Anas Mhana

Senior Software Engineer

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Professional Summary

Senior Software Engineer with 11 years of experience at the intersection of high-performance C++ development and Computer Vision. Proven track record in designing and optimizing real-time embedded software for ADAS and autonomous systems at industry leaders like Bosch, DENSO, and Rohde & Schwarz. Expert in modern C++, sensor fusion, and deploying machine learning pipelines (PyTorch) to solve complex challenges in mission-critical environments.

Technical Skills

Languages	C++17, Python, Matlab
Libraries	OpenCV, PyTorch, STL,
Tools	Git, CMake, Docker, ROS/ROS2, MISRA, Linux, PyCharm, VSCode

Professional Experience

2023–2025 **Software Development Engineer (via ALTEN GmbH)**, Rohde & Schwarz GmbH, München, Germany.

- Maintained and enhanced high-performance C++ applications for mission-critical radio communication testers.
- Implemented robust software design patterns to improve code maintainability and long-term scalability in Linux environments.
- Improved software reliability by identifying and resolving complex multi-threading bugs in the existing codebase.
- Optimized core algorithms, significantly reducing processing time and enhancing real-time system performance.

2022–2023 **Real-Time Embedded Software Engineer (via ALTEN GmbH)**, Bosch GmbH, Remote (Lindau, Germany).

- Engineered C++17 real-time embedded software components deployed across multi-container Docker environments for appliance systems.
- Led the redesign of power management logic and the deterministic pairing mechanism with edge/cloud services.
- Ensured system robustness through rigorous bug-fixing, endurance testing, and comprehensive MISRA-compliant documentation.

2019–2021 **Computer Vision Development Engineer**, DENSO ADAS Engineering Services GmbH, Lindau, Germany.

- Developed and trained deep learning models utilizing PyTorch for depth completion and 3D reconstruction tasks.
- Researched and applied novel computer vision architectures to estimate real-time vehicle depth perception.
- Developed real-time visual odometry algorithms and corresponding unit tests in modern C++.
- Validated algorithm performance by building automated evaluation pipelines and experimenting with real-world sensor data.

2016–2019 **Computer Vision Development Engineer**, ADASENS AUTOMOTIVE GMBH, Lindau, Germany.

- Developed robust C++ software features and unit tests for an offline mono-camera calibration system.
- Designed and built a validation tool to ensure calibration accuracy and reliability for ADAS pipelines.
- Created an optical self-diagnosis system by modeling and training machine learning algorithms via OpenCV.

2013–2014 **Software Engineer**, MMIS FOR INFORMATION TECHNOLOGY, Lebanon.

2011–2013 **Algorithm and Data Structure Lab Instructor Assistant**, DAMASCUS UNIVERSITY, Syria.

2010–2011 **Programmer**, EBLA GMBH, Syria.

Selected Engineering & Architecture Projects

Extended Kalman Filter (EKF) for Sensor Fusion, *GitHub Portfolio*.

- Architected a C++ based EKF pipeline for multi-sensor data fusion targeting autonomous navigation and ADAS systems.

Visual SLAM Front-End (C++), *GitHub Portfolio*.

- Developed a deterministic visual SLAM front-end pipeline utilizing modern OpenCV for real-time feature extraction and tracking.

Production-Grade Agentic VQA System, *GitHub Portfolio*.

- Built an end-to-end vision-language pipeline utilizing Python and PyTorch for advanced object detection and reasoning.

Education

2014–2016 **Master of Science in Vision & Robotics (VIBOT)**, *Université de Bourgogne*, France.

2011–2012 **Master of Robotics Programming Engineering**, *Damascus University*, Syria.

2005–2010 **Computers and Automation Engineering**, *Damascus University*, Syria.

Training & Certifications

2022 **Artificial Intelligence Engineering**, *DIGETHIC*, München, Germany.

Languages

Arabic (Mother Tongue), English (Fluent), German (Advanced)