

YOUSSEF MOHAMED Wafa

+20 100 629 7201 youssef.mwafa@gmail.com linkedin.com/in/youssef-wafa github.com/youssef-wafa

EDUCATION

Cairo University Faculty of Engineering

Expected Jul 2027

Bachelor of Science (B.Sc.), Computer Engineering GPA: 3.92/4.00

- Relevant Coursework: Data Structures, Algorithms, Operating Systems, Database Systems, Software Engineering, Computer Architecture, Neural Networks

EXPERIENCE

Egyptian Bureau for Engineering (EBE)

Aug 2025 – Sep 2025

Backend Software Engineer Intern | Go, Gin, PostgreSQL, Docker

Remote

- Deployed Go/Gin REST API backend with 12+ endpoints at 120ms average latency, enabling core production functionality
- Reduced API latency by 40% via PostgreSQL query optimization and GORM indexing
- Implemented JWT authentication and RBAC securing 5+ roles with zero vulnerabilities in testing
- Achieved 85% test coverage with testify and Swagger automation, reducing production regressions by 30%
- Containerized services with Docker reducing environment-related bugs by 35%

EXTRACURRICULAR

Cairo University Eco Racing Team

Sep 2025 – Present

Full Stack Developer | React.js, Node.js, MongoDB, CI/CD

Giza, Egypt

- Built React.js/Node.js operations platform adopted by 25+ team members, centralizing race scheduling and resource tracking
- Designed scalable APIs and database schemas improving dashboard query speed by 45%
- Reduced deployment time by 50% through CI/CD pipeline optimization and caching

TECHNICAL SKILLS

Programming: Go, JavaScript, TypeScript, Python, C/C++, Java, C#, SQL, Assembly, VHDL

Backend: Node.js, Express.js, REST APIs, Microservices, Spring Boot, GORM, Swagger

Frontend: React.js, React Native, Redux, HTML, CSS, Tailwind CSS

Databases: PostgreSQL, MongoDB, MySQL

Tools & DevOps: Docker, Git, CI/CD, Testify, Jest, Linux (Fedora)

Concepts: OOP, System Design, Multithreading, SDLC, Agile/Scrum

PROJECTS

Raven | *React Native, TypeScript, Zustand* | raven.cmp27.space

- Built and deployed cross-platform social app with real-time timelines and messaging serving 100+ active users
- Designed scalable client architecture and optimized rendering reducing screen load time by 35%
- Collaborated in 18-member Agile team delivering features in 1-week sprints with 95% on-time completion
- Achieved 99.5% crash-free sessions through performance tuning, error handling, and production monitoring

Islamic Duas App | *React Native, Expo, TypeScript, Zustand, Expo Router*

- Developed a cross-platform mobile application for browsing Islamic duas organized into multiple categories with intuitive navigation
- Implemented detailed dua views featuring Arabic text, transliteration, translations, and source references with support for English, Italian, and Polish
- Built a favorites management system using Zustand, enabling users to save and quickly access frequently used duas
- Added dark/light theme support and reusable UI components to provide a consistent and customizable user experience

YOMAC | *React.js, Redux, PostgreSQL*

- Built React.js/PostgreSQL e-learning platform load-tested for 50+ concurrent users with interactive features
- Designed database schema reducing query complexity and improving performance by 40%
- Implemented Redux state management across 10+ modules, eliminating prop-drilling and reducing re-renders

Machine Fault Recognition | *PyTorch, Audio Classification, MLOps* | Live Demo

- Built an end-to-end predictive maintenance system using deep learning techniques for machine fault detection from acoustic signals.
- Engineered a hybrid STgram–EfficientNet architecture combining temporal waveform encoding (TgramNet) and spectrogram-based feature extraction for robust fault classification.
- Developed automated audio preprocessing and inference pipelines including resampling, RMS normalization, silence trimming, Mel-spectrogram generation, and CMVN normalization.
- Deployed the model on Hugging Face Spaces, enabling real-time machine condition analysis and fault prediction through an interactive web application.

Super Awesome Formula Game | *C++, OpenGL, OOP, CMake*

- Built a 3D Formula 1 racing simulator in **C++17** with a custom forward renderer using **OpenGL 3.3**, featuring physically-based materials, dynamic lighting, and post-processing effects
- Designed a modular **OOP** architecture with configurable **JSON**-driven scenes, enabling hot-swappable car and track assets without recompilation
- Implemented split-screen local multiplayer, terrain-specific physics (asphalt vs. grass), and packaged a distributable **RPM** release via **CMake** build pipeline

Search Engine | *Java, Spring Boot, MongoDB*

- Built search engine indexing 50K+ documents with TF-IDF ranking in under 100ms
- Enhanced TF-IDF ranking with proximity weighting and stopword filtering, improving result relevance by 30%
- Reduced query latency by 45% through efficient indexing and scoring optimization

Pipelined RISC Processor | *VHDL, Computer Architecture*

- Designed 5-stage pipelined CPU with hazard detection, forwarding, and branch handling
- Implemented control logic and datapath reducing pipeline stalls by 35% through hazard optimization
- Validated processor correctness with simulation testbench achieving 100% instruction coverage

OS-Sim | *C, Multiprocessing, Semaphores*

- Built an OS simulator in C modeling process scheduling (FCFS, SJF, RR), memory management, and I/O handling via multiprocessing
- Implemented memory allocation strategies and inter-process synchronization using semaphores and shared memory

Earth vs Aliens | *C++, Data Structures, Algorithms*

- Developed a simulation game modeling combat between Earth and alien forces using custom data structures for unit management
- Optimized game state updates through careful data structure selection, reducing simulation step time by 30%

Paint for Kids | *C++, OOP, Design Patterns*

- Built a C++ drawing application for children featuring freehand tools and shape rendering using OOP inheritance and polymorphism
- Implemented a recording and playback module using efficient state storage to replay user drawing actions