

# Ahmed Fathy

Software Engineer

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Giza, Egypt

## PROFESSIONAL SUMMARY

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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. Eager to apply technical skills to challenging software engineering roles.

## EXPERIENCE

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- **Al Nada Scientific Office** | *Software Developer (Part-time)* 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.
  - **Web Development:** Developed and enhanced company's official website using Next.js, optimized SEO for Google search rankings, and integrated ecommerce features for online product sales.
  - **Desktop Deployment:** Packaged the ERP application with Electron for local server deployment, enabling reliable offline operation.

## STUDENT ACTIVITIES

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- **IEEE** | *UI/UX Designer - Frontend Team Leader* Cairo | Oct 2025 – Present
  - **Portfolio Platform Development:** Engineered comprehensive web platform featuring workshop and event management systems with admin dashboard for content creation, role-based access control enabling instructors to upload course materials and students to register for workshops and events.
- **Technical Center for Career Development (TCCD)** | *Frontend Developer* Cairo | June 2025 – Present
  - **Portfolio Platform Development:** Developed comprehensive platform with event pages, admin dashboard for event creation, role-based access for instructors and students, location management, event galleries, and statistical analysis pages.
  - **HR Management & Judging System:** Built HR system managing team attendance with custom form builder and reviewer functionality similar to Google Forms, alongside event judging system for evaluating and assessing teams applying to events.
- **Physics Helping District (PhD)** | *Team Leader* Cairo | June 2022 – 2024
  - **Mentorship:** Led peer tutoring initiative in electronics, achieving measurable academic improvement.

## EDUCATION

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- **Cairo University, Faculty of Engineering** Giza, Egypt
  - *B.Sc. in Computer Engineering; GPA: 3.6* 2023 – 2027

## SOFTWARE ENGINEERING PROJECTS

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- **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.
- **Image Restoration Pipeline** | *Deep Learning & Computer Vision, Python* Source Code | 2024
  - **Pipeline:** Constructed end-to-end restoration pipeline: Denoising, Deblurring, and Inpainting.
  - **Algorithms:** Applied Telea (FMM) inpainting and deep learning models to restore damaged historical photographs.

- **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.

## TECHNICAL SKILLS

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- **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