Ibrahim Abdelazim

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Education

University of Erlangen-Nuremberg *Oct 2024 – Present*
M.Sc. in Medical Image and Data Processing

- **Coursework:** Computer Graphics, Visual Computing, Data Science, Pattern Recognition, Magnetic Resonance Imaging,

Cairo University *Sep 2019 – Jul 2024*
B.Sc. in Systems and Biomedical Engineering

- GPA: 3.7/4.0
- **Coursework:** Data Structures, Algorithms, Object-Oriented Programming, Databases, Micro-controllers, Computer Graphics, Computer Vision, Probability and Statistics, Machine Learning, Digital Signals Processing, Healthcare Information Systems, Medical Imaging, VR in Medicine

Skills

Languages: JavaScript, TypeScript, Python, C/C++
Concepts: Data Structures, Algorithms, OOP, Problem Solving, DevOps, SDLC, RESTful APIs
Frontend: HTML, CSS, React, Tailwind, Redux
Backend: NodeJS, Django
Desktop: Qt Framework, Electron
Database: PostgreSQL, Mongo
Operating Systems: Windows, Linux (Ubuntu)
Version Control: Git/GitHub/GitLab
Hardware: AVR and ARM Interfacing, ROS
Tools: Docker, Bash, GitHub Actions

Experience

Software Engineer *Sunnyvale, CA, USA*
QuckStor *Sep 2024 – Oct 2024*

- Built a web gateway that enhanced user control over storage devices, management of volumes, system configurations, disk groups, and pools, resulting in better user interface and interactions using **JavaScript**.

Graduate Software Engineer Intern *Sheraton, EGY*
Robert Bosch GmbH *Aug 2024 – Aug 2024*

- Developed and deployed front-end and back-end systems for an IoT-based container tracking solution in the logistics industry, enhancing real-time monitoring of shipment containers using **React** and **Express**.

Working Student - Software Engineer *Chicago, IL, USA*
Neureveal Inc. *Aug 2023 – Jun 2024*

- Optimized **machine learning algorithms** for object segmentation and anomaly detection in medical vision applications
- Contributed in developing the Neureveal Viewer using **React**, **Tailwind CSS** following global healthcare standards.
- implemented a user management system for hospitals, improving operational efficiency and data management.
- Collaborated across teams to deliver scalable front-end and back-end components for an AI exchange platform, accelerating time to market by 20

Software Engineering Trainee *New Cairo, EGY*
Siemens Digital Industries Software *Oct 2023 – Feb 2024*

- Wrote efficient, professional-grade code using optimal data structures and algorithms, enhancing system performance
- Gained expertise in code reviews, debugging, logging, memory optimization, software documentation and databases
- Explored system design, SDLCs, and software documentation to improve development workflows and maintainability.

Courses

Algorithms, Data Structures & Graphs
Object Oriented Programming in Java
Machine Learning
IBM Machine Learning Professional Certificate
IBM DevOps & Software Engineering Professional Certificate
VR/AR Game Development Diploma

Projects

Cloud-Based Zero-Footprint Medical Platform for DL- Driven Brain Tumour Segmentation & MRI Motion Artifacts Correction

B.Sc. Graduation Project: **Research Project** in Collaboration with Sejong University – South Korea and Ain Shams Medical School – Egypt

- Designed Responsive UI and Implemented the frontend with React using **TypeScript**, **Redux**, **Tailwind**, **Cornerstone3D** and **DICOMweb**.
- Implemented **microservices** architecture for the backend, featuring an API gateway using **Django** for load balancing, caching, and reverse proxy.
- Created a NIfTI Storage from scratch based on Brain Imaging Data Structure using **FastAPI** to store Neuroimaging Data.
- Used **RabbitMQ** to allow async communication between inference servers, reporting, logging services and API gateway.
- Designed a **CI/CD pipeline** using **Jenkins** for faster deployment of services **Docker** containers on **AWS** EC2 instances

OR Department Management System

Web system for doctors, patients & nurses using **React**, **NodeJS**, **MongoDB**

Medical Equipment Repair VR Game

Training game for BME students to learn how to fix/maintain high-cost diagnostic modalities using **C#**, Unity & Oculus Quest 2

Video Call (Desktop & Web) Application

Video calls application developed using JavaScript, ElectronJS & Web RTC

Virtual Room Creator – Web XR

XR/VR room creator on the browser using **React**, React 3 Fiber, ThreeJS in TypeScript and Java Spring Boot for the Backend

Computer Vision Toolkit

Implementing CV Algorithms like SIFT, Canny, Active Contour, Hough transforms and Facial Recognition from scratch in **Qt C++**

Polyclinic Management System

Management System for 7 Clinics, Admin & Patient Portal based on Microservices architecture made with **React**, Express, Django in **Typescript**

Digital Filters Design Suite

Real-time digital filters app that allows users to create their filters by placing zeros and poles on z complex plane using **JavaScript**, KonvaJS & Django

Equalizer in Frequency Domain

Multi-usage Equalizer for General Signals, Music, Vocals & Medical Signals in frequency domain using **Python**

Anti-Theft Vehicle Handle System

Vehicle Handle Control unit that supports an anti-theft locking capability on **STM32** Microcontroller with GPT Driver written in **Embedded C**

Volunteering

Visual SLAM Engineer
High Voltages Motorsport e.V

Head of Autonomous Driving
Cairo University Racing Team

Regional Conferences Lead
IEEE EMBS Global SAC

Vice-President
CUFE Student Magazine

Chairman
IEEE Cairo University SB

Branding Director
IEEE Region 8 NASYP Congress

Awards & Honors

1st Place

SBME Class of 2024 Graduation Projects

2nd Place

6th UG Engineering Mathematics Research Forum

7th Place

Shell Eco Global Autonomous Programming Competition

2nd Place

Cairo University Geniuses Student Competition