

.Software Engineer Intern

Overview:

OPTECS is a leading company based in Rotterdam, The Netherlands, specializing in the application of Artificial Intelligence (AI) and computer science technology in mineral processing. Our vision is to develop innovative and efficient solutions for the mining industry, optimizing the extraction, processing, and utilization of minerals.

Our internships are designed to provide students with real-world experience and mentorship, offering them opportunities for professional development. Interns at OPTECS will have the chance to work on live projects that directly contribute to our company's goals, under the guidance of our experienced team members. This program allows interns to develop critical skills, build professional networks, and prepare for their future careers.

Key Responsibilities:

- **System Development:**
 - Develop components according to the system architecture, including base node templates such as analyzer nodes, AI processors, and controllers, etc. based on the architectural specifications.
 - Write reusable and efficient code for basic implementation of data processors, AI modules, and I/O nodes, ensuring they integrate seamlessly with the overall control system and give the required flexibility and scalability foreseen for the system.
- **AI Integration:**
 - Develop and implement AI-driven nodes for data processing and optimization in the solution, considering the requirements for using machine learning models for predictive control, optimizations and fault detection.
 - Ensure AI processing nodes are integrated into the messaging system and optimized for real-time data processing.
- **Lifecycle and Node Management:**

- Implement lifecycle nodes for components such as I/O, optimizers, and AI processors, handling node states like Unconfigured, Inactive, Active, and Shutdown.
- Ensure nodes properly handle transitions and manage QoS settings for data flows between nodes and external systems.
- **Messaging & Networking:**
 - Implement publish-subscribe patterns and services/actions, facilitating communication between nodes over an efficiently implemented DDS. Ensure nodes can dynamically discover and communicate with each other using an auto-discovery mechanism.
 - Implement barebone QoS settings to ensure reliable communication and avoid network congestion.
- **Data Storage & Access Control:**
 - Implement parameter management using database management systems, ensuring nodes can access and modify parameters securely through access control system.
 - Write efficient code for storing and retrieving node parameters and ensure data consistency during system lifecycle transitions.

Key Requirements:

- **Experience:**
 - Experience in software development, particularly in distributed systems or control systems.
 - Expertise in Python and C++ for high-performance software implementation and industrial level production.
 - Experience with graph based distributed frameworks such as ROS, including node creation, lifecycle management, and messaging protocols.
- **Technical Skills:**
 - Understanding of machine learning frameworks and functioning and integrating AI models into real-time systems.
 - Experience with database management systems.
 - Expertise in developing high-performance, real-time data processing components.
- **Soft Skills:**
 - Ability to work collaboratively with software architects, developers, and domain experts.
 - Strong problem-solving and debugging skills in complex, distributed environments.

Information:

If you believe your profile could be a good match to this Software Engineer Intern position, apply now!

Sent your CV at admin@optecs.nl .

After the screening of all the CVs received, we will contact the candidates who meet the requirements of the job to arrange an interview. All applications are considered strictly confidential.