John Hartquist

Software Engineer
Seattle, WA

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Summary

Detail-oriented engineer with experience ranging from full-stack web and mobile apps to complex data pipelines. Expertise in machine learning, prototyping, system architecture, and audio programming. Passion for learning new things, writing elegant code, and shipping as soon as possible. Especially excited about real-time audio, virtual reality, augmented reality, deep learning, reinforcement learning, and generative models.

Experience

Sigma IQ - Financial ML Platform   Sr. Software Engineer

Seattle, WA   April 2019 - Present

Migrated full data pipeline to Spark; achieved over 100x speedups in both model training and inference in proprietary matching engine. Built tools for deterministically measuring and improving performance statistics over time. Prototyped next generation platform using serverless architecture.

Professional Development - ML/DL   Student, Researcher

Walnut Creek, CA   December 2017 - April 2019

Self-directed study of machine learning, deep learning, and data science techniques through various online courses and books. Competed in Kaggle competition and applied DL to audio datasets for pitch detection. Developed a library for loading audio files into fastai framework, batching spectral transformations on the GPU. Continued work on personal research projects.

Ruvixx Inc - Royalties Platform   Sr. Software Engineer

San Francisco, CA   April 2015 - December 2017

Full-stack development for enterprise web app focused on licensing and brand protection. Engineered data model to support complex reporting and signal generation for financial data in multi-tenant architecture. Optimized SQL queries for summary dashboards and reports. Managed bi-weekly production releases, data migrations, and automated test suite.

Emjoyment - "Tinder for Jobs" App   Software Engineer

Mountain View, CA   May 2014 - April 2015

Lead iOS engineer for mobile application. Developed back-end API using Python and Django.

Amazon - Independent Publishing   Software Engineer

San Luis Obispo, CA   July 2012 - May 2014

Worked on the Royalties and Financials team to calculate royalties for independent publishers on CreateSpace platform. Built internal Java/Spring services, integrated across many teams. Supported feature requests and maintenance for legacy packages.

Education

Cal Poly State University   MS Computer Science

San Luis Obispo, CA   2007 - 2012

Thesis: Real-time Musical Analysis of Polyphonic Guitar Audio

Expertise

Preferred Languages

Python, TypeScript, C/C++, Scala

Technologies

PyTorch, TensorFlow, Pandas, Numpy, Librosa, Matplotlib, Flask, Spark, Vue.js, D3.js, Firebase, AWS, GCP, SQL, Git, WebAudio API, Jupyter, CUDA

Skills

Test-Driven Development, Functional Programming, Object-Oriented Programming, Data Analysis, Prototyping, Continuous Integration, Serverless Computing, Version Control

Projects

Real-time Anaysis of Polyphonic Audio

2012 - Present

Algorithm to analyze microphone audio in real-time to transcribe simultaneous notes (e.g. guitar chord) and display the results visually. Conducted DSP experiments involving FFT, analysis windows, and existing offline algorithms. Porting to various platforms including WebGL and Unity.

Experimental fast.ai Audio Module

October 2018 - November 2018

Fast.ai v1 add-on to load audio and perform spectral transforms on the GPU while training DL models.

Freesound Audio Tagging Challenge

March 2018 - July 2018

Top 7% placement with a team of 3 in Kaggle challenge for audio classification. Used PyTorch, Fast.ai to experiment with ResNet CNNs on Google Cloud GPU instances.