Mark Paluta

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Summary

Senior researcher skilled in machine learning, business analytics, and operations research. Experienced in various parts of the data stack including metrics, data models, predictive modeling, deployment, and experimentation.

Experience

Atlassian **Sept 2022 – Present**

Senior Data Scientist *Sept 2022 – Present*

- Optimal routing of tickets to support staff, task automation, and data model improvements.

Convoy **Nov 2019 – May 2021**

Research Scientist *Nov 2019 – May 2021*

- 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.
- Prioritized appointment setting on price-sensitive shipments to get them to market sooner, saving estimated $100k-500k/year.
- Defined 2021 technical roadmap for prioritization and allocation of operational work.

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.
- Built production quality visualizations for weekly executive review and highlighted risks and opportunities.

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. Used PurpleAir sensors to predict air quality in poor neighborhoods that cannot afford sensors.

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 task scheduling for earliest completion time using ant-colony optimization.

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.*

Technical Skills

- **Languages:** Python, SQL
- **Math:** machine learning, statistics, optimization, forecasting
- **Experimentation:** A/B tests, non-experimental methods