

Zachary D. Owen, Ph.D.
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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: <i>Revenue Management and Learning in Systems of Reusable Resources</i> Advisor: Prof. David Simchi-Levi, Thesis Committee: Stephen C. Graves, John N. Tsitsiklis Cornell University, College of Engineering , Ithaca, NY Bachelor of Science in Engineering, <i>magna cum laude</i> , 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 Machine Learning and Engineering 10/2016 – Present <i>Armoire Style</i> , Seattle, WA • Led 4 member engineering team to design and implement the codebase of a recommendation-driven ecommerce startup raising \$3M+ with multi-million ARR using Python/Django. • Designed and implemented in production custom machine learning algorithms, based on user-item embeddings, for contextual clothing recommendation resulting in recommended items representing 80%+ of rentals. Developed collaborative ordinal classifier for fit prediction. • Owned the development and provision of business 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 <i>Hive Maritime</i> , Cambridge, MA • Developed algorithms for predicting global shipping vessel traffic using data from multiple sources including space-based AIS (S-AIS) data feeds. Used nearest-neighbor style algorithm on GPS trajectories to predict the destination and ultimate time of arrival for transpacific voyages within hours of departure. Predictions generally within hours of true arrival time. • Designed and deployed a cloud-based data warehouse and distributed parallel job processing system on AWS using Celery and RabbitMQ for S-AIS data with PostgreSQL and PostGIS, enabling efficient access and computation on more than 300GB of AIS data encompassing hourly location data for every seagoing vessel on the planet for a year. Data Scientist Intern 6/2015 – 8/2015 <i>Stitch Fix</i> , 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. Trading Analyst 7/2011 – 7/2013 <i>Barclays Capital, Equity and Fund Structured Markets</i> , 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.
RESEARCH	Price and Assortment Optimization for Reusable Resources (R&R, Management Science, 2018) • Developed a constant factor performance guarantee for a large-scale pricing and assortment optimization of reusable resources under a continuous time horizon with applications to systems such as cloud computing, parking management, and clothing rental. 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	<i>Programming Languages</i> : Python, Django Framework (proficient); Julia, R (prior experience) <i>Data Analysis/Machine Learning</i> : SQL (Postgres/PostGIS), NumPy, Pandas, Scikit-learn, PyTorch <i>General</i> : Git, AWS (EC2, S3, RDS, etc.), Algorithms and Data Structures
INTERESTS	Approximate Inference, Bayesian Statistics, IR/Recommender Systems, NLP, Scalable ML Stochastic Optimization, Reinforcement Learning, New Applications of Machine Learning
ADVANCED COURSES	Inference & Information · Machine Learning · Statistical Learning Theory · Algorithms Introduction to Mathematical Programming · Nonlinear Programming · The Analytics Edge Structure of Information Networks · Special Topics in Applied Statistics (Time Series)