Kartikeya Arvind Yadav

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SUMMARY

3 years of experience as an Embedded Systems Engineer with expertise in connected devices, and low-level firmware development, VR simulation. Experienced in UEFI/BIOS development, SBC hardware bring-up, and embedded firmware engineering for ARM/x86 platforms. I am skilled in multi-threaded application design, real-time data processing, and cloud integration with AWS IoT. Adept at optimizing sensor performance, enhancing system robustness, and developing immersive VR experiences using Unity. Passionate about mentoring and fostering technical growth in Linux and embedded systems.

TECHNICAL SKILLS

- **Programming Languages:** C/C++, Embedded C, C#, Python, Java, Javascript, React
- **Operating Systems & Tools:** Linux (Ubuntu, Debian, Embedded Linux), Windows, Yocto Project, QEMU, Bash, Git, SSH, CI/CD, Docker, AWS DynamoDB, AWS Lambda AWS IoT Core, RDK-B
- **Embedded Systems:** ARM Cortex, UEFI/BIOS, RTOS (Zephyr, Embedded Linux), Board Bring-up
- **Networking & Debugging:** 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 2024** – 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.