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Embedded Software Engineer - Real-Time Systems & Sensor Integration (m/f/d)

Apply

Karlsruhe, Baden-Württemberg, Germany, München, Bavaria, Germany

At Alpine Eagle, we engineer advanced embedded intelligence for mission-critical airspace protection. Our solutions leverage AI, real-time sensor fusion, and autonomous communication systems to safeguard airspace against emerging drone threats. We build scalable, modular systems designed for fast deployment and rugged reliability in real-world operations.

We foster a culture of openness, purpose-driven innovation, and technical excellence, welcoming engineers who thrive in interdisciplinary teams and want their work to have a visible impact.

🎯 How you will make an impact:

Join a high-performing team building embedded software for edge devices in distributed sensor systems. Your work will focus on real-time communication, system synchronization, and efficient data processing across multiple sensor modalities (e.g., vision, RF, positioning). You'll help bring high-performance embedded platforms to life—from prototyping to deployment on drones, vehicles, or ground stations.

- Develop and maintain embedded applications using **C++** targeting **real-time Linux** or **bare-metal** platforms.
- Interface with a variety of sensors using protocols like **SPI**, **UART**, **CAN**, and **Ethernet**, ensuring reliable, low-latency data flows.
- Design **ROS2/DDS** node structures for modular, scalable, and maintainable system architecture.
- Implement diagnostic, telemetry, and remote-control modules for monitoring and operational safety.
- Collaborate closely with hardware, AI, and system software teams to optimize end-to-end system performance.
- Participate in integration and testing, both in the lab and in the field.

✅ What you need to be successful:

- Degree in Embedded Systems, Computer Engineering, Robotics, or a related field.
- Strong experience with **C++** for **embedded** or **real-time** systems (FreeRTOS, Embedded Linux, Yocto).
- Familiarity with **ROS2**, **DDS**, or other modern middleware frameworks.
- Solid understanding of real-time programming, inter-process communication, and memory-constrained systems.
- Experience working directly with hardware interfaces (GPIO, I2C, SPI, UART, CAN).

- Strong debugging skills using tools like gdb, logic analyzers, or serial consoles.
- A hands-on mindset and eagerness to test and iterate under real-world conditions.
- Fluency in English (written and spoken); German is a plus.

  Ideally also:
- Experience with **FPGA development** and familiarity with **SoC/MPSoC** platforms (e.g., **Xilinx Zynq**, **RFSoC**).
- Exposure to **hardware/software co-design** principles (e.g., AXI bus, DMA, or hardware accelerators).
- Familiarity with **UAV systems**, **sensor fusion**, or distributed real-time systems.
- Ability to contribute to full-stack embedded pipelines, from driver-level programming to application logic.

At Alpine Eagle, we are committed to diversity and equal opportunity. We welcome applications from all individuals regardless of ethnic origin, gender, religion, disability, age, or sexual identity.

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