

SUMMARY

Full-stack software engineer experienced in designing scalable, distributed backend systems and modern front ends. Applies OOP design patterns and SOLID principles building REST APIs in C#, Java, Python, C/C++, and TypeScript/JavaScript, across ASP.NET Core, Node.js, React, Angular, and Flutter, with SQL/NoSQL databases and CI/CD pipelines on Azure and GitHub Actions. Strong Git-based collaboration, debugging, and problem-solving skills within Agile teams.

EDUCATION

B.Sc. Computer Science, Software Development <i>University of Science, Technology & Innovation at Zewail City, Giza, Egypt</i> GPA: 3.4/4.0	09/2022 – 06/2026
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PUBLICATIONS

Mamdouh, A., Sharara, F., Gamal, L., & Shawqi, D. (2025). Evaluating Emotion-Adaptive Non-Player Characters: Player Perception, Immersion, and Systemic Challenges in Sentiment-Driven Interaction. IEEE ICCTA 2025.

EXPERIENCE

Backend Development Intern <i>Proart, Cairo, Egypt</i> - Owned the Product Pricing module end to end, building the domain model, service layer, REST API, FluentValidation validators, and EF Core migrations, including a dependency-free price-book lifecycle state machine enforcing a one-active-book-per-currency invariant. - Fixed two revenue-affecting defects in the pricing rule engine: exclusive discounts were compounding with volume tiers, and stackable discounts were folded sequentially instead of summed, making results depend on database row order. - Diagnosed and resolved a Microsoft Graph API quota exhaustion issue caused by a background sweep making roughly 12,000 disguised write calls per hour, removing the sweep and adding caching, single-flight token refresh, and backoff retry logic. - Built a deny-by-default serialization allow list enforced by a custom IL scanner that inspects compiled method bodies to prevent data leaks to customer-facing endpoints. - Authored the Azure DevOps CI/CD pipeline, generating idempotent EF Core migration scripts as reviewable build artifacts and enforcing a schema-before-code, fail-closed release gate. - Delivered 190 unit and integration tests (61% of the repository's suite) and a requirements traceability matrix mapping every specification scenario to a named test.	08/2026 – 09/2026
Software Developer <i>Arab Union for Development and Sustainability, Giza, Egypt</i> - Directed system architecture and technical roadmap for 2 production platforms, leading a team of 7 developers and enforcing SOLID principles, OOP best practices, and clean code standards through structured pull request reviews. - Replaced a fully manual release process with automated CI/CD deployments by designing the team's first pipeline in GitHub Actions and containerizing services with Docker across environments.	11/2025 – 03/2026
Web Developer Intern <i>LuxAlgo (Remote)</i> Built and optimized RESTful APIs for query performance using Node.js and MongoDB, and developed reusable, responsive HTML5/CSS3 UI components in React, within a distributed, Agile team using Git-based code review workflows.	03/2025 – 09/2025
Junior Teaching Assistant <i>Zewail City University, Giza, Egypt</i> Assisted 150–200 students per semester in labs and assignments covering digital logic and circuit design.	10/2023 – 01/2025

PROJECTS

IN – Social Hangout Planning Platform GitHub

- Architected a modular monolith backend in Node.js, Express, and TypeScript applying OOP and REST design principles, with PostgreSQL on Supabase (38 tables, 55 migrations, row-level security) and Redis-backed job queues via BullMQ across 10 workers.
- Implemented real-time event coordination with Socket.IO, Firebase Auth, and Paymob payments; delivered REST APIs consumed by a Flutter Android app and a React/Vite admin dashboard.
- Load tested the backend to 228 req/s throughput at a 98% success rate under 500 concurrent users, with zero server-side errors.

Distributed Messaging Platform GitHub

- Owned the API Gateway and three media-compression services (video, audio, photo) within a 5-service distributed microservices architecture, contributing 38 of 140 commits, using Node.js, Go, Redis, and WebSockets.

WorkHub – Multi-Tenant SaaS Backend GitHub

- Implemented JWT-based role-based access control (RBAC) in a 5-person, multi-tenant SaaS backend (Java 17, Spring Boot, PostgreSQL, RabbitMQ), propagating role claims through a request-scoped security filter into service-layer authorization guards and a TENANT_ADMIN-only user-invitation endpoint.
- Authored the Kubernetes deployment layer, including ConfigMap/Secret separation, a 2-replica Deployment with Actuator readiness/liveness probes and resource limits, and an in-cluster PostgreSQL and RabbitMQ stack.
- Wrote a cross-tenant security verification suite covering isolation and RBAC test cases (401/403/404) and a Testcontainers integration test proving atomic rollback on partial tenant-onboarding failure.

OPEN SOURCE

- Two Step View Pattern – Java Design Patterns (PR #3106):** implemented the pattern in Java to separate data preparation from presentation logic, with full unit test coverage.
- Mode Function Enhancement – 30 Seconds of Java (PR #238):** refactored mode calculation to support multiple modes and added edge-case test coverage.

SKILLS

Languages: Java, C#, C/C++, Python, TypeScript, JavaScript, Go, SQL
Web & Frameworks: HTML5, CSS3, Bootstrap, Tailwind CSS, REST APIs, gRPC/Protobuf, ASP.NET Core, Spring Boot, Node.js, Express, React, Angular, Flutter, Entity Framework Core
Databases: SQL Server, PostgreSQL, MongoDB (NoSQL), Redis, Firebase
Cloud, DevOps & Distributed Systems: Azure, Azure DevOps, Docker, Kubernetes, GitHub Actions, CI/CD Pipelines, Microservices, Scalable System Design
Testing: Selenium WebDriver, Unit & Integration Testing, Load/Performance Testing, Requirements Traceability
Practices & Tools: OOP, Design Patterns, SOLID Principles, Git, Linux, Bash, MPI, Debugging & Troubleshooting, Agile/Scrum