

KHOLOUD NASSER

SENIOR FULL STACK SOFTWARE ENGINEER & TECHNICAL LEAD

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SUMMARY

Accomplished full-stack software engineer and Technical Lead with over 11+ years of experience delivering robust enterprise web and desktop solutions. Proven expertise in designing scalable backend architectures, structuring clean database layers, and building intuitive user interfaces. Skilled in bridging the gap between business requirements and physical system architecture, integrating physical hardware components, and optimizing high-performance transactional platforms. Experienced in leading cross-functional teams, directing digital transformations, and maintaining optimal availability for critical enterprise platforms.

CORE EXPERTISE

- Solution Architecture
- Database Design & SQL
- Agile & DevOps Pipelines
- System Integration & APIs
- Hardware/IoT Interfacing
- Payment Gateways (MPGS)
- Distributed Systems Design
- Technical Team Leadership
- Full-Stack System Design

PROFESSIONAL EXPERIENCE

Independent Technical Consultant & Research Engineer

December 2025 - Present

Freelance & Academic Research

- **AI & VR Research:** Engineering machine learning classifiers to process eye-tracking telemetry, enabling real-time adaptive adjustments in VR cognitive simulations for an upcoming research paper.
- **Ghaith Platform Development:** Maintained continuous technical feature delivery, performance optimization, and updates for the Ghaith humanitarian platform on an advisory freelance basis.
- **Client Systems Delivery:** Designed, developed, and launched responsive web applications and custom management solutions for private business owners.

Senior Software Developer / Technical Lead

December 2013 - November 2025

Emirates Red Crescent

- Architected, developed, and maintained high-performance backend systems using C# and .NET, resulting in a 30% increase in system efficiency and reducing response times by 50% for both internal and client-facing applications.
- Directed system security and scalability strategies, implementing architectural best practices that reduced security breaches by 95% and supported a 200% increase in user traffic without performance degradation.
- Designed and implemented secure RESTful APIs with .NET Core, optimizing data exchange models, OAuth authentication, and real-time communication across multiple platforms.
- Utilized ASP.NET MVC and WebAPI to build user-friendly web applications, directing responsive UI/UX front-end integration to improve user engagement by 30% and ensure seamless functionality across multiple device formats.
- Managed troubleshooting and resolution of critical performance bottlenecks and security vulnerabilities within the .NET ecosystem, reducing system downtime to 0.1% and maintaining a 99.9% uptime rate.
- Led the cross-functional design and delivery of interactive gameplay systems and user experiences for mobile applications, utilizing AI-driven characters to enhance real-time interactions.
- Architected secure donation flows utilizing MPGS (Mastercard Payment Gateway Services) and billing integrations, boosting transaction processing efficiency by 40% and reducing transaction errors by 15%.

KEY PROJECTS

Academic Project – VR & Eye Tracking System for ADHD Intervention

Heriot-Watt University

- Designed and developed a multi-modal VR application using Unity3D and the Meta Quest Pro headset to assess and support attention levels.
- Implemented real-time gaze tracking and adaptive difficulty logic to adjust cognitive tasks dynamically based on distraction response and focus.
- Built a secure Azure backend with Function Apps and SQL Database for session logging, telemetry, and analytics.
- Developed a clinician dashboard in ASP.NET Core and Razor Pages to visualize gaze telemetry, reaction times, and adaptive changes.

Academic Project – Image Classification Using ML & Deep Learning

Heriot-Watt University

- Conducted comparative research between traditional machine learning models (Random Forest, Perceptron) and Convolutional Neural Networks (CNNs) for image classification.
- Implemented and evaluated MLP, CNN, and ANN models using stratified 10-fold cross-validation.
- Achieved ~92% classification accuracy using Perceptron models and ~99.9% accuracy with fine-tuned CNN models.

EDUCATION

Master's of Science in Software Engineering

2025

Heriot-Watt University | Dubai, UAE • 4.00 GPA

Bachelor's of Computers and Information (Minor in IT)

2013

Assiut University | Assiut, Egypt

Graduation Project: Network Traffic Monitoring Application (Java, MySQL, GUI Analytics)

TECHNICAL SKILLS

Languages: C#, Java, JavaScript, Python, C++, PHP, HTML/CSS

Backend Tech: .NET Core, ASP.NET MVC/WebAPI, Entity Framework, REST, SOAP, Spring Boot

Frontend & Game Dev: React, Next.js, Razor Pages, Unity3D, Unreal Engine, WebGPU, Bootstrap

Databases: SQL Server, Oracle Database, MySQL, PostgreSQL, MongoDB

DevOps & Cloud: Microsoft Azure, Azure DevOps, Docker, Kubernetes, Jenkins, Git, Jira, CI/CD

Methodologies: Agile/Scrum, Solution Design, Digital Transformation, Business Analysis

PUBLICATIONS & CERTIFICATIONS

AAAI-SuS 2025 Publication

2025

Co-authored paper: "The Design of a Virtual Reality Environment for ADHD Intervention", published at the AAAI Symposium series.

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