Mahmoud Ashraf

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Summary

Computer Engineering graduate from the British University in Egypt with diverse experience in startups and freelance Software Engineering. Passionate about technology with expertise in web development, DevOps, mobile app development, and AI applications.

Experience

Just Local | Cairo | Remote
Founding Software Engineer | 12/2023 - Present

- Architected and developed a multivendor e-commerce platform for 250+ local clothing brands using Node.js, TypeScript, PostgreSQL, and Redis.
- Implemented high-performance caching and optimization strategies, achieving 30ms response times under load.
- Conducted rigorous stress testing, demonstrating system capacity to handle 3,700 concurrent requests on a single thread.

Egyptian Ministry of Communications and Information Technology | Qena
Software Development Trainer | 01/2023 - Present

I was responsible for developing and conducting comprehensive training courses for Creativa initiative on various computer science topics including basics for computing, frontend development and backend development.

Freelance/Self Employed
Software Engineer | 02/2021 - Present

Research and Development of locally run ML extensions for Adobe's non-linear video editing software (Premiere Pro, After Effects):

- VanishBG: Implemented AI-powered background removal tool that runs locally inside the editor
- C-Roll: Integrated a LLM that suggests editing ideas based on video content analysis

Nanyang Polytechnic | Singapore, Singapore
Machine Learning Researcher | 07/2023 - 08/2023

- Developed ML model for solar energy generation forecasting, evaluating techniques like time series analysis and neural networks
- Designed data preprocessing pipelines; trained and tuned multiple forecasting models
- Presented findings to stakeholders, demonstrating model accuracy; gained experience in applied ML and data engineering

Education

The British University in Egypt | Cairo
BSc in Computer Engineering

- **CGPA:** 4.0 (A+ UK System)
- **Rank:** 1
- **Research Graduation Project:** Rank 1st (96%)
- **Design Graduation Project:** 93%
- **Extracurriculars:** IEEE and ACM

Projects

Atomic LMS (Graduation Project)

- **Architected a cutting-edge LMS** using Node.js, TypeScript, PostgreSQL, and MongoDB, integrating advanced AI capabilities for personalized learning.
- **Implemented a sophisticated RAG system** with context retrieval, validation checks, and citation capabilities, ensuring accurate, hallucination-free AI responses while enhancing credibility and educational value.
- **Developed multiple AI-powered features** including course-wide and lecture-specific chatbots, AI tutors, lecture summarization, and automated exam generation. Demo Link

Perovskite Solar Cells Design Parameters Optimizations Utilizing Machine Learning and Deep Learning (Graduation Project)

- **Developed five predictive LSTM models** to accurately forecast perovskite solar cell degradation, enhancing stability and performance insights.
- **Integrated experimental and simulated datasets**, reducing resource requirements and expediting the advancement of PSC technology.
- **Demonstrated high model adaptability** across diverse PSC types, contributing to the versatility and practical application of ML models in solar cell optimization.

Publications

● Chapter 16 titled "Machine Learning Approaches on the Performance of Dye Sensitized Solar Cells" in "Encyclopedia of Perovskite and Dye Sensitized Solar Cells" published by Wiley. (**Accepted for Publication**)

Skills

Fields: Backend Engineering, Web Development, Mobile Application Development, Machine Learning, DevOps

Programming Languages: JavaScript, TypeScript, Python, C++, Java, Bash.

Frameworks and Libraries: Express.js, React, React Native, Flask, Django, TensorFlow, PyTorch, Docker, Kubernetes, Local LLMs.

Cloud Platforms: Google Cloud Platform (GCP), Amazon Web Services (AWS).

Tools: Git, Postman, VS Code.

Certificates

Google Cloud Certified