Mark Paluta

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Summary

Research scientist with 5 years of experience across mathematical modeling, business analytics, experimentation, and engineering. Most comfortable delivering results, learning and cultivating a growth mindset, and bringing out the best in others.

Experience

Convoy **Nov 2019 – Present**

Research Scientist *Nov 2019 – Present*

- Built all of the company operational work forecasts for one day to one week horizons. Improved MAPE 20-40% by work type compared to rolling average baselines.
- Deployed prioritization model for facility appointment setting operational work. Saved $3-5/shipment by prioritizing getting more price-sensitive shipments to market.

Boeing **Feb 2016 – Oct 2019**

Data Scientist *Jan 2019 – Oct 2019*

- Deployed prognostics models and identified 10+ degraded components for early replacement, reducing unscheduled maintenance burden on airlines.
- Invented tool for automated aggregation and cleaning of aircraft part history data.

Software Engineer *Sept 2018 – Jan 2019*

- Architected user permissions system in Python and Neo4j, including read and write access, military restrictions, and admin rights for enterprise manufacturing application with future 10,000+ user base.

Lead Quality Engineer *April 2017 – Sept 2018*

- Led a team of 13 engineers on data analysis of fuselage automation center health. Designed experiments, sampling plans, and statistical models to improve production quality; eliminated four major chronic defects each costing $10k+ per airplane.
- Strategically informed executive-level business decisions by visualizing and presenting production quality data; made recommendations regarding risks and opportunities.
- Achieved maximum performance score in first year, ranked in top tier of organizational retention, and earned accelerated promotion due to technical achievement.

Product Review Engineer *Feb 2016 – April 2017*

- Assumed sole responsibility for integrity of 300 repairs for 20+ year airplane lifetime.

Education

UC Berkeley, Master of Information and Data Science (MIDS) **Dec. 2019**

Stanford University, M.S., Aeronautics and Astronautics **Dec. 2015**

University of Notre Dame, B.S., Aerospace Engineering, *magna cum laude* **May 2014**

Selected Projects

FairAir

Won the Hal Varian Capstone Award for top project among 13 student teams. Leverages the PurpleAir IoT air quality sensor network to predict air quality in disadvantaged neighborhoods that cannot afford sensor coverage and are nearer to pollution sources.

Headline Generation with Sentiment

Applied novel sentiment-based preprocessing technique prior to text summarization algorithm. Improved sentiment score without sacrificing summarization score.

Quadrotor Reinforcement Learning Research

Designed simulation of quadrotor UAV in MATLAB and implemented from-scratch reinforcement learning; learned behavior comparable to PID controller.

Tetris Reinforcement Learning

Implemented Tetris RL algorithm in Python and outperformed lowest-center-of-gravity baseline.

Appliance Scheduling Optimization

Optimized residential appliance scheduling for earliest completion time using ant-colony optimization in Python; baselined results against duration-sorting algorithms.

Awards

- *Hal Varian Capstone Award*
- *Stanford Departmental Fellowship*
- *Boeing Scholar*

Publications

- MJ Bilka, MR Paluta, JC Silver, SC Morris - Experiments in Fluids (2015). *Spatial correlation of measured unsteady surface pressure behind a backward-facing step.*

Core Technical Skills

- **Languages:** Python, R, SQL
- **Math:** machine learning, statistics, experimentation, optimization, forecasting