Rahul Bulsara

U.S. Citizen | San Francisco, CA | (415)767-6250 | rahulvbulsara@gmail.com | LinkedIn | GitHub

Education

Texas A&M University
Master of Science in Mathematics — *Jan 2026 – Dec 2027*

University of California, San Diego — La Jolla, CA
Bachelor of Science in Mathematics and Computer Science — *Sept 2023 – June 2025*

Experience

Wireless Test Engineer — July 2025 – Dec 2025
SGS - North America — *San Diego, CA*

- Perform RF conformance testing on 5G NR and LTE devices using Keysight and Anritsu platforms, ensuring compliance with 3GPP specifications
- Automated license validation for 5G NR/LTE test cases by building a Python service that cross-checked license files and multi-format test data (Excel, HTML) against test case requirements, eliminating manual setup errors and cutting test plan setup time across thousands of configurations
- Apply in-depth knowledge of 3GPP standards and RF engineering principles to troubleshoot, analyze, and optimize device performance in collaboration with cross-functional RF teams

Instructor Assistant — Aug 2023 – Aug 2024
Microsoft TEALS — *Oregon, WI*

- Designed an engaging curriculum for High School AP Computer Science, incorporating introductory Python and Java concepts, resulting in a **50% improvement** in lesson efficiency, allowing students more time to focus on projects and assignments

Software Engineer Intern — Jan 2023 – May 2023
NASA L'SPACE — *Remote*

- Drafted a comprehensive NASA proposal outlining the utilization of Finite Element Models, enhanced by AI to develop Artificially Learned Finite Elements (ALFE), projected to improve engineer efficiency by up to **40%** by reducing manual computations

Projects

Modem Conformance Test Harness | *Python, pytest, Docker, GitHub Actions* | GitHub — July 2026

- Built a cellular-modem conformance test harness in Python that runs declarative YAML test plans against a device and classifies every failure as a device fault, timeout, or harness fault, achieving **100% classification accuracy** across labeled fault-injection scenarios
- Built a data-driven test framework separating **82 automated pytest cases** from declarative YAML test definitions, covering **21 conformance cases** across identity, registration, data-context, and error-handling behaviors
- Automated the pipeline with Docker and GitHub Actions; every push runs the full conformance pass against a live modem simulator and publishes JUnit XML and HTML reports as artifacts

API Conformance Test Harness | *Python, pytest, OpenAPI, Docker, GitHub Actions* | GitHub — August 2026

- Built an automated API conformance framework validating a live REST service against its OpenAPI contract, with a single spec-driven test oracle covering 8 endpoints and 22 declarative YAML test cases at **54% negative-path coverage**
- Quantified the framework's own effectiveness by seeding 6 labelled defects into the service under test, detecting **6 of 6 with zero false positives** on a healthy build
- Added an automated contract-drift gate in CI that fails the build on any undeclared change to the API's public interface; **109 automated tests** green on every push, containerized with Docker Compose

Symbolic Music Generation | *PyTorch, Transformers, Sequence Modeling* — May – June 2025

- Built and trained a decoder-only Transformer model on 900+ MIDI files, achieving a validation loss of **0.8918** through a custom embedding and positional encoding pipeline
- Built a multi-stage symbolic generation system for conditional and unconditional output by getting pitch, pause, and duration tokens from a learned embedding space, evaluated across **200+ token sequences** spanning 1000+ generated segments

Technical Skills

Languages: Java, Python, C/C++, SQL, MySQL, JavaScript, HTML/CSS, MATLAB, Bash, Ruby
Test & Validation: pytest, JUnit, YAML-driven test plans, fault injection, RF conformance testing, 3GPP standards
Developer Tools: Git, Docker, GitHub Actions/CI-CD
Additional: GDB Debugging, Agile, REST API