

Priyam Panchal

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PROFILE

A low-level development enthusiast with a rich background in Embedded Systems with **ARM, STM32, ESP32, Atmel** and **mechatronics** and **C++, Python, Robotics and Automation** projects, aiming for an **Embedded Software Engineering** role delivering innovative solutions with initiative and focus, with a results-driven approach.

EDUCATION

Carleton University, Master of Electrical and Computer Engineering Sep 2022 – Dec 2023 | Ottawa, Canada
(Graduated Dec 2023, CGPA: 11.1/12)

Gujarat Technological University, Bachelor of Electronics and Computer Engineering Aug 2017 – May 2021 | Ahmedabad, India
(Graduated May 2021, CGPA: 9.2/10)

SKILLS

Embedded Development Platforms

STM Nucleo, ESP32, ARM, Atmel, Nvidia Jetson, Arduino, Raspberry Pi

Electronics

Soldering (THC, SMD), Oscilloscopes, Logic Analyser, KiCad, Eagle, Altium, Analog Design Studio, Cadence, Ansys HFSS

Sensor Stack

Intel Realsense (RGBD), Lidar, MPU6050 IMU

Embedded Software Development | Toolchains

C, C++, Python, Linux CLI, Docker, Git | CCS, Keil, CubeMX, Xilinx Vivado

Interfaces | Protocols | Networking | IoT

SPI, I2C, UART, WiFi, Bluetooth, USB

Soft-Skills

Problem-solving, Adaptability, Initiative, Communication

EXPERIENCE

Robotics Software Developer (Research Assistant), Autonomous Space Robotics and Mechatronics (ASRoM) Laboratory, Carleton University Apr 2023 – Dec 2023 | Ottawa, Canada

- Achieved 99.97% position tracking accuracy with up to 1KHz feedback control loop rate using a C++ control application over ethernet from a Linux PC.
- Developed tests in C++ and analysis of recorded sensor data using Python for system identification.
- Tested and validated controllers in C++ using HIL on industrial robot arms and SIL testing.
- Implemented I2C control for 18 servos with Nvidia Jetson GPIOs for a Hexapod robot platform using C++.
- Led and mentored 2 undergraduate student researchers on two separate research projects over 6 months.

Embedded Software Engineer (Intern), Boson Machines 3D Printing Oct 2020 – Mar 2021 | Mumbai, India

- Created firmware configuration files and proprietary plugins for Core-XY FDM 3D printers using C++ and Marlin framework.
- Performing sensor testing and calibration with automated tests using C++.
- Developed a touch-based HMI with features for 3D printer operation and monitoring using Python and Qt.
- Networked 3D printers to enable remote control over the internet and live monitoring, with AI-based failure detection.
- Firmware flashing, soldering, assembly, troubleshooting and continuous improvement as routine tasks.

PROJECTS

Automation of FDM 3D printers for batch manufacturing (BEng Capstone)

- Designed modification with C++ & Python software components and 3D printed hardware components to fully automate 3D printer for non-stop 24x7 operation with remote monitoring and job management.
- Achieved +120% manufacturing output over 3000 hours runtime on 10 consumer-grade 3D printers.

FDM 3D Printer

- Designed, manufactured and programmed a Core-XY FDM 3D Printer from scratch, from CAD design, BoM, parts & sourcing, frame assembly, controller selection, firmware (C++, Marlin), wiring actuators, heaters and switches, soldering and crimping connectors, and internet-enabled control and AI-enabled failure detection webcam monitoring with Raspberry Pi (Octopi, Python, OpenCV).

65nm RF SoC Design in Cadence (Course Project)

- Designed and simulated a 65nm RF SoC, consisting of LNA, Mixer, PA and VCO, designed to operate at 12GHz.
- Designed layout of the SoC using TSMC 65nm process keeping with good layout design guidelines.

VOLUNTEERING

IEEE YP Ottawa, Social Media Officer Apr 2023 – present | Ottawa, Canada

- Creating social media content using Illustrator and Figma and planning events and conferences, and managing social media strategies for the organization.

AIESEC, Corporate Relations Team Member Sep 2021 – Mar 2022 | Ahmedabad, India

- Created well-researched pitches and onboarded 2 major international corporate clients onto the organisation's programs