ELADJ Salim Zakaria

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

GitHub: https://github.com/zaqks
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CORPORATE & EXPERIENCE

Mentor and Conference Speaker at OpenHouse USTHB   2025

- Delivered workshops on Python and PyTorch, and presented a mini-conference on the mathematical foundations of Neural Networks and Deep Learning.
- Showcased projects including Human Body Health Indices Estimation with U2Net_Model, interactive PyTorch demos (MNIST), AI applications like Brain Tumor Segmentation, and interactive tools for Body Posture Detection and Body Roundness Index, fostering engagement on health, AI, and accessibility topics.

Workshop Presenter and AI Project Demonstrator at OpenHouse USTHB   2025

- Presented a hands-on PyTorch workshop building a digit classifier using the MNIST dataset with live coding and interactive Q&A, sharing slides and GitHub repositories for both the MNIST demo and a Body Roundness Index calculator based on the U2NET model.
- Highlighted the significance of user interface design for AI accessibility and promoted interdisciplinary knowledge exchange among students and researchers in biology, chemistry, and petroleum engineering.

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.

Backend Developer at OpenMindsClub & Mentor   2023 - present

- Developed backend infrastructure for event websites and club projects, and mentored members through workshops.
- Participated in hackathons and CTFs to enhance skills and knowledge.

Freelance Fullstack Developer at ElRafik - Startup   2023

- Generated a **20K$ revenue in 6 months** for 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.

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 that generated revenue 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**

- Received District Award from the Wali of Boumerdes in 2024 at the National Institute of Hydrocarbures exhibition.
- 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**

- 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 an eCommerce API featuring 3D product previews, utilizing photogrammetry algorithms to generate 3D models from multi-angle images.
- Enabled seamless user interaction and visualization of 3D models within the eCommerce platform.
- Developed the API backend with Django and integrated MongoDB for scalable database management.

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

EDUCATION & CERTIFICATIONS

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

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

LANGUAGES

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