachtoub, A., Gupta, V., **Hamilton, M.**, *The Value of Personalized Pricing*, Submitted to Management Science.
*Finalist for Service Science Best Cluster Paper Competition*

Elmachtoub, A., **Hamilton, M.**, *The Power of Opaque Products in Pricing*, Major Revision at Management Science.

**Ongoing Projects**

Elmachtoub, A., **Hamilton, M.**, Sun, Y., *Data-Driven Pricing for Service Requests.*

Chen, N., Elmachtoub, A., **Hamilton, M.**, Lei, X., *The Design and Pricing of Loot Boxes.*

**Previous Papers**

Hoang, P., **Hamilton, M.**, Murray, J., Stafford, C., & Tran, H. *A Dynamic Feature Selection Based LDA Approach to Baseball Pitch Prediction.* Trends and applications in knowledge discovery and data mining (2015), 125-137.

**Hamilton, M.**, Hoang, L. Layne, J. Murray, D. Padget, C. Stafford, & H. Tran. *Applying Machine Learning Techniques to Baseball Pitch Prediction.* Proc. of the 3rd Int. Conf. on Pattern Recognition Applications and Methods (2014).

**Presentations**

*"The Value of Personalized Pricing"*

- MSOM Conference 2018, Dallas TX. — July 2018

- RMP Section Conference 2018, Toronto CN. June 2018
- POMS Annual Conference 2018, Houston TX. May 2018
- INFORMS Annual Meeting 2017, Houston TX. Oct. 2017

*"The Power of Opaque Products in Pricing"*

- WINE Conference 2017, IIS, Bangalore, India. Dec. 2017
  **(Peer Reviewed, 35% Acceptance Rate)**
- MSOM Conference 2017, UNC, Chapel Hill NC. June 2017
- POMS Annual Conference 2017, Seattle WA. May 2017
- INFORMS Annual Meeting 2016, Nashville TN. Nov. 2016
- RMP Section Conference 2016, NYU, New York NY. June 2016

*"Applying Machine Learning Techniques to Baseball Pitch Prediction"*

- JMM, MAA Undergraduate Student Poster Session Jan. 2014
  **Outstanding Presentation Winner**

**Teaching Experience**

**Columbia University**, New York, NY

IEOR 4111 Operations Consulting. *Teaching Assistant*
*Instructor: Soulaymane Kachani* Fall 2017 - Spring 2018

- Mandatory two semester course for all MS&E students.
- Supervised teams of students applying tools from operations research/machine learning to real-world consulting projects. Sponsor companies include Standard & Poors, Louis Vuitton, FreshDirect, The Gates Foundation, and Rent the Runway.

IEOR 8100 Learning and Optimization for Sequential Decision Making. *Teaching Assistant*
*Instructor: Shipra Agrawal* Spring 2016

- PhD level seminar course.
- Held weekly office hours for consolidating student understanding.
- Graded and wrote solutions to the problems sets.

IEOR 4004 Optimization Models & Methods. *Teaching Assistant*
*Instructor: Donald Goldfarb* Fall 2015, Fall 2016

- Masters level course covering linear programming and network flows.
- Ran weekly recitations and wrote solutions to the problems sets.
- Oversaw the grading of homework, midterm and final.

IEOR 4106 Stochastic Models. *Teaching Assistant*
*Instructor: Mariana Olvera-Cravioto* Spring 2015

- Masters level course on stochastic processes.
- Ran weekly recitations and wrote solutions to the problems sets.
- Oversaw the grading of homework, midterm and final.

**Rutgers University**, New Brunswick, NJ

CS 111, Introduction to Computer Science. *Recitation Mentor*
*Instructor: Andrew Tjang* Spring 2013 - Spring 2014
- Ran weekly recitations demonstrating the fundamentals of programming in Java and graded student projects.

MATH 151/152, Calculus I & II. *Grader*
*Mathematics Department* Fall 2012 - Fall 2014
- Graded the homeworks for various introductory calculus courses.

**Honors & Awards**

**Weill Scholarship**
*for academic merit in mathematics* 2013 - 2014

**SAS Excellence Award, The Harry J. Riskin Scholarship**
*for students who demonstrate academic merit and financial need* 2012 - 2014

**Scarlet Scholarship** 2010 - 2014
*for academic merit*

**Dean's Scholarship** 2010 - 2014
*for academic merit*

**Rutgers Mathematics Honors Track** 2013 - 2014
*for students aiming to do graduate work in mathematics or related fields*

**Rutgers School of Arts and Sciences Honors Program** 2010 - 2014

**Extracurriculars**

2018 Academic Job Market Panel Organizer
2017 IEOR-DRO Seminar Student Organizer

**Languages**

Python, Julia, Matlab, Java, LaTeX

**References**

**Adam N. Elmachtoub**
Assistant Professor
Columbia University IEOR
adam@ieor.columbia.edu
535F S.W. Mudd Building
500 West 120th St., New York, NY 10027

**Vishal Gupta**
Assistant Professor
University of Southern California, Marshall School of Business
guptavis@usc.edu
3670 Trousdale Parkway, BR 401 G
Los Angeles, CA 90025

**Jay Sethuraman**
Professor
Columbia University IEOR
jay@ieor.columbia.edu
314 S.W. Mudd Building
500 West 120th St., New York, NY 10027-6902