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Software Developer C++ Application

Dear Hiring Team,

I am thrilled to apply for the Software Developer C++ position at ROSEN Group, a company driving innovation in asset integrity with its groundbreaking hydrogen pipeline inspection technology, successfully tested in May 2025, and its expanded digital inspection platform featuring AI-driven analytics for predictive maintenance, launched in March 2025. Your commitment to advancing safety and reliability in critical infrastructure through cutting-edge software solutions is truly inspiring. I am deeply motivated to contribute my expertise in C++ and software development to support ROSEN's mission of transforming raw sensor data into actionable insights for the energy transition.

During my Master's program, focusing on AI, I primarily used Python and Ubuntu as my development environment to develop applications for AI-driven tasks. One notable project involved autonomous navigation of the Turtlebot3 in a selected area, incorporating object detection and avoidance, while also mapping the area and ensuring the robot could return to its origin. This project utilized ROS (Noetic) and Gazebo for virtual testing, with key ROS nodes developed in both C++ and Python. Additionally, I managed a CI/CD pipeline for software testing and validation against key performance indicators (KPIs). Data from these operations was efficiently stored, analyzed, and optimized using MySQL. 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 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 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 developing AI-driven applications in Python and managing complex C++ projects at AVL, alongside my current role at Persystems refining simulation software with Qt and C++, I am well-positioned to excel as a Software Developer C++ at ROSEN Group. My hands-on experience with high-performance C++ development, demonstrated through optimizing the Virtual TestBench and upgrading AVL's FMU Generation Utility, aligns seamlessly with your need for robust, cross-platform software to process pipeline inspection data. My proficiency in CI/CD pipelines and unit testing, honed through academic and professional projects, ensures I can deliver maintainable, high-quality code using modern C++ practices and libraries like TBB or IPP. Additionally, my expertise in Python and SQL, coupled with my familiarity with Linux environments and tools like Git, equips me to integrate algorithms into distributed systems like Dask, enhancing data analysis capabilities. My collaborative experience at Persystems, working with cross-functional teams, prepares me to contribute to ROSEN's innovative solutions, ensuring reliable and efficient asset integrity management.

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 honoured to receive an invitation for an interview.

Yours sincerely,

Regensburg, 27.06.2025