

PRERONA GHOSH

Waterloo, ON, Canada | +1 (647)-863-2058 | preronaghosh1997@gmail.com | LinkedIn | GitHub

SUMMARY

Software Engineer with 4 years of experience using C/C++/Python in the development of Linux-based embedded systems, multimedia processing, and real-time applications. Skilled in software design, hardware-software integration, and legacy system maintenance. Strong communication skills and experience working with Agile teams and cross-functional collaboration.

TECHNICAL SKILLS

- **Languages:** C, C++ 11/14, Python
- **Tools and Frameworks:** CMake, Conan, GoogleTest, CUnit, Git, Docker, Bash, Shell Scripting, Boost, OpenVX, GStreamer, AWS Kinesis, GCC, GDB, Valgrind, Sanitizers, Ffmpeg, CI/CD, Jenkins, Github Actions
- **Concepts:** Object Oriented Programming, Data Structures, Algorithms, Design Patterns, Multithreading
- **Networking and Protocols:** TCP, UDP, RTP, IPv4/v6, Tcpdump, Wireshark, Autosar, UDS, CAN (Vector CANalyser, CANoe)
- **Operating Systems:** Embedded Linux, QNX RTOS, EB Linux, Windows
- **Methodologies:** Atlassian Jira, Confluence, MKS, Agile, Scrum, Test Driven Development, SDLC

EDUCATION

Master of Engineering, Electrical and Computer Engineering Jan 2023 – Apr 2024
University of Waterloo, ON, Canada CGPA - 3.87/4

Bachelor of Engineering, Electronics and Communication May 2015 – May 2019
SRM Institute of Science and Technology, India CGPA - 9.27/10

WORK EXPERIENCE

FORD MOTOR COMPANY Mar 2024 – Jun 2025
C++ Software Developer, Waterloo, ON

- Developed a kernel based framework for real-time data and multimedia transport across SoCs using GStreamer, OpenVX, OpenCV, TIOVX and Boost for x86_64 platforms.
- Built gRPC services and custom C++ utilities for asynchronous test handling and runtime diagnostics.
- Development of an adaptive autosar service as a testing tool to mock out dependencies on other components and enable integration testing.
- Implemented syntax enforcement for controlled access to shared memory data, preventing data races at compile time; optimized shared memory handles for faster multi-process operations using lower memory
- Optimization with GStreamer pipelines to improve execution timing by 85% and reduce buffering for consumer process, stabilizing the performance of H264/H265 encoders and decoders for deployment on hardware.
- Enabled cloud-based RTP-to-WebRTC streaming using AWS Kinesis SDK and performed functional testing of public APIs using Python.

FORD MOTOR COMPANY Sep 2023 – Dec 2023
Platform Software Developer, Ottawa, ON

- Evaluated multimedia frameworks, threading APIs and Adaptive Autosar specifications across QNX, POSIX.
- Improved concurrency via compile-time checks and shared memory handle optimization.
- Boosted unit test coverage to 98% with reusable GoogleTest fixtures and reduced code duplication and smells by 90%.

CONTINENTAL Oct 2019 – Oct 2022
Software Engineer, Bengaluru, India

- Architecture and low-level design and development of features as per project requirements using Embedded C Programming Language for vehicular diagnostics product.
- Writing and debugging unit tests for software, performed integration and hardware testing on HECU.
- Led troubleshooting, profiling, performance and memory optimization and porting efforts for hardware migration and improved legacy software performance optimization by 78%.
- Collaborate in meetings with cross-functional software development, test, requirements teams and provide direct support to customers with respect to code changes in every release.
- Streamlined development and communication workflows, technical documentation process and participated in code reviews, increasing team productivity by 80%.
- Actively contributed to Agile sprint planning, sprint reviews and retrospection.