

Ahmed Fathy

Software Engineer

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Giza, Egypt

PROFESSIONAL SUMMARY

Results-driven Computer Engineering student with strong foundation in software development, data structures, and algorithms. Experienced in full-stack development using modern frameworks including React.js, Next.js, Node.js, and Laravel. Proven ability to architect scalable applications and collaborate effectively in team environments. Eager to apply technical skills to challenging software engineering roles.

EDUCATION

- **Cairo University, Faculty of Engineering**

Giza, Egypt

B.Sc. in Computer Engineering; GPA: 3.6

2023 – 2027

EXPERIENCE

- **Al Nada Scientific Office | Software Developer (Freelance)**

Cairo, Egypt | June 2022 – 2024

- **Full-Stack Development:** Designed and built a custom ERP application using React.js, Express.js, and PostgreSQL to replace legacy spreadsheet-based workflows.
- **Desktop Deployment:** Packaged the web application with Electron for local server deployment, enabling reliable offline operation.
- **Database Design:** Structured relational database with Prisma ORM to manage customer, supplier, and inventory data.

SOFTWARE ENGINEERING PROJECTS

- **Hankers (Social Platform) | Full-Stack Engineering**

Source Code | 2025

- **Architecture:** Built scalable social platform using Microservices principles, React.js, and TypeScript.
- **Frontend:** Implemented responsive UI design and asynchronous API integration via AJAX.
- **DevOps:** Established CI/CD pipelines and containerized services using Docker for consistent deployment.

- **NexaMart | E-commerce Solution, Full-Stack**

Source Code | 2025

- **Stack:** Next.js (TypeScript), Redux Toolkit, Laravel 11, and MySQL.
- **Functionality:** Implemented secure authentication (Sanctum), shopping cart logic, real-time order processing, and administrative analytics dashboard.

- **Company Manager App – Al Nada Scientific Office | ERP System, React & PostgreSQL**

Source Code | 2024

- **Tech Stack:** React.js, Redux, Express.js, Prisma, PostgreSQL, Electron for desktop deployment.
- **Business Solution:** Developed ERP application for Al Nada Scientific Office managing customers, suppliers, inventory, and sales records.
- **Deployment:** Packaged application with Electron for local server deployment, enabling offline usage.

- **Path Planning Analysis | Algorithm Benchmarking, C++**

Source Code | 2024

- **Performance:** Benchmarked pathfinding algorithms (A*, Dijkstra, RRT) analyzing computational complexity and execution time.

- **5-Stage Pipelined Processor (RISC) | VHDL, QuestaSim, Computer Architecture**

Source Code | 2025

- **Core Architecture:** Engineered a **32-bit 5-stage pipelined processor** in VHDL, supporting a custom ISA of over 25 instructions.
- **Hazard Resolution:** Optimized throughput by implementing Hazard Detection and Data Forwarding units to resolve control and data dependencies.
- **Verification:** Validated functional correctness through rigorous simulation and testbench environments in QuestaSim.

- **Tactic (Robotics & AI) | Embedded Systems**

Source Code | 2024

- **System Integration:** Developed browser-controlled robotics suite integrating AI computer vision with low-latency hardware control.
- **Firmware:** Programmed ESP32 microcontrollers to handle WebSocket communication for real-time motor control and telemetry.
- **Backend Processing:** Deployed YOLOv5 and OpenCV on host server to process visual feedback and automate robotic decision-making.

STUDENT ACTIVITIES

- **IEEE | UI/UX Designer - Frontend Team Leader** Cairo | Oct 2025 – Present
 - **Leadership:** Architected intuitive user interfaces and optimized user journey protocols for internal platforms.
- **Technical Center for Career Development (TCCD) | Frontend Developer** Cairo | June 2025 – Present
 - **Development:** Engineered HR dashboard for event tracking and spearheaded optimization of the official TCCD web.
- **Physics Helping District (PhD) | Team Leader** Cairo | June 2022 – 2024
 - **Mentorship:** Led peer tutoring initiative in electronics, achieving measurable academic improvement.

TECHNICAL SKILLS

- **Programming Languages:** C++ Programming, Python, JavaScript, TypeScript, SQL, PHP, Java, Assembly Language
- **Core Computing Concepts:** Data Structures, Algorithms, Object-Oriented Programming, Design Patterns, Operating Systems, System Architecture
- **Systems Programming:** Unix/Linux Development, Multithreading, Memory Management, Network Socket Programming
- **Backend Development & DevOps:** Node.js Runtime, Express Framework, Laravel, RESTful APIs, Docker Containers, Git Version Control, CI/CD Pipelines