ADEEB ALQAHTANI

Software Integration Engineer
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Summary

Software Integration Engineer with 10+ years of experience in software development, specializing in C++, Python, middleware solutions, and LLM-based AI tools. Holds a Bachelor's in Computer Engineering from California State University (CSUSB) and a Deep Learning Nanodegree from MISK. Equipped with extensive training in data science, data analysis, and machine learning. Passionate about leveraging advanced software engineering and AI to optimize system performance and drive innovation.

Experience

Rheinmetall Arabia For Simulation and Training
Riyadh

Software Integration Engineer — 11/2024 - Present

- Developed API and middleware solutions for real-time data integration, ensuring smooth communication between host systems and external modules.
- Provided technical consultation and advanced troubleshooting support to resolve complex technical issues, optimizing system integration and performance.
- Led integration of simulation and training systems, managing the complete development process from requirements to deployment.
- Designed and documented system architecture for simulator upgrades and new technology adoption.
- Conducted site surveys and provided solutions to improve simulator performance and align with current industry trends.

PSAA Engineering Dpt.
Jeddah

Flight Simulator Engineer — 01/2019 - 10/2024

- Led the qualification, testing, commissioning, and certification of Full Flight Simulators, ensuring strict compliance with aviation standards(FAA, EASA & GACA).
- Provided expert troubleshooting for complex technical challenges, ensuring timely resolution and minimal downtime.
- Collaborated on system integration and performance optimization to improve simulator reliability and enhance operational efficiency.

PSAA Technical Servesis Dept.
Jeddah

Flight Simulator Maintenance Supervisor(D) — 01/2024 - 06/2024

- Led a technician team to enhance operations, scheduling, and training readiness, ensuring effective coordination and smooth performance.
- Monitored performance and ensured compliance with safety and regulatory standards, providing reports to support decision-making and improvements.

PSAA Technical Servesis Dept.
Jeddah

Full Flight Simulator Technician — 04/2010 - 12/2013

- Maintained and optimized flight simulators, ensuring realistic and reliable performance for pilot training.
- Configured single-board computers, modified interface cards, and upgraded I/O units for seamless system integration.
- Installed, calibrated, and aligned instrument panels, visual systems, and motion platforms for enhanced realism.
- Improved uptime and customized systems to meet specific training requirements through efficient troubleshooting and modifications.

Education

California State University San Bernardino
B.S. in Computer Engineering — 01/2015 - 06/2018

- Focused in high performance and embedded systems.

MISK
Deep Learning (AI) Nanodegree — 08/2019 - 01/2020

- Hands-on experience in 6 artificial intelligence projects.

Canadian Aviation Electronics
Intensive Training Program — 05/2009 - 04/2010

- Simulator Maintenance

Yanbu Industrial College
Associate Degree in Electrical and Electronics — 08/2004 - 06/2008

- Majored in instrumentation and control system.

PROJECTS

Falcon AI – Reinforcement Learning for Aerial Combat (AI) (Ongoing)

Developing a reinforcement learning-based simulator where autonomous jets engage in tactical 2D dogfights. Built using PettingZoo and PyFlyt, with future integration into DIS/CIGI-based military simulators.

HostJet – CIGI Based Host Emulator with Flight Control (Tools)

Developed a real-time host emulator that sends CIGI 3.3 packets to an Image Generator, simulating jet movement. It includes a user interface for setting preset values like location, altitude range, and flight freeze, as well as options to choose IP and port.

LLM-Driven Cybersecurity Compliance Evaluator (AI)

Developed an AI-powered tool with a simple interface to evaluate cybersecurity compliance. It assesses company security measures against National Cybersecurity Authority (NCA) standards and provides real-time compliance ratings.

CIGI to CIGI Middleware for Cougar Helicopter Visual IG

Developed multithreaded C++ middleware for real-time CIGI to CIGI protocol conversion. Enabled efficient data transmission and optimized communication between the host computer and image generator.

DIS-CIGI Middleware for Cougar Helicopter CGF

Developed a multithreaded C++ middleware for real-time DIS to CIGI protocol conversion between the Computer Generated Forces (CGF) and Image Generator (IG).

PROFESSIONAL KEY ACHIEVEMENTS

- **Host Emulator**
  Developed a joystick-driven, real-time C++ host emulator that generates and transmits CIGI 3.3 packets at 60 Hz to simulate jet behavior.
- **Middleware Solutions**
  Developed real-time, multithreaded C++ Middleware solution for Cougar Helicopter flight simulator.

WORK AWARDS

- Recognized as Employee of the Month multiple times for exceptional performance and dedication.
- Appreciation letter for handling a complex 6-DOF electrical motion system failure (2022).
- Appreciation letter for handling a software modification for 6-DOF motion system (2022).

TRAINING/COURSES

1000+ hours achieved in technical training from Canadian aviation electronics, L3Harris and Collins Aerospace

PMP Course

Proposal Writing & Management

Databases and SQL for Data Science with Python

Python for Data Science & AI

Advance Electronics

SKILLS

leadership and management skills: Problem-solving · Interpersonal Skills · Strategic Thinking · Time Management

Hardware: Circuit design · Electronics · Microcontrollers · Robotics · Field Programmable Gate Arrays (FPGA)

Software: C/C++ · Python · LLM · Llama · Mistral · NumPy · Pandas · TensorFlow · PyTorch