Osamah Alananzeh

COMPUTER ENGINEER

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Summary

Motivated Computer Engineer with a strong foundation in software development, systems design, and network technologies. Experienced in C, C++, C#, and Python, with hands-on expertise from 42 School projects including system-level programming, graphics rendering, and AI-driven automation. Skilled in building reliable, efficient solutions through low-level programming and modern software engineering practices. Passionate about problem-solving, continuous learning, and developing scalable, real-world applications.

Education

BACHELOR'S DEGREE IN COMPUTER ENGINEERING
AlBalqa'a Applied University – Oct 2021 - Oct 2025

42 CORE CURRICULUM DIPLOMA IN COMPUTER SCIENCE
42 Amman – Aug 2024 - Aug 2026

Technical Skills

- **Languages:** C, C++, C#, Python, Java, Assembly
- **CS Fundamentals:** Data Structures & Algorithms, OOP, system-level programming, memory management , Concurrency & Multithreading, Synchronization primitives (mutexes), Deadlock & starvation prevention
- **Systems & Unix:** Processes, signals, pipes, file descriptors, environment variables, redirections (Minishell),POSIX threads (pthreads), Mutexes & shared memory synchronization, Thread-safe logging, High-precision timing (gettimeofday / usleep)
- **Graphics:** Raycasting, textures, collisions, real-time movement (Cub3D / MiniLibX)
- **Frameworks & Platforms:** .NET
- **Databases:** SQL
- **Tools:** Git/GitHub, Visual Studio, VS Code, IntelliJ IDEA, Valgrind, Makefiles, Helgrind / Thread debugging

Professional Skills

- Problem Solving (Competition experience: **Shadow Code – 1st Place**)
- Adaptability & Continuous Learning
- Teamwork & peer-to-peer collaboration (42 learning model)
- Ownership, clean code, and modular design
- Debugging complex concurrent systems
- Writing safe, predictable multithreaded code
- Attention to timing constraints and edge cases

Certifications

- Foundational C# with Microsoft (freeCodeCamp + Microsoft) — Nov 28, 2025
- C# Level 1 (ProgrammingAdvices) — Dec 26, 2025
- Database Level 1 - SQL (Concepts and Practice) (ProgrammingAdvices) — Feb 1, 2026
- OOP As It Should Be In C# (ProgrammingAdvices) — Feb 6, 2026
- Database - SQL (Projects & Practice) (ProgrammingAdvices) — Feb 6, 2026
- Shadow Code (Problem Solving Track) — 1st Place, May 18, 2025 (IEEE Student Branch, Al-Balqa Applied University)

Projects

Minishell (C)
- Developed a mini Unix shell supporting pipes, redirections, environment variables, and process management.
- Improved modularity and debugging using Valgrind and Makefiles.

Cub3D (C, MiniLibX)
- Implemented a 3D rendering engine using raycasting with textures, collisions, and real-time player movement.

Advanced C++ Projects (OOP, STL, Templates) — 42 School
- Completed C++ modules covering OOP, memory management, inheritance, polymorphism, templates, and exception handling.
- Built multiple projects emphasizing clean architecture, SOLID principles, and effective STL usage.

Graduation Project — Conversational Firewall Management: Chatbot-Guided Firewall Operations
- Developed an AI-powered conversational interface for firewall management using FastAPI, React, and vLLM.
- Interprets natural language to configure and monitor an OPNsense firewall via secure REST APIs, reducing human error.

Dining Philosophers – Multithreaded Systems Project
- Developed a multithreaded Dining Philosophers simulation in C using mutexes for synchronization, preventing race conditions and deadlocks.
- Implemented precise time management, thread-safe logging, and strict memory handling, with extensive testing for starvation and concurrency edge cases.

Languages

ARABIC: NATIVE
ENGLISH: ADVANCED