Preenu Ann Ponnachan Email: [preenu91@gmail.com](mailto:preenu91@gmail.com)

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Based in the UK| No sponsorship required (Dependant Visa)

# PROFESSIONAL SUMMARY

Embedded Software Engineer with 3+ years of experience in C and 1 year in C++ (Qt), specializing in embedded systems development across STM32 and Linux platforms. Skilled in RTOS (FreeRTOS), driver development, hardware interface protocols (SPI, I2C, UART), multithreading, IPC, and Makefile-based build systems. Hands-on experience with DACs, button interfacing, GPIO, and serial tools like Tera Term. Actively upskilling in Modern C++. Seeking remote and hybrid roles focused on embedded product development and system-level programming.

PROGRAMMING SKILLS

* **Languages:**  C, C++, Embedded C, Python
* **Frameworks & APIs:**  Qt (GUI, signals/slots), IPC (pipes, shared memory, semaphores),

multithreading

* **Platforms & OS:**  STM32, FreeRTOS, Linux
* **Tools:**  Git, SVN, Bitbucket, Jira, Confluence, cppCheck, GDB, Valgrind, Redmine, TestRail, MATLAB
* **Peripherals:** SPI, I2C, UART, GPIO, DAC, Timers, ADC
* **Build Systems:** Makefile, CMake (learning)
* **Database:** SQLite

# EDUCATION

* **University of Hertfordshire, Hertfordshire, UK**

Master of Science in Data Science and Analytics 2021 -2022

Relevant Modules Studied: Neural Networks and Machine Learning, Foundations of Data Science, Data Mining

* **Mahatma Gandhi University, Kerala, India**

Master of Technology in Advanced Communication and Information Systems; Distinction 2014 –2016

* **Mahatma Gandhi University, Kerala, India**

Bachelor of Technology in Electronics and Communication; Distinction 2010 –2013

EXPERIENCE

**Eaton MTL**

### Software Engineer, August 2022 – June 2023

* + Implemented Direct Digital Synthesis (DDS) on STM32 microcontrollers to generate audio tones for various applications and used oscilloscope to test, analyze, and refine DDS outputs for optimal performance.
  + Created a Python script to automate power control of a hardware device via smart plug.

**Gadgeon Systems Inc**

### Software Engineer, May 2020 - Dec 2020

* + Worked on embedded firmware development tasks for key customer projects.
  + Involved in development of device driver firmware development for sensors and peripherals in STM32 microcontroller platform using STM32 HAL.
  + Programmed communication interfaces including SPI, I2C, UART, integrating with various onboard peripherals.
  + Involved in firmware application development using embedded freeRTOS, including button interfacing via GPIO with debouncing logic..
  + Used ST-Link/JTAG for on-chip debugging and firmware flashing.
  + Used Tera Term for serial communication testing, command-based debugging, and logging.
  + Did POC on LoRaWAN, Cantata, SonarQube as requested by the client.

**Inntot Technologies**

### Software Engineer, Aug 2018 - Mar 2020

* + Designed and developed Internet Radio software, integrating SQLite and third-party libraries (mpg123, FDK AAC).
  + Utilized C and C++ with Qt for DAB GUI application development and debugging.
  + Deployed IPC mechanisms like shared memory, pipes, and semaphores for embedded systems.
  + Conducted unit testing and integration on Raspberry Pi platforms.
  + Used Linux performance tools (top) to monitor multi-threaded application behavior and CPU usage.

KEY ACCOMPLISHMENTS

* + **Thesis & Publication:** *Comparison of PAPR Reduction Techniques in OFDM Systems* using MATLAB – modelled and simulated communication systems for performance analysis; published in IEEE ICCES 2016.
  + Used MATLAB for data science analysis and visualization.
  + Former IEEE member; led multiple technical and cultural event teams
  + Secured a score of 442 in Graduate Aptitude Test in Engineering (GATE) 2014.

CAREER BREAK

* Maternity Leave: June 2023 – June 2024 and then resigned
* Currently actively upskilling in Modern C++ focusing on advanced features, templates, and STL containers.

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