# Federico **Rueda**

Federico Rueda · Software Engineer
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## Summary

Software Engineer with experience working in fast-paced tech companies. Have led development of infrastructure in a cross-functional organization as an initial member of the software team. 3.5+ years of diverse engineering experience in software architecture design, infrastructure operation, backend development, firmware engineering and hardware testing.

Passion for improving existing software stacks using latest technologies to improve scalability and maintainability, saving company time and development costs. Prefers a command line environment due to extensive experience working with Linux and macOS. Interested in devising a better problem-solving method for challenging tasks, and learning new technologies and tools.

## Work Experience

### Tesla Motors Inc.
*Palo Alto, CA*

Software Engineer
*Jun. 2021 - Jun. 2024*

- Designed and implemented the majority of a distributed system infrastructure for hardware testing in production environments, utilizing goLang, Python, RabbitMQ, and gRPC. Being used by hundreds of testers worldwide (running 10k+ tests daily) with improvements in development and license costs of 60% compared previous solutions.
- Saved over 40% in development costs by leading the transition of legacy software stacks to distributed system. Documented and standardized the interface so test engineers can transition their test scripts to new system, leading to infrastructure being used by 10+ unique testers within the organization.
- Continuously improved the architecture since launch. Adding features and meeting new user (test engineers and operators) requirements to expand use cases and scalability.
- Improved speed (15%) and readability of database queries on python backend of by utilizing SQLAlchemy library, parallelizing SQL inserts, and utilizing Redis for caching.
- Wrote C++ drivers for embedded systems that simulate audio signals to meet test requirements for audio drivers systems. Deployed and used in testing thousands of PCBs daily worldwide.
- Aided in the development of CI/CD pipelines using Github Actions, Ansible, Docker and Kubernetes in the majority of software repos within team. Drastically reduced deployment time (20%) due to extensive automation of processes.
- Helped transition relational database (SQLPostgres) to a No-SQL solution (MongoDB) for more efficient storage of unstructured test data which improved application performance by 10%.
- Mentored and onboarded three junior engineers by promoting best practices and knowledge sharing within the team.

### Critical Link LLC
*Syracuse, NY*

Firmware Engineer Internship
*Jan. 2019 - Aug. 2019*

- Created software infrastructure for testing linux software releases for embedded system using Jenkins jobs with raspberry-pi workers running bas scripts that tested releases on real hardware as part of firmware. Improving automation process of new
- Altered C code of linux kernels to add boot support of flattened image trees. Reduced the size of boot-loaders by 10MBs and improved scalability of different linux builds.

## Education

### Rochester Institute of Technology
*Rochester NY*

B.S. and M.S. in Computer Engineering
*May 2016 - June 2022*

- Enrolled and completed in B.S/M.S. dual-accelerated program, which can only be applied by the highest performing students within the CE department.
- Master dissertation on compiler optimization for light-based quantum computers. Paper (Continuous Variable Quantum Compilation) was presented at 2021 International Conference on Computational Science and Computational Intelligence (CSCI).

## Extracurricular Activity

### NXP Car Racing Competition
*Rochester Institute of Technology*

Attende
*Dec. 2019*

- Wrote C code (K64 NXP Micro) for motor and servo control using feedback from line scan camera to drive an autonomous car.
- Implemented a Proportional Integral Derivative (PID) and variable control speed systems to optimize car movement.

### Unitary Hack
*Online*

Attende
*Dec. 2021*

- Merged hybrid Gaussian Compiler (Gaussian Merge) to StrawberryFields: open-source full-stack Python library for designing, simulating, and optimizing continuous-variable quantum optical circuits.