Marcus McCurdy

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Summary

Engineer at heart who has always loved seeing the joy building something useful can bring to others.

I'm a passionate and pragmatic programmer who believes done is better than perfect while at the same time believing that software shouldn't be rushed. I enjoy writing correct code while maintaining a sense of urgency and momentum. I use testing to provide myself with a tight feedback loop and the freedom to refactor without fear. I thrive working in an environment where I can collaborate with other developers on different aspects of our project resulting in a cohesive business feature that brings value to the company.

Experience

Beaxy Digital Ltd. — Remote

Data Scientist *Dec'17 – Present*

- Work directly with CEO and CTO to code blockchain proof of concept applications.
- Architect scalable solutions to real time exchange transactions using NoSQL.
- Research cryptocurrency code bases in consideration of addition as trading pairs on the exchange.

Red Spark — Philadelphia, Pennsylvania

Lead Data Scientist *Feb'16 – Present*

- Brought over a dozen different models into production.
- Built a bid prediction model and increased profit on primary product by 25%.
- Managed two other data scientist direct reports.
- Retreived, cleaned, and merged data from MySQL and User Voice and used the data for agglomerative clustering using scikit-learn. Analyzed 10 clusters for business importance and found a small cluster of customers generating the majority of profit.
- Implemented XGBoost model loading and inference in pure Go for use in a near real time prediction service making over 150k predictions per second with a round trip p95 latency of 1.5 ms.
- Used PySpark to select, clean, transform, and extract terabytes of click stream data for usage in ML models.
- Created a keyword suggestion API using approximate nearest neighbors (ANNOY) and a Sanic webserver exposing a REST prediction API.
- Developed a Docker container for the data science team to standardize our environments.
- Took an existing, unvalidated Vowpal Wabbit (VW) machine learning model and through feature engineering and hyperparameter tuning reduced Mean Squared Error from over 200 to less than 0.3.
- Developed, tested, and deployed a Vowpal Wabbit automatic model trainer. Pulls data from S3, trains VW, uploads model to production.
- Evaluated multiple machine learning models for revenue prediction testing models from Scikit-Learn and others including XGBoost, LightGBM, and SparkML.

Software Engineer Manager *Sept'12 – Feb'16*

- Developed an ETL system in Go that streams data from S3, parses it, uploads back into S3, then performs a distributed RedShift load of the data.
- Developed a logging platform using OpenResty, LuaJIT, logrotate, and S3.
- Full stack development in Laravel developing 50's publisher dashboard.
- Lead developer on 50onRed's cross-browser JavaScript extension platform. A Python Flask web app backed by a MySQL database and SQLAlchemy ORM. The Flask app is served by uWSGI and reverse proxied by NGINX.
- Worked closely with operational analysts to provide custom reporting on 50's internal PHP dashboard and MySQL database.
- Updated a manual process of editing JavaScript in text fields and transformed it into a single page AngularJS application providing a simple interface for creating ad units that are compiled into fully functioning JavaScript ad units.
- Revolutionised 50's Python web scraping framework by rewriting a synchronous process into an asynchronous job queue with RQ.
- Major contributor to a Java and Jetty based popup serving daemon processing billions of requests daily.

- Implemented a concurrent Java application to process and aggregate terabytes of Akamai log files daily and store them in a PostgreSQL database.
- Extensive Amazon AWS deployments and provisioning with Ansible.
- Installed and maintained a Sentry event logging server to track errors across Java, Python, PHP, and JavaScript code bases.

Drexel University — Philadelphia, Pennsylvania

Research Engineer — *Apr'09 – Sept'12*

- Performed background research and drafted a proposal for an internal R&D online learning project focusing on integrating artificial intelligence into Drexel's online courses. Proposal after research was approximately $700,000 under initial estimates and was presented to the president of the university.
- Technical lead on a US Army funded Android development project. Assessing the feasibility of and implementing agent based networking applications. Also created scenarios for testing and evaluation of networking protocols and performed the evaluations.
- Team lead in the design and implementation of a distributed collaborative battle command planning system for the US army. Oversaw and mentored junior developers during the project while working closely with the lead system integrator to deliver a premium product. Integrated the final product with systems from French and German allies. Extensive use of Swing and NASA's World Wind.
- Designed and implemented an HTTP proxy in C# for a biometrics fingerprint scanner and webserver. The proxy was for both the client application of the fingerprint scanner and the webserver for matching and enrolling biometrics data. The proxy enables the client and server to use an in house pure C content based networking middleware.

Education

Drexel University — Philadelphia, Pennsylvania

Masters degree in Computer Science — *2009 – 2012*

Focused on Artificial Intelligence.

California State University at Long Beach — Long Beach, California

Bachelors degree in Computer Engineering — *2001 – 2007*

Minor in Computer Science.

Skills

Technical specialties: I have a passion for programming and often program just for fun. I've written the most production code in Python, Go, Java, PHP, and JavaScript. I'm obsessed with Machine Learning. I regularly enter ML contests on Kaggle and have success on NumerAI. While Python is currently my primary day to day language I try to remain language agnostic and thoroughly enjoy learning new languages and I've dabbled in Haskell, Clojure, and Ruby. I've been using Go in production for performance critical and concurrent applications. I've also worked with both C and C++ including embedded programming in C on the 8051 microcontroller. Experience with web technologies HTML, CSS, and LESS. Written the most SQL for both MySQL and PostgreSQL and deployed both databases to AWS and DigitalOcean. Linux system administration (mostly Ubuntu) on AWS and my own personal machine. I use Git and Mercurial daily. I currently use IntelliJ as my IDE, but have used Visual Studio for C# and C++ development. My editor of choice is Vim despite attempts to coerce me into using Emacs.

Natural languages: English *(native), German* (limited).

Interests

Non-exhaustive and in alphabetical order: Biking, cooking, cryptographic currencies, CrossFit, gaming, hiking, Olympic lifting, programming, reading, and running.