

Jonathan Kelley

jkelleyrtp@gmail.com
github.com/jkelleyrtp

EDUCATION

Olin College of Engineering | Boston, MA

Electrical and Computer Engineering - Software Systems

August 2018 - May 2022



HASH AI - Fullstack Platform Engineer

Fulltime role building next-gen Agent-Based-Modeling Engine and IDE for business intelligence.

Aug 2019 - Jan 2021

NYC, Remote

- Architected and implemented distributed simulation engine written in Rust and deployed to AWS EKS (20K+ LoC).
- Interviewed, hired, and managed the “Cloud” and “Engine” teams across 5 timezones to launch the company’s first product.
- Architected and implemented hyper-parameter optimization engine in Rust utilizing Reinforcement Learning / Deep NN.
- Upstreamed improvements to various open source projects including Pyodide, Apache Arrow, and PyO3.
- Developed multithreaded low-latency columnar datastore for simulation data on top of Apache Arrow.
- Enabled WebAssembly compilation of the core simulation engine using WebWorkers as a web-based multithreaded runtime.



Quartz Inc - Systems Engineering Intern

Summer internship role building next-gen intelligence system for large construction jobs.

April 2019 - Aug 2019

San Francisco, CA

- Designed and deployed industrial-grade camera and sensor hardware for live tower cranes in San Francisco.
- Improved wireless streaming and visualization performance by over 300% with a suite of Python + Go analytics tools.

NASA Langley Research Center - NASA HUNCH Systems Engineering Intern

Aug 2016 - Sept 2018

Durham, NC

Year-round internship working alongside NASA Langley engineers to build solutions for problems on the ISS.

- Designed zero-gravity injection molding system for in-space fabrication of mission-critical polymer-based parts.
- Designed and built RFID and UWB wireless asset management system for equipment on the ISS.

Plasma Physics Researcher - Fully-funded research program

Sept 2016 - June 2018

Durham, NC

Self-designed computational and experimental physics research into Inertial Electrostatic nuclear fusion.

- Worked with Duke and TUNL researchers to develop novel inertial plasma Particle-In-Cell simulation engine.
- Published paper in Broadstreet Scientific on the simulation of magnetic cusp confinement for electrons in nuclear fusion.

PROJECTS

Dioxus frontend framework for Rust

<https://github.com/dioxuslabs/dioxus>

2400+ stars

Released open source framework for building apps in Rust for web, desktop, mobile, and more.

- Gained over 2400 stars in just 3 weeks with 150 active community members and 1000+ git commits
- Implemented advanced datastructures and memory allocators to surpass React's performance by 350%+

LEAF Systems

<https://leaf-systems.io>

Lead developer for angel-backed startup modernizing inventory management for manufacturing.

- Finalist for MIT's Lemelson Student Prize, 100K Pitch, 100K Accelerate, and Fuse competitions.
- Developed asset tracking system leveraging computer vision, deep learning, and ultrawideband sensor fusion.

WiFi From Scratch - Realtime OFDM Video Broadcast

<https://github.com/jkelleyrtp/ofdm>

Implemented the WiFi protocol from scratch on the Ettus USRP software-defined-radio.

- Developed a Rust-Verilog-CUDA data pipeline for streaming video with implemented bandwidth of 1MB/s.
- Implemented modern OFDM, MIMO, 64QAM and active frequency correction.

SKILLS

Software

- Rust, Go, C++ 14, C99
- Python, TypeScript, JavaScript
- Machine Learning: NN + DL
- Graphics and General GPU
- Computer Vision
- WebAssembly

Frameworks

- PyTorch, Tensorflow
- React, Redux, Recoil
- OpenCV + Pointcloud Lib
- OpenCL, Cuda, OpenMP
- Numpy, Pandas, Matplotlib

DevOps

- AWS EKS, EC2, Lambda
- Terraform, Vault, Consul
- CircleCI, PagerDuty
- Cloudflare CDN + Workers
- Docker, Kubernetes
- InfluxDB, PostgreSQL, Redis

Electrical

- KiCad, Eagle, Spice
- SMD design and assembly
- Power electronics
- Microelectronics, firmware
- RF Design
- Digital comms