Faizan Feroz

Senior Software Engineer — C++ — Qt — Software Systems

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Professional Summary

Senior Software Engineer with 4+ years of experience designing and developing production-grade, system-level software across automotive, medical devices, railways, and electrical power systems. Strong expertise in modern C++, Qt-based applications, Linux environments, and safety-critical software development. Proven ability to take software from research and prototyping through validation, integration, and real-world deployment.

Professional Experience

Senior Software Engineer – Automotive Systems

KPIT Technologies (Honda Program)   Mar 2024 – Present

- Develop and maintain production automotive software in collaboration with OEM stakeholders.
- Design and implement C++ components aligned with ADAS and system-level automotive requirements.
- Perform debugging, static code analysis, root-cause analysis, and validation within structured quality processes.
- Support software integration on RCAR, ECU, and Qualcomm automotive platforms in Linux environments.
- Collaborate with client stakeholders across the complete software lifecycle from SWE.1 to SWE.4.
- Contribute to architecture documentation including class diagrams, sequence diagrams, and state machine diagrams.
- Perform defect analysis and code optimization to improve ECU performance using Katapult profiling reports.
- Utilize Parasoft static analysis tools to ensure compliance with AUTOSAR, MISRA C++, CWE, and CERT C++ standards.

Senior Associate – Software Development

GE HealthCare (Sutherland)   Jul 2023 – Feb 2024

- Designed and developed UI components for resting ECG medical devices including MAC-5 and MAC-7.
- Implemented Qt/QML interfaces with supporting C++ backend logic for clinical workflows.
- Contributed to production-grade medical software with a focus on reliability, usability, and regulatory compliance.
- Participated in debugging, defect resolution, and controlled delivery workflows.

Research and Development Engineer

Industrial Research and Consultancy Centre (IRCC), IIT Bombay   Feb 2021 – Aug 2023

- Worked on funded R&D projects sponsored by HSRCL and DMRC.
- Developed simulation software for traction power supply and power system analysis for the Mumbai–Ahmedabad High-Speed Rail project.
- Built Linux-based tools using C++, Python, and Octave for system modeling, numerical analysis, and validation.
- Designed and developed Qt-based simulation software implementing complete front-end and back-end functionality.
- Collaborated on Government of India and privately funded research projects across EE, Energy Science, and IEOR departments at IIT Bombay.
- Led project delivery and customer interactions, including technical presentations at IISc Bengaluru.

Selected Engineering Projects

High-Speed Rail Traction Power Analysis Software (HSRCL)

- Architected a Qt-based C++ application integrated with Octave numerical models.
- Implemented load flow, short-circuit, and harmonics analysis for high-speed rail systems.
- Designed scenario-based evaluations using railway timetables and route parameters.

Metro Crew Scheduling and Timetabling Optimization (DMRC)

- Led a team of 3–4 engineers to design and implement crew scheduling optimization models.
- Developed Python-based optimization solutions in a Linux environment.
- Delivered constraint-aware and operationally feasible crew schedules.

iCoReader – COMTRADE Data Visualization Tool

- Developed a C++/Qt desktop application for COMTRADE file parsing and visualization.
- Implemented IEEE-compliant disturbance data processing for power system analysis.

iTester – PMU Connection Tester

- Built a C++/Qt tool for real-time PMU data acquisition and synchrophasor visualization.
- Parsed IEEE C37.118 binary data and displayed decoded packets with real-time plots.

Publications

Implementation of PMU Connection Tester for Synchrophasor Data Analysis
IEEE Peer-Reviewed Conference Paper, IIT Kharagpur
IEEE Xplore

Technical Skills

Programming: C++, C, Python, Bash, Shell Scripting
Frameworks & Tools: Qt, QML, Octave, PyTorch, VS Code
Domains: Automotive Software, ADAS, Medical Devices, Power Systems, Railways
Standards: IEEE C37.118 (COMTRADE, Synchrophasor), AUTOSAR, MISRA C++, CERT C++, CWE
Platforms: Linux, ECU-level Software, RCAR, Qualcomm Platforms
Practices: Debugging, System Integration, Validation, Technical Documentation, SWE Lifecycle, JIRA, Confluence