Zachary D. Owen, Ph.D.

zachdowen@gmail.com · zowen.github.io · github.com/zowen · 610-401-1035
2030 S Main St, Seattle, WA 98144

EDUCATION	**Massachusetts Institute of Technology, Operations Research Center,** Cambridge, MA Ph.D. in Operations Research, June 2018, Cumulative G.P.A.: 5.0/5.0 Thesis: *Revenue Management and Learning in Systems of Reusable Resources* Advisor: Prof. David Simchi-Levi, Thesis Committee: Stephen Graves, John Tsitsiklis

Cornell University, College of Engineering, Ithaca, NY
Bachelor of Science in Engineering, *magna cum laude*, May 2011, Cumulative G.P.A. 3.87/4.0
Major: Operations Research and Information Engineering, Minor: Applied Mathematics

WORK EXPERIENCE

Co-Founder, Head of Algorithms and Engineering   10/2016 – Present
Armoire Style Inc., Seattle, WA
- Designed and implemented in production custom machine learning algorithms, based on user-item embeddings, for clothing assortment recommendation resulting in recommended items representing 80%+ of rentals.
- Managed 4 member engineering team in designing and implementing the entire technical foundation of a $130k MRR/$1.5M ARR business using Python and Django.
- Owned the development and provision of metrics and analytics for the company, including predictive dashboards for the merchandising team using historical demand patterns to inform macro inventory allocation and performance data to inform tactical buying.

Lead Data Scientist   12/2015 – 10/2016
Hive Maritime, Cambridge, MA
- Developed algorithms for predicting global shipping vessel traffic using data from multiple sources including space-based AIS (S-AIS) data feeds. Successfully predicted destination and ultimate time of arrival for transpacific voyages with high accuracy within hours of departure.
- Designed and deployed a cloud-based data warehouse and distributed job processing system on AWS for S-AIS data using PostgreSQL and PostGIS, enabling efficient access and computation on more than 300GB of AIS data encompassing hourly location data for every shipping vessel on the planet for a year.

Data Scientist Intern   6/2015 – 8/2015
Stitch Fix, San Francisco, CA
- Developed a data-driven policy to manage clearance recommendations, whereby poorly performing styles are removed to mitigate the significant opportunity cost of sending these items relative to otherwise similar but better performing alternatives.
- Fully implemented the resulting recommendation system end-to-end: from querying with SQL to data processing and optimization in Python and creating a functional dashboard using Flask and Javascript for use by business partners.

Trading Analyst   7/2011 – 7/2013
Barclays Capital Inc., Equity and Fund Structured Markets, New York, NY
- Worked with senior traders to manage risk inherent in a book of exotic equity derivatives, including sensitivities to implied volatility, interest rates, market gaps, and higher order risks.
- Independently responsible for pricing, trading, and hedging equity-linked structured notes in both primary and secondary markets including reverse convertibles, auto-callables, lookback notes etc. with notional values of up to $10M.

RESEARCH

Price and Assortment Optimization for Reusable Resources (working paper 2018)
- Developed a constant factor performance guarantee for a large-scale pricing and assortment optimization of reusable resources under a continuous time horizon.

A Statistical Learning Approach to Personalization in Revenue Management (submitted 2018)
- Developed finite-sample statistical performance bounds for a pricing and assortment optimization algorithm based on transaction data.

SKILLS

Programming Languages: Python (primary); Julia (secondary)
Data Analysis/Machine Learning: NumPy, SciPy, Pandas, Scikit-learn, PyTorch
Mathematics/Statistics/Optimization: SQL (PostgreSQL/PostGIS), AWS, R
General: Unix, Bash, Git

ADVANCED COURSES

Inference & Information · Machine Learning · Statistical Learning Theory
Introduction to Mathematical Programming · Nonlinear Programming · The Analytics Edge
Structure of Information Networks · Special Topics in Applied Statistics (Time Series)