Ahmed Salah El-Din Shemais

Software Engineer

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Profile

Versatile Software Engineer with 3+ years of experience building robust, scalable applications for both cloud and desktop. Expertise in creating cloud-native microservices, responsive frontends, and integrated desktop software. Passionate about leveraging the power of AI to solve complex challenges and deliver high-performance, impactful solutions.

Education

Bachelor's Degree - Systems & Biomedical Engineering, *Cairo University*   2016 – 2021

Work Experience

Software Engineer, *Voyance*   2023 – Present

Contributed to the end-to-end development of a large-scale, cloud-native medical imaging platform (VPAX) and its associated C# acquisition software (VoyanceX). Worked across the full stack, from backend microservices and databases to the responsive ReactJS micro-frontend. Authored system design documentation and maintained system security.

Key Projects & Achievements:

- **VPAX (Cloud-Native Medical Imaging Platform):**
  - **Architecture & Performance:** Engineered the system to handle **150x peak traffic** loads and **cut database costs by over 30%** by implementing **advanced query optimizations** and **caching strategies**, which also significantly improved query performance.
  - **AI Integration:** Integrated generative AI models into core healthcare workflows, boosting practitioner efficiency.
  - **Frontend:** Actively contributed to the full frontend lifecycle, from rapid prototyping to building production-ready features. Focused on enhancing UX/UI and helped **decrease application load times by 25%** through performance investigation, optimization, and implementing a Backend for Frontend (BFF) pattern.
  - **Security:** Implemented a granular Role-Based Access Control (RBAC) system, ensuring strict, secure data isolation in a complex multi-tenant platform.
  - **Integrations:** Developed seamless integrations with external cloud providers, including Dropbox and OneDrive, to streamline user data workflows.
- **VoyanceX (X-Ray Acquisition Software):**
  - **Core Development:** Developed and maintained the C# acquisition software, ensuring its seamless integration with the VPAX cloud system.
  - **Hardware Integration:** Enhanced hardware compatibility across diverse client setups by integrating the software with new devices.

Freelance Development   2021 – 2023

- Developed and deployed custom websites for clients using technologies such as NodeJS, WordPress, and Moodle.
- Managed continuous client communication to ensure the delivered solutions were perfectly aligned with their needs.

Projects

Medical Image Analysis Plugin, *Python, PyQt5, PyTorch, Linux, AWS, Flask.* ☐

A plugin for 3DSlicer aiding in health assessment by analyzing heart CT images and calculating related health risk factors.

- Developed using **Python** and **PyQt5**, implementing **multiprocessing** techniques.
- Integrated with our **Deep Learning** model for accurate segmentation aided by **image processing** to produce its results.
- Includes an accompanying **Flask** server for cloud processing, deployed to an **AWS EC2** instance.
- The results and methods of this project were published in the 2024 41st National Radio Science Conference (NRSC). ☐

AI-Powered Email Client, *NestJS, Postgres, AI SDK, LangChain*

A full-featured email client built to streamline inbox management with generative AI capabilities.

- Developed key AI features including **thread summarization**, **automatic reply generation**, and **daily inbox digests**.
- Implemented a "Chat with your Inbox" feature using Retrieval-Augmented Generation for natural language querying.
- Built a **provider-agnostic architecture** to integrate seamlessly with multiple email services (e.g., Gmail, Outlook).

Technical Skills

Programming Languages
JavaScript | TypeScript | Python | Java | C/C++/C# | PHP

Technologies
NodeJs | Git | GCP | Socket.IO | Docker | Kubernetes | Linux

Database
MySQL | SQLite | MongoDB | Redis | Sequelize | TypeORM

General Concepts
Object-Oriented Programming | Data Structures | Algorithms | Design Patterns

Frameworks
ExpressJS | Spring Boot | Flask | React | Next | Jest | PyQt | Meteor | NestJS