ELADJ Salim Zakaria

AI Engineer | Visual Computing Engineer | FullStack Developer | Software Engineer
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LINKS

GitHub: https://github.com/zaqks
Portfolio: https://zaqks.github.io
LinkedIn: https://www.linkedin.com/in/salim-zakaria-eladj

NOTABLE PROJECTS

AI_U2Net_BodyMeasurement **March 2025**

- Utilized the U2Net model for human body segmentation, leveraging its advanced deep learning architecture to accurately identify key body points.
- Calculated body dimensions based on segmented body points, enabling the assessment of health indices such as Body Roundness Index (BRI).
- Applied computational techniques to automate health-related measurements, enhancing precision and efficiency in medical imaging tasks.

MLZ: Machine Learning Library **June 2024**

- Built MLZ, a lightweight machine learning library from scratch using NumPy, focusing on modularity for experimentation and readability.
- Implemented sequential and convolutional neural networks, along with common loss functions and optimizers such as SGD and Adam.
- Designed layers like Dense, Conv2D, and ReLU to enhance functionality for diverse machine learning tasks.
- Tested the library extensively on Kaggle to ensure reliability and performance in practical scenarios.

MINIDEL: Pseudo Compiler **November 2024**

- Developed a compiler for the Minidel pseudo-language using Lex, Bison, and C, compiled via GCC/Flex/Bison on Linux.
- Implemented a lexer, parser, and semantic analyzer to perform lexical, syntactic, and semantic analysis.
- Generated a symbol table to track variables, types, and scopes, along with quadruples as intermediate code representations.
- Integrated a Django-based web editor with syntax highlighting and error diagnostics using a custom JavaScript library.
- Visualized the symbol table, quadruple sequences, and compiler output in real-time within the UI, accompanied by a console for compilation logs and errors.

WhisperKeys **January 2025**

- Designed innovative software to replicate mechanical keyboard sounds, creating an immersive ASMR experience for users.
- Enabled global keyboard event listening for enhanced functionality, similar to a keylogger, while implementing privacy safeguards.
- Built the application using Flet, ensuring a user-friendly interface for seamless interaction.
- Integrated an activation keys management system directly into the website for streamlined user access.
- Secured user data with robust encryption mechanisms to maintain privacy and security.

QuakeGuard **November 2024**

- Developed an app prototype that connects to the QuakeGuard Earthquake Detection System via IP to notify users of incoming disasters in their region.
- Designed an API for earthquake detection using Arduino vibration sensors or dedicated hardware, prototyped with Wi-Fi and Bluetooth connectivity.
- Built the app with Flutter for cross-platform compatibility and the API using Django, BlueZ, and C++.
- Integrated real-time notifications and data visualization into the app for enhanced user experience.
- Focused on privacy safeguards and efficient communication protocols to ensure reliable disaster alerts.

MAJESTY **July 2022**

- Developed an eCommerce API featuring 3D product previews, utilizing photogrammetry algorithms to generate 3D models from multi-angle images.
- Implemented a shop and orders management system, along with statistical insights for business operations.
- Built the photogrammetry functionality using JavaScript for efficient processing of image data into 3D models.
- Developed the API backend with Django and integrated MongoDB for scalable database management.
- Enabled seamless user interaction and visualization of 3D models within the eCommerce platform.

SDL_RAYCASTER **January 2023**

- Developed a basic raycaster engine using the SDL library to render pseudo-3D environments based on 2D map arrays, inspired by techniques from the DOOM game.
- Implemented raycasting by calculating ray lengths for each horizontal screen pixel using the DDA algorithm.
- Integrated computer graphics concepts, leveraging CUDA and OpenGL for enhanced performance and rendering capabilities.
- Designed the system as a learning project to explore foundational linear algebra concepts and their application in computer graphics.
- Enabled interactive controls for navigation and visualization of environments, supporting real-time rendering adjustments.

MAIN SKILLS

Languages & Scripting	Python, C, C++, Java, Bash, JavaScript, Assembly Language (ASM), Dart, SQL, GoLang, HTML/CSS, JSON/XML, Git, Arduino programming, PHP, Bison, Flex, Mathematics & Calculus
Frameworks (Frontend & Backend)	Django, Flask, SpringBoot, Flutter, ReactJS, Tkinter, SDL, Flet
Machine Learning & AI Tools	TensorFlow, Keras, PyTorch, NumPy, Matplotlib, PIL, Kaggle, IBM Watson
Databases	MongoDB, MariaDB, MySQL, PostgreSQL, SQLite

CORPORATE EXPERIENCE

Lead AI Engineer & Fullstack Developer at AMIDI - Startup **2025**

- Developed a touristic app featuring advanced AI capabilities and large language models (LLMs) for personalized recommendations.

Freelance Fullstack Developer at Bassmati - Startup **2024**

- a healthcare app prototype connecting psychologists, speech therapists, and patients, featuring medical records storage with encryption, appointments management, staff authentication, and payment verification.

Freelance Fullstack Developer at ElRafik - Startup **2023**

- a startup app that won a label in 2024, enabling psychology students and professionals to register for internships or training courses and connect with future patients.

EDUCATION

- **Brain Tumors extraction and segmentation** research project for bachelor's degree in **Computer Science** - University of science and technology Houari Boumedienne **2022 - Present**

CERTIFICATIONS

- **IBM SkillsBuild** Artificial Intelligence, Machine Learning & Deep learning, Watson IBM, Datascience **September 2024**

SCIENTIFIC CLUBS & OPEN COMMUNITY CONTRIBUTIONS

- Backend Developer at **OpenMindsClub**, Mentor, Hackathons & CTFs participant, OC1 & 2 winner **2023 - Present**

LANGUAGES

English: Native **French**: Native **Arabic**: Native