Max Livingston

maxliving@gmail.com
maxlivingston.org

Employment

Datadog
Senior Data Scientist (May 2020 – Present)

- Embedded on security engineering team to explore problems that could be solved using ML models
  - Developed, prototyped, and deployed (as a Spark batch ETL job) a novel anomaly detection system for monitoring Kubernetes audit logs
  - Trained and deployed a random forest classifier to detect malware in internal DNS logs
- Adapted an online outlier-detection model in Java to support multiple use-cases across a variety of Datadog products (APM, RUM, Logs)

Freebird
Director of Data Science (Jan 2020 – March 2020)
Senior Data Scientist (Feb 2019 – Jan 2020)
Data Scientist (Feb 2017 – Feb 2019)

- As the first Data Scientist at Freebird, was responsible for laying the mathematical framework for modeling the risk of a novel insurance-like product, factoring the problem into submodels to enable better error diagnosis and parallel iteration by the team, and determining the research agenda and priorities.
- Created automated risk reporting pipeline in Python to collect data from application database, generate predictions, and output forecasts into Looker for use by business teams
- Produced probabilistic loss forecasts to enable pricing of a $5 million pilot with a major credit card issuer
- Trained scalable Bayesian models using MCMC and Variational Inference to predict the probability of flight cancellations, delays, and last-minute prices
  - Presented research comparing methods for flight delay prediction at PAPIs conference 2018 (video)
  - Built a Bayesian hierarchical model of cancellations that uses an auto-regressive process to capture intra- and inter-day correlations, allowing Freebird to forecast both attritional and catastrophic risk
- Maintained Scala service to ingest real-time flight status updates from multiple third party sources so Freebird can notify travelers as soon as something happens to their flight

Knewton
Data Scientist (May 2014 – Sep 2016)

- Wrote production code in Java implementing online machine learning algorithms to deliver real-time education content recommendations
- Contribute to in-house Python library for researching student proficiency using Item Response Theory and Bayes Nets (portions of which are open-source here: https://github.com/Knewton/edm2016)
- Built new model to predict how long students spend on pieces of content using a Gaussian Mixture Model

Federal Reserve Bank of New York
Senior Research Analyst (Jan 2013 – May 2014)
Research Analyst (July 2012 – Jan 2013)

- Performed econometric analyses in Stata, SAS, and R to aid economic research projects and inform monetary policy decisions.
- Published multiple research papers on the effect of the recession and stimulus on school district finances.

Selected Publications

[“Prediction and Uncertainty Quantification of Daily Airport Flight Delays,”](#) with Thomas Vandal, Camen Piho, and Sam Zimmerman, *Proceedings of Machine Learning Research*, 82:45-51, 2018.

[“Did Cuts in State Aid During the Great Recession Lead to Changes in Local Property Taxes?,”](#) with Rajashri Chakrabarti and Joydeep Roy, *Education Finance and Policy*, 9(4), pp. 383–416. Fall 2014.

A complete list is available at: maxlivingston.org

Education

Wesleyan University, Middletown, CT
September 2008 – May 2012

- Awarded High Honors in Economics for thesis analyzing the effect of teachers' unions on school district performance.

- BA in Economics; Phi Beta Kappa, Dean's List