John Hartquist

| Software Engineer | Full-stack, Machine Learning  Kirkland, WA | [john@hartquist.com](mailto:john@hartquist.com) | (805) 305-4168 | [johnhartquist.com](https://johnhartquist.com/) |
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# profile

| Full-stack software engineer with expertise in fintech and machine learning. Skilled in building data pipelines and web applications using a range of technologies. Proven track record of delivering high-quality solutions that meet business needs. Lifelong learner with a strong desire to continuously improve and stay current with industry trends and techniques. |
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# Experience

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| Sept. 2021 – Present | **Lowe’s Innovation Labs**, Senior Software Engineer   * Created prototype of AR experience for measurement estimation and virtual object simulation in user’s spaces (Unity, C#, Swift, ML-Agents). * Researched and prototyped with various graph database technologies for storing and manipulating home data from various data sources. * Developed web app for inspecting and ingesting 3D assets, along with custom open-source product viewer using React, TypeScript, Babylon.js. |
| April 2019 – June 2021 | **Sigma IQ**, *Senior Software Engineer, ML Platform*   * Developed financial reconciliation algorithm, transforming research prototype into production grade system in Python. * Migrated parts of ML pipeline to Spark & Scala achieving >100x speedups. * Wrote tools for managing datasets, training models, and evaluating performance improvements over time. * Built full-stack platform for running Jupyter notebooks in production using TypeScript, React, Next.js, Docker, and GCP. |
| Jan. 2018 – April 2019 | *Professional Development: ML + Audio*   * Self-directed study of machine learning, deep learning, linear algebra, and data science through books, courses, and papers. * Placed in top 7% in a Kaggle competition for audio classification by fine-tuning ResNet models on spectrograms with PyTorch on GCP. * Built library to load audio into fastai, batching spectral transforms and data augmentation on the GPU for performance. |
| April 2015 – Dec. 2017 | **Ruvixx Inc**, Senior Software Engineer   * Developed enterprise web platform used to manage licensing and brand protection for large clients including HDMI, Dolby, and Philips. * Engineered data model, optimized SQL queries for complex reports, and developed real-time dashboards using Ruby on Rails and Angular/JavaScript in multi-tenant architecture. * Managed bi-weekly production releases, data migrations, and automated test suites. |
| May 2014 – April 2015 | **Emjoyment**, Software Engineer   * Wrote iOS app in Objective-C for “Tinder for Jobs” startup. * Developed features for backend API and web app using Python & Django. |
| July 2012 – May 2014 | **Amazon.com**, Software Development Engineer   * Worked on Royalties and Financials team to calculate royalties for independent publishers on CreateSpace platform. * Built internal Java/Spring services with test driven development, collaborating across many teams. * Supported feature requests and maintenance for legacy packages. |
| Jan. 2011 – Jan. 2012 | **iFixit.com**, Software Developer   * Developed website features using PHP, MySQL, JavaScript, and CSS, ensuring they worked consistently across supported browsers. * Created new drag-and-drop file uploader for uploading and validating image assets. |

# EDUCATION

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| 2007 – 2012 | California Polytechnic State University, *San Luis Obispo, CA*   * Master of Science in Computer Science * Bachelor of Science in Computer Science   Thesis: [Real-time Musical Analysis of Polyphonic Guitar Audio](https://digitalcommons.calpoly.edu/theses/808/) |

# EXPERTISE

| * Machine Learning * Data Analysis * Rapid Prototyping * Data Visualization * Continuous Integration * Functional Programming * Test-driven Development | * TensorFlow, PyTorch * NumPy, pandas * Svelte, React, Vue * D3.js, Three.js, Babylon.js * GCP, AWS, Git, Docker * Rust, Scala * Figma, CSS, SCSS |
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# Technical Side Projects

| * [Experimental fine-tuning of ResNet-18 for audio classification](https://wandb.ai/jhartquist/fastaudio-esc-50/reports/Fine-tuning-ResNet-18-for-Audio-Classification--VmlldzoyNjU3OTQ) * [FastAI audio module for generating spectrograms on GPU at training time](https://towardsdatascience.com/audio-classification-using-fastai-and-on-the-fly-frequency-transforms-4dbe1b540f89) * Real-time audio analysis & visualization; Three.js, Shaders, Web Audio API * Rubik’s Cube solver using reinforcement learning algorithms * [Hackathon finalist: web app for analyzing Ethereum transactions for MEV](https://github.com/jhartquist/got-mev) * Implemented minimal Ethereum Virtual Machine (EVM) in Rust |
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