Kartikeya Arvind Yadav

kay54@drexel.edu | Philadelphia, PA | https://kar3798.github.io/

SUMMARY

3 years of experience as an Embedded Systems Engineer with strong focus on firmware and systems testing. Proficient in UEFI/BIOS validation, ARM-based platform testing, and Windows on ARM system-level diagnostics. Skilled in functional, regression, and interface testing (UART, SPI, I2C, ADC, DAC). Hands-on expertise in sensor calibration, hardware bring-up, and real-time system performance analysis. Passionate about embedded systems, with mentoring experience in Linux and low-level development.

TECHNICAL SKILLS

- **Programming:** C/C++, Embedded C, C#, Python, Java, Javascript, React
- **OS & Tools:** Linux (Ubuntu, Debian, Embedded), Windows, Yocto, QEMU, Bash, Git, CI/CD, Docker, AWS IoT Core, RDK-B
- **Embedded Systems:** ARM Cortex, UEFI/BIOS, RTOS (Zephyr, Embedded Linux), Board Bring-up
- **Testing & Interfaces:** I2C, SPI, UART, TCP/IP, DNS, HTTP, DHCP, Ethernet, PCIe, JTAG, Logic Analyzers, VoIP, Wi-Fi, WPA, Bluetooth
- **Frameworks & IDEs:** Qt, JetBrains IDE (PyCharm, IntelliJ, CLion), Unity, Visual Studio Code, Eclipse
- **Databases:** SQL (SQLite, MySQL, PostgreSQL)

EDUCATION

M.S. in Computer Science, Drexel University, Philadelphia, PA — GPA: 3.86 Sep'23 - Jun'25

Bachelor of Technology in Electronics and Communication Eng, Shiv Nadar University, Delhi, India Jun'17 - May'21

WORK EXPERIENCE

Jitsik LLC — *Graduate Co-op Intern, Software and Sensor Development,* Philadelphia, PA Sep'24 - Dec'24

- Optimized IMU sensor performance for a VR driving simulator, refining motion tracking accuracy and sensor calibration for various vehicle configurations
- Enhanced system robustness by refactoring C++/C# code and developing immersive VR scenarios in Unity for a more realistic simulation

Smith+Nephew — *R&D Intern - Software Engineering,* Andover, MA June'24 – Aug'24

- Developed multi-threaded applications for connected medical devices, ensuring efficient data processing and secure real-time communication
- Utilized AWS IoT, Lambda, and DynamoDB to manage device data, enabling real-time monitoring, cloud integration, and seamless data storage for connected healthcare solutions

Champion Semiconductor LLP GEOCON — *Embedded Software Engineer,* India Jan'21 – May'23

- Engineered firmware and embedded applications for ARM/x86 Single Board Computers (SBCs), optimizing low-level hardware interactions
- Led UEFI/BIOS development using EDK2 framework, customizing bootloader configurations and creating Board Support Packages (BSPs) to streamline hardware integration
- Spearheaded SBC hardware bring-up, debugging hardware initialization issues and ensuring smooth boot-up processes
- Mentored interns in Linux fundamentals and embedded system development, fostering hands-on experience in flashing, debugging, and system configuration

KEY PROJECTS

- **Passenger Announcement System** – Developed a VoIP-based emergency communication platform and an IP-based public announcement system for real-time train broadcasts, ensuring clear and reliable passenger communication
- **Driver Fatigue Monitoring System** –Implemented facial landmark detection for real-time drowsiness and yawning recognition, integrating automated alert mechanisms to improve driver safety in military applications
- **OSA-SAM Radar UI Retrofit** – Modernized legacy radar display systems by developing a Qt and OpenGL-based UI, enabling digital visualization of incoming data for improved operational efficiency
- **RFID Tag Reader for Marathons** – Designed and developed an RFID-enabled tracking system to provide real-time monitoring of marathon runners, combining a Qt-based GUI with a Java backend for seamless data processing

ACHIEVEMENTS & CONFERENCES

- **Safety 21** – Presented the MetaDrive simulator developed at Jitsik for driving education
- **Electronica India 2022** – Exhibited embedded solutions developed by Champion Semiconductions at India's leading electronics event
- **Presentation on Driver Fatigue Monitoring System Prototype** – Presented a driver fatigue monitoring system prototype at the 7 Base Repair Depot of the Indian Air Force, highlighting the integration of advanced sensor technology and real-time alerts
- **Music Performance Certifications** – Level 5 (Electronic Keyboard), Level 2 (Piano) – Trinity College London
- **Upsilon Pi Epsilon** - Inducted into Upsilon Pi Epsilon (UPE), the international honor society for computing and information disciplines, recognizing academic excellence and leadership in the field