Ruslan Abdulin

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Summary

Embedded Software Engineer with C/C++ experience developing safety-critical software in real-time, multi-threaded, and partitioned environments for IoT devices, avionics, wireless communication systems, and robotics as well as with experience in electrical circuit design, analysis, and debugging. Seeking a full-time entry position in the Semiconductors & Hardware industry. Work Authorization: U.S. Permanent Resident — no sponsorship required.

Skills

- C, C++, Python, SPI, I2C, UART, CAN
- RTOS, BLE, IR, Git, JTAG debugging
- STM32, ESP32, Raspberry Pi, Linux
- Interrupt handling, DMA, ADC/DAC

- Analyzing communication protocols and electrical circuits (oscilloscope, logic analyzer, OpenOCD)
- Hardware-in-the-loop(HIL) testing, board bring-up
- Circuitry design, soldering, reading schematics

Professional Experience

June 2025 — Dec 2025 **Embedded Software Engineer (Internship at Guardianova LLC)**

- Delivered a fully functional PoC showcasing device's assistive reminder technology for people with dementia
- Developed FreeRTOS C code to stream camera's output to a server via WiFi(ESP32); performed HIL testing.
- Setup a BLE beacon and Implemented location recognition using its RSSI (with NimBLE framework)

May 2025 — Present **Firmware Engineer, subteam lead (CSUN AERO 2026 senior design)**

- Developed an RTOS-based onboard computer responsible for infrared communication with the payload, MAVLink communication with the flight controller, and pickup mechanism management at a high success rate
- Constructed white box test cases, reproduced firmware issues, and validated fixes via JTAG debugging
- Led a 4-person structures and avionics team developing a payload for the SAE AERO international competition
- Performed successful end-to-end PCB development for the payload and the on-board computer including circuit design, assembly, soldering, and a bring-up with fault injections to validate stable system functionality

Sept 2023 — Present **Research Assistant (CSUN, EE department)**

- Co-authored three impactful journal papers on artificial intelligence and computer vision (Python and C++)
- Integrated a depth camera with NVIDIA Jetson board for real-time control and sensor data processing

Engineering Projects

- NRF24L01+ Driver (STM32F407, SPI, IRQ) — a driver radio communication with configurable dynamic payload, CRC, auto-ACK, and retransmission features; validated via SWD + OpenOCD/GDB and logic analyzer.
- Bare-metal GPIO/SPI drivers — STM32 drivers following memory map; provide polling and ISR-based APIs.
- I2C LCD Driver — STM32 driver for LCD via PCF8574 I2C adapter; supports ISR-driven data transfers.

Education

Aug 2022 — May 2026 Bachelor's in Computer Science, GPA: 3.97 California State University, Northridge

Aug 2026 — May 2028 (Online)Master's in Computer Science, Admitted Georgia Institute of Technology