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Parsa Majidi

Embedded System Engineer

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I am a disciplined, dedicated and enthusiastic Embedded System Engineer with a passion for continuous improvement. Currently working at Kynetics, a renowned provider of Android and Linux OS solutions for embedded systems, I contribute to cutting-edge projects in firmware development and system integration. While pursuing an M.Sc. in Telecommunication Engineering, I am eager to embrace new challenges and grow both personally and professionally, striving to make a meaningful impact in the ever-evolving world of embedded technology.

Experience

Embedded System Engineer (Internship, Part-time, Apprenticeship) **Sep 2023 — Present**
Kynetics Inc. Italy, Padova

- **Firmware Development:** Developed firmware for multiple platforms like **Cypress CCG2/CCG5** USB PD controllers for iPad Stand Sumup, enabling voltage negotiation, fault detection, and power role swaps.
- Developed, tested and ported embedded operating systems (Android (Automotive) and Linux) to SoCs like **i.MX8 series and TI AM62** and SoMs like Verdin-Toradex, Register8MP-Sumup and Nitrogen8MP-Ezurio, including **BSP development**, **kernel configuration**, and **driver development and integration**.

Research Trainee **Aug 2024 — Present**
University of Padova Italy, Padova

- Explored Versal adaptive SoCs' AI engines for quantum machine learning predictors targeting ultra-low latency applications.
- Worked with **Vitis Unified IDE** and **AMD's intrinsic APIs** to develop and implement **Tree Tensor Networks** on various datasets.

Education

Master of Science, Telecommunication Engineering, University of Padova **Oct 2022 — Present**
Bachelor of Science, Electrical Engineering, University of Mazandaran, GPA: 3.66/4.00 **Oct 2018 — July 2022**

Projects

Porting and Developing Android 14 on Verdin iMX8MP

- Adapted Android 14 for Verdin i.MX 8M Plus to test hibernation, achieving a 70%-90% reduction in boot time compared to a cold boot.
- Customized the Linux kernel for hardware compatibility, optimized the bootloader, and integrated hibernation support within the Android framework.
- Ensured seamless operation with platform-specific drivers and peripherals.

Neural Network implementation on FPGA Aritx A7 Link

- Implemented a Keras neural network on an **Artix-7 FPGA** using the **HLS4ML** framework
- Worked with Vivado to Instantiate the neural network with a UART module written in VHDL for communication, **enabling real-time data input and output**.
- Leveraged the **Jet Tagging Dataset** to train and evaluate the neural network.

Driver Drowsiness Detection

- Developed a Driver Drowsiness Detection System on Raspberry Pi, focusing on **real-time image processing** for eye state detection.
- Utilized **TensorFlow Lite** for efficient on-device machine learning inference, implementing SVM and Neural Networks for drowsiness classification.

Programming the TurtleBot for Following a Path

- Worked as part of a team to design and develop a line-following robot on an STM32F767 microcontroller, ranking 1st among 10 teams in the Embedded Real-Time Control course at the University of Padova
- Implemented a PID controller to enhance path tracking accuracy and stability.

Skills

Programming	C/C++, Python, Verilog, VHDL, Shell, Java
Embedded	Embedded Linux, Android/Linux BSP, Yocto, Microcontrollers, FPGA, QEMU
Debugging	Logic Analyzer, JTAG, GDB
Protocols	I2C, UART, SPI, CAN, Ethernet
Tools	Git, Jira, Bitbucket, Github

Language

English	Proficient
Persian	Native
Italian	Basic