

ADEEB ALQAHTANI

Software Integration Engineer

+966583161518 • Adeeb.alqahtani@gmail.com • theadeeb.com • Riyadh

Summary

I'm a Software Integration Engineer with over a decade of experience building, systems in simulation and mission-critical environments. I led the design and development of the **Cougar Full Mission Simulator – Middleware System**, a real-time C++ middleware that synchronizes Host, CGF, IG, IOS, and BDS systems with sub-millisecond precision.

My background spans embedded systems, real-time integration and recently focused on **AI-enhanced systems and intelligent tooling**.

I hold a **B.S. in Computer Engineering from CSUSB** and a **Deep Learning Nanodegree from MISK Foundation**, with hands-on experience in both low-level optimization and AI-driven architectures. My goal is to create systems where performance, innovation, and intelligent design come together.

Experience

Rheinmetall Arabia For Simulation and Training	Riyadh
Software Integration Engineer	11/2024 - Present
<ul style="list-style-type: none">Developed middleware system for real-time data integration, ensuring smooth communication between host systems and external modules with latency < 1 ms.Provided technical consultation and advanced solution architecture to resolve complex technical issues, optimizing system performance.Led integration of simulation systems, managing the complete development process from requirements to deployment.Designed system architecture for simulator upgrades and new technology adoption.	
PSAA Engineering Dpt.	Jeddah
Flight Simulator Engineer	01/2019 - 10/2024
<ul style="list-style-type: none">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
<ul style="list-style-type: none">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
<ul style="list-style-type: none">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
<ul style="list-style-type: none">Focused in high performance and embedded systems.	
MISK	
Deep Learning (AI) Nanodegree	08/2019 - 01/2020
<ul style="list-style-type: none">Hands-on experience in 6 artificial intelligence projects.	
Canadian Aviation Electronics	
Intensive Training Program	05/2009 - 04/2010
<ul style="list-style-type: none">Simulator Maintenance	
Yanbu Industrial College	
Associate Degree in Electrical and Electronics	08/2004 - 06/2008
<ul style="list-style-type: none">Majored in instrumentation and control system.	

PROJECTS

Cougar Full Mission Simulator – Middleware System Development

Designed and programmed a middleware system for the Cougar Full Mission Simulator, integrating five critical subsystems using C++, Boost, Open DIS, CIGI Class Library (CCL), and shared memory pipelines. This solution provided reliable real-time synchronization and sub-millisecond latency.

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.

PROFESSIONAL KEY ACHIEVEMENTS



Host Emulator

Developed a joystick-driven, real-time C++ host emulator that generates and transmits CIGI 3.3 packets at 60Hz 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

Databases and SQL for Data Science with Python

Python for Data Science & AI

Computer Interface Systems

AWS IoT

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