Saptarshi Nag - **Embedded Software Developer**

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Embedded Software Engineer with 9+ years of experience developing production-quality firmware and technical documentation, backed by a strong foundation in electronics. I specialize in writing reliable, testable embedded software using Agile and TDD practices, with experience in both static analysis (MISRA, linting) and dynamic analysis (unit testing, CI workflows). Having worked across consumer electronics, semiconductors, consulting, and IoT sensing, I bring a deep understanding of cross-functional team dynamics, diverse product requirements and engineering processes.

Experience

C12 QE - **Software Engineer**   *06/2025 - 11/2025*
5th arrondissement of Paris, Île-de-France, France

- Worked with the hardware team to implement Python-based drivers and orchestration frameworks for automated control of measurement equipment during the chip assembly process.
- Developed unit tests (Pytests) , updated technical documentation and
  recommended codebase refactoring to enhance code quality and coverage for the existing codebase

Sipearl - **Firmware Engineer**   *09/2024 - 01/2025*
Massy, Île-de-France, France

- Updated the Software Documentation as per requirements from the Software Architecture Team
- Developed road map for various integration test cases, and developed code in Robot Framework for automated testing

Institut national de recherche en sciences et technologies *04/2023 - 01/2024* du numériqu (INRIA) - **Research Scholar**
Rennes, France

- Customization and verification of hardware System on Chip (SoC) for research purposes on FPGA platform (Xilinx) using Verilog (HDL) and C++ (HLS)
- Assessed validity of AI accelerators and AI applications using Python and python library: Pytorch
- Emulated RISC-V Computer Architecture on QEMU, for verification purpose

HCL Technologies - **Senior Consultant (Embedded**   *04/2022 - 01/2023* **Software)**
Noida, India

My Portfolio Website

www.sapnag.me

Skills

- C++17 & C++20 programming
- Embedded C
- Cmake Build system
- Debugging Proficiency with GDB
- Python for automation & Testing (PyTest & Robot Framework)
- Qt and QML for GUI application development
- RTOS (FreeRTOS, Zephyr)
- Microcontroller programming (STM32, ESP32, Microchip PIC18)
- Embedded Linux
- Yocto Build System
- Hardware-software integration

Education and Training

02/2018
Kingston University
London, UK
Master of Science (MSc): Embedded Systems and Management Studies

12/2015
Center for Development of Advanced Computing (C-DAC)
Noida, India
Post-Graduate Diploma: Embedded Systems and Integrated VLSI

06/2013
Institute of Electronics and Telecommunication Engineers (IETE)
New Delhi, India

- Developed software for Raspberry Pi (C/C++) for IoT applications with cloud services (Azure IoT Hub) for developing IoT solutions
- Involved in developing custom Linux image on Raspberry Pi using Yocto
- Supported multiple teams to establish sensor interface and embedded device setup
- Trained and supervised interns
- Lead the product documentation, testing and validation stages

Micron Technologies (Sevya Multimedia) - Senior Design Engineer: firmware (Consultant contract basis)   *08/2021 - 04/2022*
Hyderabad, India

- Tested and verified firmware on Synopsys's ARC processor
- Pre-silicon hardware validation process on HAPS-80 Prototyping system
- Debugged the firmware using JTAG and TRACE32 (Lauterbach)
- Involved in Bug tracking using JIRA
- Developed scripts for task automation using Bash and Python

Centre for Biorobotics, Tallinn University of Technology (TALTECH) - Early Stage Researcher (Embedded Software)   *09/2018 - 08/2020*
Tallinn, Estonia

- Developed embedded software for research applications for STM32 MCU, sensor (IMU & GPS), and wireless protocol (LoRa).
- Developed the software stack for data processing on the Beaglebone Black and Jetson Nano.
- Documentation of the Design Objective, Software requirements and Testcases
- Data cleaning for Data analysis and visualization using Python

ARM Holdings - Department of Artisan Embedded Memory IP - Circuit Layout Design Engineer - Memory Systems (Contract Basis)   *02/2015 - 10/2016*
Noida, India

- Designed and verified circuit layout designs for the ARM's Memory Architecture and tested for quality assurance
- Developed scripts for automation and testing in Perl

GliH India - Circuit Layout Design Engineer - Power Systems   *07/2013 - 07/2014*
Ghaziabad, India

- Developed scripts for 8-bit MSP430 and PIC18F MCU for RGB lighting and motor controller
- Designed, developed and verified various hardware for production stages, documenting the workflow to create Bill of Materials (BOM)
- Developed GUI in Java to control RGB colors

Bachelor's: Electronics and Telecommunication

Certifications

- Introduction to Embedded Machine Learning, EDGE IMPULSE
- Development of Secure Embedded System Specialization, EIT Digital School
- Design Thinking for the Greater Good: Innovation in the Social Sector, University of Virginia
- Developing Industrial Internet of Things Specialization, University of Colorado
- Architecting Smart IoT Devices, University of Colorado
- Software Architecture for the Internet of Things, University of Colorado

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Publications

Underwater bioinspired sensing: New opportunities to improve environmental monitoring, J. A. Tuhtan, S. Nag, M. Kruusmaa, IEEE Instrumentation & Measurement Magazine, 23, 2, 30-36, 04/01/20, 10.1109/MIM.2020.9062685

Languages

- English, Full Professional Fluency, IELTS Score '7.0' appeared 2018
- French, Beginner Level Fluency
- Hindi, Full Professional Fluency
- Bengali, Native