

CONTACT INFORMATION	535F S.W. Mudd Building 500 West 120th St., New York, NY 10027	adam@ieor.columbia.edu www.columbia.edu/~ae2516/
EMPLOYMENT	<b>Columbia University</b> , New York, NY <i>Department of Industrial Engineering and Operations Research (IEOR)</i> <i>Data Science Institute (DSI)</i> Assistant Professor	<b>August 2015 - present</b>
	<b>IBM T.J. Watson Research Center</b> , Yorktown Heights, NY <i>Department of Business Analytics and Mathematical Sciences</i> Postdoctoral Researcher in Smarter Commerce	<b>August 2014 - July 2015</b>
EDUCATION	<b>Massachusetts Institute of Technology</b> , Cambridge, MA <i>Operations Research Center</i> Ph.D. in Operations Research	<b>September 2009 - June 2014</b>
	<ul style="list-style-type: none"><li>• Advisor: Retsef Levi</li><li>• Track: Operations Management</li><li>• Thesis: <i>New Approaches for Integrating Revenue and Supply Chain Management</i></li></ul>	
	<b>Cornell University</b> , Ithaca, NY <i>School of Operations Research and Information Engineering</i> B.S. in Operations Research and Engineering	<b>August 2006 - May 2009</b>
	<ul style="list-style-type: none"><li>• Minor in Applied Mathematics</li></ul>	
STUDENT SUPERVISION	<i>Ph.D. Students:</i>  Xiao Lei (expected 2022)  Yeqing Zhou (expected 2021)  Ryan McNellis (expected 2019) Thesis: <i>Integrated Approaches for Machine Learning and Decision Making</i> First position: Research Scientist at Amazon  Yunjie Sun (expected 2019) Thesis: <i>Pricing Analytics for Reusable Resources</i> First position: Data Scientist at TripAdvisor  Michael Hamilton (expected 2019) Thesis: <i>Analysis of Modern Pricing Strategies in E-commerce</i> First position: Assistant Professor at Katz Graduate School of Business, University of Pittsburgh  <i>Thesis Committee Member:</i> Xinshang Wang (2017), Francois Fagan (2018), Shuangyu Wang (2018), Suraj Keshri, Kumar Goutam, Ashraf Chamseddine  <i>M.S. Students:</i> Othman El Balghiti (2019), Xiao Lei (2017 → Columbia Ph.D.), Cheng Guo (2017 → U. Toronto Ph.D.), Yeqing Zhou (2015 → Columbia Ph.D.)  <i>B.S. Students:</i> Jinglei Zhang (2019), Jason Liang (2018 → MIT Ph.D.), Omar Abboud (2016 → Harvard M.S.)	
PUBLICATIONS	A. N. Elmachtoub, R. McNellis, S. Oh, and M. Petrik. <i>A Practical Method for Solving Contextual Bandit Problems Using Decision Trees</i> . Proceedings of the 33rd Conference on Uncertainty in Artificial Intelligence (UAI), 2017. <ul style="list-style-type: none"><li>• Invited for oral presentation (top 10% of submissions).</li></ul> A. N. Elmachtoub and R. Levi. <i>Supply Chain Management with Online Customer Selection</i> . <b>Operations Research</b> , Vol. 64(2), p. 458-473, 2016.	

M. Cheung, A. N. Elmachtoub, R. Levi, and D. B. Shmoys. *The Submodular Joint Replenishment Problem*. **Mathematical Programming**, Vol. 158(1), p. 207-233, 2016.

A. N. Elmachtoub and R. Levi. *From Cost Sharing Mechanisms to Online Selection Problems*. **Mathematics of Operations Research**, Vol. 40(3), p. 542-557, 2015.

D. Sheldon, B. Dilkina, A. N. Elmachtoub, R. Finseth, A. Sabharwal, J. Conrad, C. Gomes, D. Shmoys, W. Allen, O. Amundsen, B. Vaughan. *Maximizing the Spread of Cascades Using Network Design*. Proceedings of the 26th Conference on Uncertainty in Artificial Intelligence (**UAI**), p. 517-526, 2010.

- Invited for oral presentation (top 12% of submissions).

A. N. Elmachtoub and C.F. van Loan. *From Random Polygon to Ellipse: An Eigenanalysis*. **SIAM Review**, Vol. 52(1), p. 151-170, 2010.

SUBMITTED  
PAPERS

A. N. Elmachtoub, V. Gupta, and M. L. Hamilton. *The Value of Personalized Pricing*. First version: February 2018. Current version: October 2018. Submitted.

- Finalist, INFORMS Service Science Cluster Best Paper Competition, 2018.

A. N. Elmachtoub and P. Grigas. *Smart “Predict, then Optimize”*. First version: October 2017. Major revision in **Management Science**.

A. N. Elmachtoub and M. L. Hamilton. *The Power of Opaque Products in Pricing*. First version: August 2017. Current version: June 2018. Major revision in **Management Science**.

- Accepted to The 13th Conference on Web and Internet Economics (**WINE**), 2017.

A. N. Elmachtoub and Y. Wei. *Retailing with Opaque Products*. First version: September 2015. Current version: September 2018. Major revision in **Manufacturing & Service Operations Management**.

A. N. Elmachtoub, D. Yao, and Y. Zhou. *Opaque Selling: Leveraging Consumer Flexibility in Inventory Management*. First version: January 2019. Submitted.

O. Besbes, A. N. Elmachtoub, and Y. Sun. *Static Pricing: Universal Guarantees for Reusable Resources*. First version: February 2019. Current version: May 2019. Submitted.

- Accepted to The 20th ACM Conference on Economics and Computation (**EC**), 2019.
- Spotlight presentation at INFORMS Revenue Management and Pricing (**RMP**), 2019 (top 20% of full paper submissions).

O. El Balghiti, A. N. Elmachtoub, P. Grigas, A. Tewari. *Generalization Bounds in the Predict-then-Optimize Framework*. First version: May 2019.

A. Aouad, A. N. Elmachtoub, K. Ferreira, and R. McNellis. *Model Trees for Personalization*. First version: June 2019.

WORKING PAPERS N. Chen, A. N. Elmachtoub, M. L. Hamilton, X. Lei. *Loot Box Pricing and Design*.

A. N. Elmachtoub and X. Lei. *A Choice Modeling Framework for Service Time Windows*.

O. Besbes, A. N. Elmachtoub, and Y. Sun. *Pricing Analytics for Rotable Spare Parts at Dassault Falcon Jet*.

A. N. Elmachtoub, V. Goyal, and R. Lederman. *Maximizing Revenue via Strategic Customer Selection*.

FUNDING AND  
AWARDS

Dassault Falcon Jet - Industry Collaboration (PI), 2019 (\$132,500)

National Science Foundation, CMMI-1763000 - *Collaborative Research: Operations-Driven Machine Learning* (PI), 2018-2021 (\$314,206)

Dassault Falcon Jet - Industry Collaboration (PI), 2018 (\$142,500)

Dassault Falcon Jet - Industry Collaboration (PI), 2017 (\$150,000)

IBM Faculty Award, 2016 (\$40,000)

Forbes 30 under 30 in science, 2016

National Defense Science and Engineering Graduate (NDSEG) Fellow, AFOSR, 2009-2012  
MIT Charles M. Vest Presidential Fellow, 2009  
Degree Marshall for Cornell University, 2009 (Ranked 1<sup>st</sup> in School of Engineering)  
Byron W. Saunders Prize, 2009 (Best GPA in Cornell School of ORIE)  
Merrill Presidential Scholar, 2009 (Top 1% at Cornell University)

TEACHING  
EXPERIENCE

**Columbia University**

*Instructor (Course Rating out of 5, Instructor Rating out of 5)*

- IEOR 4418 Transportation Analytics and Logistics (B.S./M.S elective): Fall 2016 (4.83, 4.88), Spring 2018 (4.94, 4.92), Spring 2019, Spring 2020
- IEOR 4650 Business Analytics (B.S.): Spring 2017 (4.92, 4.86), Spring 2018 (4.64, 4.73), Spring 2019, Spring 2020
- IEOR 4650 Business Analytics (M.S.): Spring 2016 (4.52, 4.48), Spring 2017 (4.71, 4.85), Spring 2018 (4.83, 4.92), Spring 2019
- IEOR 8100 Supply Chain Management (Ph.D.): Spring 2016 (4.92, 5.00)
- IEOR 8100 Prescriptive Analytics (Ph.D.): Fall 2019

**Massachusetts Institute of Technology**

*Teaching Assistant*

- 15.734 Operations Management (Executive MBA): Spring 2013 (6.68/7)
- 15.060 Data, Models, and Decisions (MBA): Fall 2012 (4.47/5)

**Cornell University**

*Teaching Assistant*

- ORIE 3300/5300 Optimization I (B.S./ M. Eng.): Fall 2008 (4.57/5)
- ENGRG 2940 Academic Excellence Workshop for Linear Algebra (B.S.): Fall 2007

INDUSTRY  
EXPERIENCE

FreshDirect (online grocery, 2019-present), Graham Windham (foster care, 2017-present), MediaMath (online advertising, 2017-present), Dassault Falcon (private jets, 2016-present), IBM (analytics, 2014-2016), NBA (basketball, 2014), Tampa Bay Rays (baseball, 2012), Novartis (pharmaceuticals, 2012), ZS Associates (consulting, 2008)

PATENTS

A. N. Elmachtoub, M. R. Ettl, S. Oh, M. Petrik, and R. K. Ravi. Segmentation based estimation method for demand models under censored data. US Patent 2018/0060885.

A. N. Elmachtoub and R. Lederman. Method and system for revenue management using active marketing. US Patent 2017/0358001.

A. N. Elmachtoub, M. R. Ettl, S. Oh, M. Petrik, and R. K. Ravi. Training a machine to dynamically determine and communicate customized, product-dependent promotions with no or limited historical data over a network. US Patent 2017/0046732.

A. N. Elmachtoub, M. R. Ettl, S. Oh, M. Petrik, and R. K. Ravi. Determining feature importance and target population in the context of promotion recommendation. US Patent 2017/0046736.

INVITED TALKS

Notes: (i) A \* symbol implies the talk was given by a coauthor in a peer-reviewed conference without proceedings. (ii) Talks for papers accepted at conferences listed above are not repeated here.

*Smart “Predict, then Optimize”*

- UCLA, Anderson DOTM Seminar, Los Angeles, CA, November 2018
- Columbia University, IEOR Colloquium, New York, NY, November 2018
- MIT ORC 65<sup>th</sup> Anniversary, Cambridge, MA, November 2018
- Institute of Mathematics and Applications, U. of Minnesota, Minneapolis, MN, October 2018
- Uber, San Francisco, CA, August 2018
- EURO Conference, Barcelona, SP, July 2018
- Conference on Statistical Learning and Data Science, New York, NY, June 2018
- Massachusetts Institute of Technology, Sloan OM Seminar, Cambridge, MA, May 2018
- Yahoo Research, New York, NY, May 2018
- INFORMS Optimization Society Meeting, Denver, CO, May 2018
- INFORMS Annual Meeting, Houston, TX, October 2017
- ICCOPT, Tokyo, Japan, August 2016

*Pricing Analytics for Reusable Resources*

- INFORMS Annual Meeting, Seattle, WA, October 2019
- University of Rochester, Simon OM Seminar, Rochester, NY, May 2019
- University of Michigan, IOE Seminar, Ann Arbor, MI, March 2019

*Consumer Flexibility in Service Systems.*

- MSOM Conference, NUS, Singapore, July 2019\*

*Model Trees for Personalization*

- Revenue Management & Pricing Conference, Stanford, CA, June 2019\*

*A Choice Modeling Framework for Service Time Windows.*

- MSOM Conference, NUS, Singapore, July 2019\*
- Revenue Management & Pricing Conference, Stanford, CA, June 2019\*

*The Value of Opaque Products*

- UC Berkeley, IEOR Seminar, San Francisco, CA, September 2017
- University of Southern California, Marshall DSO Seminar, Los Angeles, CA, September 2017
- Mostly OM, Tsinghua University, Beijing, China, May 2017
- Jet.com, Hoboken, NJ, March 2017
- New York University, Stern IOMS Seminar, New York, NY, October 2016

*The Value of Personalized Pricing*

- MSOM Conference, Dallas, TX, July 2018\*
- Revenue Management & Pricing Conference, Toronto, CN, June 2018

*Opaque Selling: Leveraging Consumer Flexibility in Inventory Management*

- MSOM Conference, Dallas, TX, July 2018\*

*The Power of Opaque Products in Pricing*

- MSOM Conference, Chapel Hill, NC, June 2017\*
- Revenue Management & Pricing Conference, New York, NY, June 2016\*
- POMS Annual Conference, Orlando, FL, May 2016

*Maximizing Revenue via Strategic Customer Selection*

- INFORMS Annual Meeting, Houston, TX, October 2017
- Revenue Management & Pricing Conference, New York, NY, June 2016\*
- POMS Annual Conference, Orlando, FL, May 2016

*A Dynamic Learning Approach for Personalized Promotion Recommendations*

- Columbia University, Center for Business Analytics, November 2016
- INFORMS Annual Meeting, Philadelphia, PA, November 2015
- Revenue Management & Pricing Conference, New York, NY, June 2015

*Retailing with Opaque Products*

- IBM T.J. Watson Research Center, AP For Lunch, Yorktown Heights, NY, July 2015
- MSOM Conference, Toronto, Canada, June 2015
- INFORMS Annual Meeting, San Francisco, CA, November 2014

*Supply Chain Management and Logistics Models with Online Customer Selection*

- Duke University, Fuqua DS Seminar, Durham, NC, March 2015

*From Cost Sharing Mechanisms to Online Selection Problems*

- MSOM Conference, New York, NY, June 2012
- INFORMS Annual Meeting, Phoenix, AZ, October 2012
- ISMP Conference, Berlin, Germany, August 2012

*The Submodular Joint Replenishment Problem*

- ISMP Conference, Pittsburgh, PA, June 2015
- IBM T.J. Watson Research Center, IP For Lunch, Yorktown Heights, NY, March 2015
- MSOM Conference, New York, NY, June 2012\*

*Supply Chain Management with Online Customer Selection*

- INFORMS Annual Meeting, Charlotte, NC, November 2011
- MSOM Conference, Ann Arbor, MI, June 2011
- Harvard-MIT OM Student Seminar, Boston, MA October 2011
- Massachusetts Institute of Technology, Sloan OM Seminar, Cambridge, MA, February 2011
- INFORMS Annual Meeting, Austin, TX, November 2010

UNIVERSITY  
SERVICE

Helped lead initiatives in modernizing course names (Spring 2016), business analytics programs (Fall 2016-Fall 2017), website (Fall 2018)

Co-organizer of 1st Year PhD Seminar (Fall 2016, Fall 2017, Fall 2018)

Co-organizer of The IEOR Colloquium (Fall 2018)

Co-organizer of IEOR-DRO Seminar (Fall 2015, Spring 2016, Fall 2016, Spring 2017, Fall 2017)

Faculty advisor for Columbia INFORMS student chapter, (Spring 2016-present). *The chapter has earned the INFORMS Student Chapter Annual Award: Cum Laude in 2016 and 2017.*

Faculty advisor for Columbia Mathematical Contest in Modeling (MCM) team (2017-2019). *Team received Finalist designation in 2017 and Meritorious Winner in 2018.*

Columbia IEOR Ph.D. Admissions Committee (2016-2018)

Columbia IEOR M.S. Admissions Committee (2016-2019)

Columbia IEOR Hiring Committee (2016-2017, 2017-2018, 2018-2019)

Columbia DSI Hiring Committee (2015-2016)

Founder of MIT Mathematical Contest in Modeling (MCM) Competition

Founder of MIT ORC Resources for Easing Friction and Stress (REFS) Program

MIT Teaching Certificate, 2012

Co-organizer of Fall 2012 MIT Operations Research Seminar

ACADEMIC  
SERVICE

Co-founder and co-organizer of NYC Operations Day (2018 at NYU, 2019 at Columbia, 2020 at Cornell)

Associate Editor for *Service Science* (2019-present)

Co-chair of Industrial Engineering and Operations Research track, Machine Learning in Science and Engineering (MLSE) conference, Georgia Tech, June 2019

Session Chair for INFORMS (2015-2019), EURO (2018)

Member of INFORMS, MSOM, MOS, POMS

Journal Reviewer for *Management Science*, *Mathematics of Operations Research*, *Operations Research*, *Mathematical Programming*, *Production and Operations Management*, *Naval Research Logistics*, *INFORMS Journal on Optimization*, and *Mathematical Methods of Operations Research*

Conference Reviewer for *MSOM Supply Chain SIG Conference* (2015), *MSOM Service Operations SIG Conference* (2018), *International Conference in Machine Learning (ICML)* (2019) and *Uncertainty in Artificial Intelligence (UAI)* (2019)

Competition Reviewer for POM Supply Chain College Student Paper Competition (2016-2018)

SOFTWARE

R, Python, Julia, Gurobi, MATLAB, CPLEX

PERSONAL

**Citizenship:** USA and Lebanon

**Languages:** English, Arabic (fluent), Spanish (beginner)

**Hobbies:** Basketball, backgammon, soccer, stand-up comedy