

Paul McInnis

Full-Stack · Web3 · Machine Learning

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SUMMARY

Full-stack engineer with 12+ years of experience spanning Web3, AI/ML, and distributed systems. Led teams delivering DeFi platforms handling billions in trading volume, shipped ML-powered products from research to production, and architected scalable infrastructure across crypto exchanges, NFT marketplaces, and L1/L2 ecosystems.

EXPERIENCE

Rain

June 2026 — Present

Machine Learning & Full-Stack Engineer

- Building on-chain security systems at [Rain](#) to detect and respond to threats across blockchain networks

Machine Learning · AI · Full-Stack · On-Chain Security · Blockchain · Web3 · Python · TypeScript

Guardrail.ai

March 2025 — May 2026

Founding Software Developer

- Built Response Actions, enabling automated on-chain execution in response to security guard alerts
- Built a Transaction Screening service for pre-signing transaction validation via Fireblocks and API, with transaction simulation and webhook-based customer onboarding
- Designed and launched DIY Guards, a Python-native custom guard system, in ~2 months, directly winning business from competitors
- Prototyped and validated the DIY Guards design with a launch customer within 1 month
- Built an AI-powered code writing assistant for DIY Guards and authored all documentation
- Researched, designed, and shipped an AI/ML-powered Suspicious Transaction guard in 1.5 months with zero sev0 issues at launch
- Suspicious Transaction guard quickly became one of the most-used guards on the platform, driving multiple high-value client sign-ons

Python · FastAPI · SQLAlchemy · PostgreSQL · TimescaleDB · Redis · Docker · GCP · Machine Learning · AI · Blockchain Security · Solidity · Web3 · Pydantic · Alembic

Hypotenuse Labs

November 2021 — February 2025

Senior, Staff Software Developer

- Delivering web2&3 projects for our [hype](#) clients as a full-service software consultancy
- Leading agile, full-stack web teams of 3-10 people in size
- Roadmapping customer requirements and delivering on-time
- Integrating web3 smart contracts into web2 frontends
- Developing and improving machine learning services
- Delivered essential software for 3 decentralized crypto exchanges
- Planned and executed delivery for multiple key projects, including the two largest at Hypotenuse (Ambient and Highstreet)
- Wrote marketing material and fine-tuned pitches for clients
- Delivered constructive feedback to clients
- Helped [Ambient Finance](#) surpass \$100M in TVL, supporting over \$2.5B in trading volume and \$4.25M in generated fees within months of launch.
- Launched [Berachain](#), a novel L1 on Ethereum
- Delivered a [Phygital goods marketplace](#) for Highstreet Market
- Launched a token on Blast with the DN404 standard (see similar ERC404 standard)
- Wrote core AMM smart contracts within a fork of Uniswap v3 with updated pool tick math to price assets using correlations to Pyth oracles
- Conducted exploratory R&D solving an attribute-matching and scraping problem
- Designed and built a slack-bot with integration into sales CRM and billing systems
- Introduced engineering best practices to improve efficiency and team coordination during a multi-country launch of a social media app.

Web3 · React · NextJS · NodeJS · NestJS · TypeScript · Python · Solidity · GraphQL · PostgreSQL · MongoDB · Redis · Docker · Kubernetes · AWS · GCP · DeFi · NFTs · Uniswap · Balancer · Hardhat · Viem · Machine Learning

DarwinAI

October 2018 — November 2021

Senior Platform Developer

- Developed a quantitative explainability (XAI) tool for object detection networks
- Assisted with research and development problems central to GenSynth core-IP
- Delivered networks with groundbreaking performance improvements
- Low-level Tensorflow development and modification in-support of graph manipulation
- Research and development work for purposes of improving platform capabilities
- Catching and squashing complex bugs within our core IP implementation
- Participated in [COVID-Net](#) initiative, a tool for identifying and quantifying COVID-19 infections within a chest X-Ray
- Experience quantizing models for embedded deployment, including TPU accelerators.

Explainability · TensorFlow · Python · Keras · PyTorch · SQL · MPI · CUDA · TensorFlowLite · REST · Coral

Rave Inc

September 2017 — November 2018

Software Developer (AI)

- Development in support of [RaveDJ](#), an A.I. DJ web-app
- Designed a novel, state-of-the-art, neural network for song structural analysis
- Music Information Retrieval (MIR) research in support of automated A.I. DJ app
- Applied data science to quantify neural network performance in the product
- Managed an annotation framework, training annotators and building parser tools
- Deployed scalable inference and training APIs in Docker on Google Cloud
- Worked with expert DJs to distill and technically define AI model heuristics

TensorFlow · Python · Kubernetes · C · MIR · Dev-Ops · Data Science · Google Cloud

Engineering Manager

- Responsible for Innovation and Electrical sub-teams
- Advanced Vehicle Technology Competition ([AVTC](#)) for the conversion of a Camaro into a hybrid sports car
- Engineering work in support of novel powertrain design, controls and simulation
- Development of hardware and software platform for training object detection and tracking algorithms with Waterloo's autonomous vehicle research group
- Design and implementation of all high and low-voltage subsystems including fusing
- Responsible for numerous high-pressure, technical public speaking presentations

CANBus · FEM · NX · Altium · Simulation · HV · AVTC · Object Tracking

EDUCATION

Ba.Sc Mechanical and Mechatronics Engineering

2010 — 2015

University of Waterloo Ontario

- Co-op program
- University of Waterloo Merit Scholarship
- Undergraduate Student Research Award, Natural Sciences and Engineering Research Council of Canada (NSERC)
- Final-year project: AWD, winterized, E-Bike (Frost-E-Bike)

Ma.Sc Mechanical and Mechatronics Engineering

2015 — 2017

University of Waterloo Ontario

- Hybrid powertrain research and development
- Advanced Driver Assistance Systems (ADAS) research and development
- In partnership with the EcoCar Advanced Vehicle Technology Competition (AVTC)
- Thesis: [Intelligent Vehicle Development through Scalable Data Collection Processes and Simulation](#)

PUBLICATIONS & PATENTS

[2021] [Fibrosis-Net: A Tailored Deep Convolutional Neural Network Design for Prediction of Pulmonary Fibrosis Progression From Chest CT Images](#)

Alexander Wong, Jack Lu, Adam Dorfman, Paul McInnis, Mahmoud Famouri, Daniel Manary, James Ren Hou Lee, and Michael Lynch.

[2021] [Insights into Data through Model Behaviour: An Explainability-driven Strategy for Data Auditing for Responsible Computer Vision Applications](#)

Alexander Wong, Adam Dorfman, Paul McInnis, and Hayden Gunraj.

[2017] [Inadequacy of Current Pediatric Epinephrine Autoinjector Needle Length for Use in Infants and Toddlers](#)

Harold Kim, Chitra Dinakar, Paul McInnis, Dan Rudin, Xavier Benain, William Daley, Elke Platz.

[2017] [Comparative Safety Risk and the Use of Repurposed EV Batteries for Stationary Energy Storage](#)

John Catton, Sean B. Walker, Paul McInnis, Michael Fowler, Roydon Fraser, Steven B. Young, Ben Gaffney.

[2016] [System and Device for Management of Medication Delivery Devices](#)

Michael Fisher, Alexander Leyn, Richard Edwards, Steven Orzel, Erik Helge Borg, Paul McInnis, Cristian Cherler, Heinz Wolter, John Chinnick, Jacob Stahlbaum.