

Justin Hu

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Rust-focused backend software engineer with 6 years of Rust experience building and operating large-scale production-quality distributed systems, including 4 years of experience with reliability and performance-critical services

Previous Experience

Tesla:

Software Engineer (April 2025 – Present):

- Co-owner of an internal **high-performance compute** service using **Rust**, **Tokio**, and **Slurm** to test vehicle firmware, handling 150 million tests per hour.
- Production-hardened the service:
 - led a zero-downtime migration of the backing database from **Redis** to **Postgres**; sequenced table migration based on dependency order and importance using a dual-write migration strategy; this enabled nontrivial queries against the database for better search and analytics
 - championed **Pyinfra**-based infrastructure as code and **Jenkins** CI/CD, simplifying most operational tasks from five or more steps to a single edit and command
- Partnered with hardware tester owners to migrate tester scheduling strategy onto our service. Established standard procedure for future onboardings and created Pyinfra automation to streamline process.
- Sped up a Rust simulation framework with **Python** bindings by 6%. Profiled dataflow between firmware under test to cache redundant calculations and skip unnecessary work.
- Reduced test job CPU usage by 20% with no increase in latency by improving scheduling and CPU allocation.

Amazon Web Services:

Software Development Engineer I (June 2022 – March 2025):

- Built and operated the planet-scale **distributed system** powering Application Auto Scaling, a set of microservices hosted on native **AWS** infrastructure in **Java**, **Ruby**, **TypeScript**.
- Fixed a critical vulnerability by skipping redundant portions of customer requests. Gathered multi-stakeholder support for customer-visible changes which eliminated six major incidents per year.

University of British Columbia:

Research Assistant (May 2021 – August 2021): [GitHub](https://github.com)

- Extended the Prusti formal verifier for **Rust** to accept more general input syntax by extending the macro parser while preserving API compatibility.

Broadcom Canada Ltd.:

Applications Software Engineer Intern (September 2019 – April 2020):

- Assisted in development of a **Linux** driver for a PCIe based accelerator card, implemented userspace program to test driver performance and correctness and developed a suite of **Python** tools to analyze flash memory behaviour.

Education

University of British Columbia: Honours BSc in Computer Science (September 2017 – April 2022)

- 88.2% (4.00/4.33) GPA, honours thesis: [Derivatives of Automata](#)