

MORGAN WATSON-MORRIS

Overview

- 5 Years at Apple: Infrastructure/Services on Manufacturing data (Current Job)
- 2 Years at Startups: Application/Services
- 2 Years at Dow Chemical: Robotics/Automation

I have a wide variety of experience with different technologies and aspects of the stack, from lower-level services in Go, API backends in Python, Node, and Java, to CI/CD with both binaries and Docker Images, Kubernetes management both directly and with Helm, AWS infrastructure and orchestration. I also enjoy working with customers and alongside partner teams to get a better understanding of a problem and hopefully come up with a solution that addresses what matters instead of a symptom of the root problem.

In my current role within Apple, I have worked on several different applications and services which all share the same goal, taking the enormous amount of information generated by our factories and allowing people to do something useful. This has taken many forms, a distributed real-time platform written in Go to help feed fraud detection ML models, backends for advanced analytical platforms in Python to help researchers draw business value, and most recently a new method for extracting, collecting, and organizing unstructured data to feed the growing wildfire that is AI/ML training.

Work Experience

SOFTWARE ENGINEER – Apple (Manufacturing Data Insight) - Austin, Texas – May 2019 – Present

- Led Design and Implementation of Large Scale Data Ingestion and Movement for Apple Manufacturing Data
Tools: **Golang**, **Linux** tooling, **Docker**, **AWS S3**, **Python**, **Kafka**, and exploration in **Flink**
 - Led Discovery and Requirements gathering from various hardware and testing customers
 - Led Research into existing network and compute infrastructure at manufacturing sites
 - Designed and Built a lightweight daemon in Go with tunable performance characteristics for use at mfg. sites
 - Designed a fault tolerant system for coordinating the daemons running remotely on-sites
 - Built an initial MVP which served to collect several TB of targeted data for compliance and research purposes
- Led Design and Implementation of Analytics Platform for extremely large-scale data analytics on Apple Manufacturing Data
Tools: **Jupyter**, **Python**, **Spark**, **Kubernetes**, **Docker/Containers**, **AWS** (EKS, EC2, S3, CloudFormation, IAM)
 - Deep technical dive for Spark on K8s
 - Led coordination across teams to set up custom monitoring to ensure consistent performance.
 - Worked with AWS to optimize node “packing” to reduce idle compute.
 - Worked with users to determine requirements for a custom tooling to help them more easily use the platform.
 - Led experimentation for leveraging Rust based Polars data frames for rapid lookup in underlying data files.
- Designed, Architected, Led development for distributed system running on all Apple manufacturing data in real time and batch
Tools: **Jupyter**, **Python**, **Spark**, **Kubernetes**, **Golang**, **Docker/Containers**, **Linux/Unix Tooling**, **AWS** (S3)
 - Worked with users and data scientists to determine appropriate scope and requirements
 - Set up various CI, Packaging, and CD pipelines to allow for deployment of services to very secure, isolated sites
 - Lightweight daemon to coordinate movement of large amounts of data from various locations to centralized storage
 - Customer driven tools to allow for ease of interaction with overall platform
 - Set up pipeline to run arbitrary ML Docker Images on a combination of stored and incoming data in real-time
 - Set up ELT pipeline for extracting and aggregating values from manufacturing data
 - Set up ETL Pipelines for managing a nested set structure of apple employees generated from LDAP
- Team Technical Lead for Application Architecture, Infrastructure, and Backend Application Development
Tools: **Grafana**, **Prometheus**, **Splunk**, **Spark**, **Kubernetes**, **Helm**, **Golang**, **Docker/Containers**, **Linux/Unix Tooling**, **AWS** (S3)
 - Worked with DevOps teams to ensure best practices with CI/CD, HA, atomic/immutable deployments
 - Wrote Custom self-contained forwarder (library and image) to connect monitoring tools to Apple internal Alerting
 - Set up Monitoring/Logging Stack for distributed systems
 - Set up custom CI/CD pipeline for deploying distributed system and monitoring/alerting stack
 - Built standard Docker base image for use on K8s interfacing with Apple internal systems
 - Wrote tools to help make logging, observability, monitoring transparent for developers
 - Contributed to the official Internal Apple PySpark Sample Applications
 - Developed libraries for maintaining compatibility with S3 Crypto for internal Object Store

SENIOR SOFTWARE ENGINEER, ARCHITECTURE – Social Solutions Global - Austin, Texas – October 2018 – May 2019

- Technical Lead for Ecommerce Team
- Designed and Led Development on Identity Server with integrated MFA and email Domain verification [**Cognito, Lambda**]

FULL-STACK SOFTWARE DEVELOPER – Social Solutions Global - Austin, Texas – May 2018 – October 2018

- Designed and developed an Enterprise grade (over \$1 Million in pipeline per quarter) serverless Ecommerce Platform for SaaS hosted in AWS [**CloudFormation, Lambda, DynamoDB**]
- Designed and developed an Account Management platform for Enterprise SaaS applications. [**ECS, Docker, GraphQL**]

FULL-STACK SOFTWARE DEVELOPER – Axial Commerce - Austin, Texas – October 2017 – May 2018

- Developed and maintained an MVC structured web application with C# .NET Core backend and React.JS frontend, hosted in Azure
- Automated CI/CD pipelines for the website/API and apps to the Google Play Store and Apple App Store [**Azure Pipelines**]

ROBOTICS DEVELOPMENT ENGINEER – The Dow Chemical Company - Midland, Michigan – Dec 2015 - Oct 2017

- Developed .NET applications in C# to control and coordinate various types of hardware including robotic arms
- Wrote a custom database access layer for handling large, runtime-modified SQL tables from multiple systems
- Setup and Maintained automated CI/CD pipelines through TFS and VSTS for quickly and easily deploying code to robotic systems

Education

THE UNIVERSITY OF TEXAS – Austin, Texas - 2011-2015

- Bachelors of Engineering: Mechanical Engineering