

Omar Elzarka

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Summary

Software Engineer focused on building scalable full-stack and AI-powered applications. Skilled in backend architecture, cloud deployment, and modern software engineering using ASP.NET Core, Angular, Docker, and Azure.

Work Experience

| Programming Instructor | Debugger Dude | Remote | 2025 – 2026 |
[Link](#)

Founded and managed **Debugger Dude**, an educational YouTube channel focused on teaching core computer science fundamentals using C++ through animation-based and in-depth explanations.

- Created **30+ hours** of high-quality animated content covering **data structures, algorithms**, and problem-solving concepts.
- Helped over **100 students** improve their programming and analytical thinking through structured, visual learning content.

Projects

AI-Powered-Fashion-E-Commerce-Platform (Full-Stack & AI Project) [Github](#)

- **Reduced architectural coupling and accelerated feature delivery** by ~40% by architecting a scalable e-commerce backend in **ASP.NET Core** leveraging **Clean Architecture, Domain-Driven Design**, and the Generic Repository/**Specification patterns**. seamlessly integrated with a highly modular **Angular**, TypeScript, SCSS, and Tailwind CSS frontend.
- Delivered sub-50ms (p95) semantic product recommendations under simulated production workloads by engineering an in-memory recommendation engine that utilizes local **ONNX-based NLP models** (TextEmbeddingService) and caches

product vectors using a thread-safe ConcurrentDictionary for rapid cosine similarity calculations.

- Established a secure, scalable, and highly observable transaction pipeline by implementing stateless **Refresh JWT authentication**, integrating **Stripe for resilient payment** processing, and containerizing the multi-tier architecture using Docker. Achieved API reliability and reduced client payload sizes by over **80%** through server-side pagination, structured logging, and comprehensive **xUnit test** coverage.

Weave | Visual Neural Network IDE (Graduation project) | [Github](#) | [Live Demo](#)

- Delivered a premium, zero-code neural network IDE experience by engineering with a highly interactive, drag-and-drop web application using **React Flow**, Zustand for state management. Achieved sub-second **visual responsiveness** and enhanced user engagement through highly **optimized DOM rendering** and Framer Motion micro-animations.
- Architected a scalable backend in **ASP.NET Core** leveraging Clean Architecture, and the **CQRS pattern** via **MediatR**. Seamlessly orchestrated complex, **external machine learning compilation pipelines** by engineering resilient, typed HttpClient's to bridge the C# API with a standalone Python engine.
- Established a secure, scalable, and highly observable multi-tier architecture by containerizing the full-stack environment using **Docker** and automating zero-downtime deployments through comprehensive **Azure CI/CD pipelines**. Guaranteed fluid user experiences during long-running, external ML workflows by implementing stateless **JWT authentication** and streaming real-time telemetry to the client via **SignalR WebSockets**.

Technical Skills

Category	Skills
Programming Languages	C++, Assembly, C#, Python, SQL, JavaScript
Frameworks/Libraries	Asp.net core, Angular, React
Databases	SQL Server, MySQL

Category	Skills
Cloud/DevOps	Azure, Docker, Kubernetes, CI/CD (Jenkins/GitLab CI)
Version Control	Git, GitHub/GitLab
Tools/Other	REST, gRPC

Education

BSc Computer Engineering | University of Kafr El-Sheikh | 2021 - 2026

Grade: Very Good - (Ranked second in class)

AWARDS/RECOGNITIONS/VOLUNTEER WORK

- Vice Head, IEEE Kafr El-Sheikh University Student Branch
- recognized as a **top performer** (99.2%) in the ALX AICE program.
- Ranked **Second** in Class at Kafr El-Sheikh University