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Career Summary

I am a machine learning engineer and software developer that is excited about using machine learning and software applications to make data-driven insights available to users at any technical level. I have worked at several startups, consultancies, open-source groups, and government organizations as an analyst, engineer, and team lead with groups across the full spectrum of an organization, from product managers and designers to dev ops teams and data scientists. I am a diligent and patient team member that enjoys opportunities to both learn new skills and share my knowledge with colleagues.

Skills

Programming and Mark-Up Languages:
Python
TypeScript, JavaScript, HTML, CSS
SQL

Machine Learning Libraries:
Keras, Tensorflow, and PyTorch
Scikit-Learn

Python Libraries and Frameworks:
Numpy and Scipy
Pandas
Matplotlib and Seaborn
NLTK and Spacy

JavaScript Libraries and Frameworks:
React, MobX, Redux, Angular, and jQuery
D3.js and Highcharts

Platforms:
OSX and Linux
Node.js
Docker
NGINX

Databases:
PostgreSQL and SQLite
MongoDB and Redis

Professional Experience

NASA Ames Research Center (2021 - Present)
I'm employed as a full-time, permanent government contractor through the firm SYMVIONICS within NASA's Simulation Laboratories (aka "SimLabs") organization. I'm currently working as a scrum master and senior software engineer on the XTM Client, a web application and related micro-services that allow researchers to explore scenarios for integrating drones into the wider air traffic control system. As a scrum master I help plan work for upcoming sprints, determine feature requests and timelines with partner teams and project stakeholders, and ensure our work meets NASA software standards. As a software engineer I write documentation and contribute new features while ensuring the project is stable and well-tested. The tools I use include TypeScript, React, Node.js + Express, MobX, Python, Flask, Docker, GraphQL, and both SQL and NoSQL databases.

Some of my achievements include:

- Building new features ahead of demonstrations for NASA senior leadership including the associate administrator of aeronautics research Robert Pearce.

- Introducing new features and best practices to multiple teams with SimLabs, including utilizing Github Actions and pull request templates, and shortening planning meeting times by moving more planning discussions to asynchronous communications like email.

OpenMined (2021 - Present) (Open Source Contributor)
OpenMined is an open-source community committed to combining machine learning and privacy-preserving technologies to enable the advancement of scientific and social progress in data science while prioritizing data privacy and security.

I work as a volunteer developer and tester on OpenMined's projects. Currently I contribute to the Syft project that allows privacy-preserving machine learning on remote datasets. In 2022 I was one of 2 finalists selected from 40 candidates for the first phase of an in-depth mentorship program that involved regular pair-programming on issues in the Syft codebase. In 2021 I contributed code to their web application serving their online courses.

Springboard Machine Learning Engineering Career Track (2020 - 2021) (Fellow)
Springboard's ML engineering program provides 400+ hours of hands-on course material, 1:1 industry expert mentorship, and completion of in-depth capstone projects. Through this program I have mastered skills in the overall machine learning stack including data wrangling at scale, deep learning, and building and deploying large-scale AI systems.
My capstone project was a Japanese-English translation application, using a dataset of Japanese-English sentence pairs to train a neural network and using the resulting model to create a full-stack web application. (See projects section below for more details).

Mode Analytics (2017 - 2020)
An online platform for helping analysts and data scientists perform analysis, build reports, and share their work more effectively. Some of my achievements at Mode included:

- Served as the primary engineer on a full-stack feature used daily by customers to capture screenshots of Mode reports and took the feature from a <20% success rate to ~99%; this feature was a Node.js-based application running inside of a Docker container

- Added observability tools to services such as the screenshot capture application described above that provided analytics capabilities to better understand customer usage patterns and software execution processes

- Successfully developed and lead a JavaScript workshop for members of the customer support engineering team to help them more effectively diagnose and solve customer issues and help users with writing custom JavaScript features in Mode reports

- Regularly deployed and managed web application releases and acted as a first responder for possible production bugs and outages

Ayasdi (2015 - 2017)
An enterprise platform for automated business value discovery and advanced AI-based insights across multiple industries. My work at Ayasdi included:

- Migrated Ayasdi's primary statistical UI from an older Backbone.js framework to one utilizing React and Redux, which greatly improved the performance of tables and visualizations by adding features such as infinite scrolling

- Regularly presented and demonstrated new features at company all-hands meetings

Bluenose Analytics (2013 - 2015)
SaaS platform focused on helping companies grow and retain customers. My responsibilities included:

- Built new and redesigned UI components including a SQL query builder and custom date selector for retrieving data

- Interfaced directly with product managers, designers, and other engineers to spec out and test new features

DNV GL (2008-2010 and 2012-2013)
An international consulting firm offering services in numerous industries. I was part of their alternative energy and energy efficiency evaluation team. My responsibilities included:

- Performed statistical analysis on utility customers' energy usage

- Wrote data mining SAS scripts to find relevant subpopulations of utility customers

- Built Excel dashboards modeling energy usage across multiple climate zones throughout the United States

Bridge Asia Japan (2011) (Volunteer)
I proofread and edited English-language annual reports and other material for the Tokyo office of a Japanese NGO.

Projects

Curt-Mitch.com
Personal website hosting articles and other projects. The site is hosted on DigitalOcean and features a React-based frontend, a Django-based backend within a Docker container, and NGINX working as a reverse-proxy server.
A more detailed description can be found at https://curt-mitch.com/post/website-walkthrough.

Japanese-English Translation Model
Capstone project for the Springboard machine learning engineering program. It consists of a machine translation project using a deep learning model that was trained on 2.8 million Japanese-English sentence pairs which I preprocessed. The neural network architecture used was an encoder-decoder with Gated-Recurrent Units (GRUs) and Bahdanau attention. I trained the model on a Paperspace GPU and deployed it as a full-stack web application on my personal site using static weights and vectorizers to create predictions.
A detailed walkthrough of the project is here: https://curt-mitch.com/post/jp-en-translator-walkthrough.

Education

Springboard (ML Engineering Track) - 6-month course in artificial intelligence and machine learning technologies and methods

Hack Reactor - 3-month JavaScript-focused coding bootcamp for web development

Bachelors in Physics (BS) and Mathematics (BA) with minors in Japanese and German from the University of North Texas, graduated as an Honors Scholar through the Honor College

Awards & Recognitions

NASA@WORK Innovator (2022) - I received an innovator award in recognition of submitting an idea to use federated learning to fill in radar dead zones at airports. This could improve airport traffic safety and reduce flight delays while ensuring that commercial airline datasets are kept private.