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ANavS GmbH
Friedrichshafener Strasse 1
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Embedded Software Engineer Application

Respected Hiring Team,

I am thrilled to apply for the Embedded Software Engineer position at ANavS GmbH, a company recognized for its groundbreaking advancements in high-precision positioning, particularly with the 2024 launch of an advanced sensor fusion module that enhances accuracy for autonomous driving and robotics by integrating GNSS, IMU, and camera data. Your innovative approach to sensor fusion technology is inspiring, and I am eager to contribute my expertise in embedded systems and C++ development to support ANavSs mission of delivering cutting-edge navigation solutions.

During my Masters 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, at AVL, I worked on the Adaptive AUTOSAR middleware (Service-Oriented Architecture) and developed 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 Masters 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 built in different systems like MATLAB, C++ etc. In my thesis, I also leveraged Google Protocol Buffers 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 applications logic by connecting UI widgets to custom slots, using Qts 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 Masters work developing IoT health solutions in C and managing complex C++ projects at AVL, alongside my current role at Persystems refining simulation software, I am well-prepared to excel as an Embedded Software Engineer at ANavS GmbH. My extensive experience with C++ and embedded Linux systems, demonstrated through projects like the Turtlebot3 autonomous navigation system using ROS and Yocto-based real-time Linux optimization at AVL, aligns seamlessly with your need for robust sensor fusion solutions. My hands-on expertise with low-level protocols like I2C, SPI, and UART, honed during my wearable device project, equips me to handle sensor integration and real-time data processing effectively. My proficiency in CI/CD pipelines and tools like Git, combined with my experience in debugging with GDB and LLDB, ensures I can maintain high-quality standards in embedded development. Moreover, my ability to quickly adapt to new technologies, as shown by mastering Yocto and Azure DevOps at AVL, positions me to contribute to ANavSs innovative positioning systems with precision and reliability.

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 immediately.

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

Yours sincerely,
Milind