

## Key Skills / Abilities

- A/B Testing, C#, Python, Azure, backend software development, Kusto query language, data analysis, program management
- Granted Patents: US9157746B2, US10279928B2

## Experience

### **Microsoft** | *Azure Experimentation Platform* | 2017 - Present

Senior Software Engineer

- Platform Notifications Program Manager – Took on the role of Program Manager to lead development of the new Notifications feature of the Azure Experimentation Platform. I researched existing notifications systems inside and outside of Microsoft, conducted customer interviews, developed requirements, wrote specifications, assisted with design and architecture, planned release timelines and customer communications, and organized meetings with the engineering teams in Beijing and Seattle.  
This work targets improving CSAT for our 4,000 MAU A/B testing web service.
- SRM Data Quality Debugger – Led the team of engineers in the development of a UX and processing pipeline which detects and diagnoses a common experiment quality issue called a Sample Ratio Mismatch. The app walks users through a wizard experience where they are shown possible root causes and given enough data to diagnose issues and fix their A/B tests.  
Co-authored MSR blog post here: <https://aka.ms/exp/DiagnosingSRM>
- Experiment Data API – Designed and developed a set of scalable and highly-available APIs, data contracts, and a client package which enables customers of the Azure Experimentation Platform to easily extract their experiment data from our service and into their own databases for additional custom analysis, metric health, and reporting.
- Segments of Interest – Developed an Azure app service data pipeline and API which performs clustering on population segments (e.g.: by browser, country, operating system, etc.) and detects anomalies among those segments. This tool has detected hidden bugs and other bad interactions in A/B tested features well before they could reach the general population of users.
- Historical Metric Data Pipeline – Developed and maintained the Kusto data processing pipeline for all historical metric data that flows through the Azure Experimentation Platform – averaging over 30 billion rows per month, with high availability, and low latency. I am the team expert on the Kusto query language, regularly answering questions and providing tutorials via Jupyter Notebooks displaying best practices for good data analysis.

### **Boeing** | *Product Development* | 2012- 2017

Senior Software Engineer

- Robotic Carbon Fiber Manufacturing – I was a technical lead engineer for a team of software and systems engineers tasked to develop tools and processes for carbon fiber manufacturing on the 787, 777X, and New Mid-market Airplane through the Design for Producibility initiative.
  - o We used a proprietary Python geometry engine to solve manufacturing optimization problems to maximize material use efficiency and produce high quality airplane parts using automated fiber placement robots.
  - o My software was credited with saving the 787 program several million dollars, several hundred pounds of weight and thousands of labor hours. It helped to bring the 777X to production on time and has been instrumental in the New Mid-market Airplane feasibility studies by increasing automation, reducing errors, and reducing the cycle time from design to test.

### **Boeing** | *Modeling & Simulation* | 2008 - 2012

Software Engineer

- Genetic Algorithms Library - Developed a genetic algorithm library in C++ that was built to be light and modular to allow Boeing users to write domain specific objective functions and constraints.
- Container Ship Routing Software - Worked with domain experts in the fields of container shipping and ocean weather to use our genetic algorithm library to create a desktop application that optimizes transoceanic voyages for container ships, accounting for multiple objectives including ship travel time, total fuel consumption, wear and tear on the ship, probability of damage to cargo, etc.
- Multi-Agent Aircraft Simulation - Implemented A\* and similar path planning algorithms to act as virtual agents to model human thinkers in a large, constructive simulation built in C++ and Python. The scripted agents acted alongside human operators in aircraft simulators throughout the world to accomplish objectives to show the value of Boeing products in customers' fleets.

## Education

2017 | University of Washington | Master's in Industrial & Systems Engineering

2009 | Rochester Institute of Technology | BS Computer Science, Minor Mathematics