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Avo Intelligence
Munich

Regensburg, 09.06.2025

Embedded Software Engineer

Respected Mr. Manuel Wagner,

I am thrilled to apply for the Embedded Software Engineer position at Avo Intelligence, a company that has swiftly emerged as a trailblazer in machine learning since its founding in 2024. Your mission to empower businesses with cutting-edge ML expertise, fostering collaborative partnerships to drive transformative impact across industries, is truly inspiring. I am deeply motivated to contribute my embedded systems expertise to support Avo Intelligence's vision of delivering innovative, data-centric solutions.

During Master's program, focusing on IoT health solutions, I utilized STM32CubeIDE and C for firmware development on an STM32 microcontroller to build a wearable health monitoring device. The system integrated sensors for vital signs (temperature, SpO2, heart rate, humidity, ambient temperature, motion) using I2C and SPI for reliable data acquisition, while UART facilitated communication with an ESP WiFi module for wireless data transfer to a local server hosting a web GUI. Key firmware modules were developed to manage sensor polling, GPIO for LED indicators, and an emergency button. I also optimized power consumption for a 5-hour battery life using STM32 sleep modes. The web interface enabled real-time data visualization and historical analysis, accessible via any browser on the local network. Parallel to my academic pursuits, during nine months at AVL, I worked on the Adaptive AUTOSAR middleware (Service Oriented Architecture) and developing its applications in C++. These Adaptive Applications were deployed on a custom Real Time Linux Operating System using Yocto project. After this, I continued at AVL for my Master's thesis, where I was tasked with upgrading their legacy FMU Generation Utility (written in C++) from the FMI 2.0 to the FMI 3.0 standard, thereby enhancing the functionality of the existing tool for Co-simulation of automobile parts build in different systems like MATLAB, C++ etc. In my Thesis, I also leveraged Google Protocol Buffers (ProtoBuf) through ASAM OSI for efficient data serialization, streamlining integration of sensor and environmental models in driving simulations, enhancing virtual testing capabilities. At Persystems, I was a Junior C++ Developer, where I developed Virtual TestBench, a Qt Desktop application for simulations of electrical components, leveraging Persystems' proprietary library. My responsibilities included designing the UI/UX in the Qt Creator IDE with C++ to ensure a seamless user experience. I have also implemented the application's logic by connecting UI widgets to custom slots, using Qt's signal-slot mechanism to manage data flow between the UI and the backend operations interfacing with Persystems' testbench library. Additionally, I have built a separate license check application for Virtual TestBench using Qt and C++.

Drawing from my Master's work on IoT health solutions in C and C++ projects at AVL, alongside my role at Persystems developing simulation software, I am ready to excel as an Edge AI & Embedded ML Engineer at Avo Intelligence. My experience with STM32 microcontrollers, I2C, SPI, and power optimization equips me to build low-power AI models for edge devices, aligning with your TinyML focus. Proficiency in C, C++, Python, and embedded Linux via Yocto supports real-time systems like Zephyr or FreeRTOS. My work with Google Protocol Buffers and CI/CD pipelines prepares me for model optimization and quality assurance, while my collaboration with hardware teams at Persystems ensures I can drive Avo Intelligence's edge AI innovations.

Among the many skills I have honed throughout my career, teamwork stands out as the most pivotal. My past experiences have emphasized the fundamental truth that sustainable solutions are often the result of collaborative efforts, rather than individual brilliance. I am eager to become part of the team and am committed to contributing my utmost from the very start, beginning 07.07.2025. However, I remain open to discussing a starting date that best aligns with the team's needs.

I would be greatly honoured to receive an invitation for an interview.

Yours sincerely

Regensburg, 09.06.2025