

# Mohamed Hosam

SOFTWARE ENGINEER · FULL STACK DEVELOPER

Cairo, Egypt

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## Summary

I am a software engineer with over three years of experience in building diverse projects using various programming languages like Python, TypeScript, Node.js, NextJS and more. My graduation project involved developing an AI-driven question answering system with pre-trained machine learning models. I've developed high-performance applications, led projects, and collaborated directly with clients. I am currently focused on expanding my knowledge of backend technologies and system design concepts. I am eager to bring my expertise to new challenges.

## Experience

### Freelance

Remotely

#### FULL STACK DEVELOPER

Nov 2023 - Present

- Collaborated directly with clients to gather requirements and translate them into system specifications, ensuring alignment with project goals and objectives.
- Developed a multi-language, high-performance e-commerce store using WooCommerce, reducing setup costs by 90% through free resources, optimizing performance by 70% with caching, CDN, and image optimization, and deploying it on Google Cloud VM with full DNS and SSL management. [PREVIEW](#)
- Created an Intelligent Lighting Distribution Planner that automates lighting distribution based on room dimensions, ensuring rapid response and enhanced user experience [PREVIEW](#)

### Metal Maker 3D

Krakow, Poland

#### PYTHON SOFTWARE ENGINEER / PROJECT MANAGER (ERASMUS INTERN)

June 2023 - Nov 2023

- Led a team of interns at in developing a plugin for UltiMaker Cura 3D printing software, automating sprue generation for metal parts, drastically reducing design time from 3-5 hours to less than 5 minutes. [MetalMaker3D](#)
- Organized the project by breaking it down into manageable tasks, ensuring each team member had a well-defined role and responsibility. Leveraged Agile Methodology and GitHub for task management, fostering collaboration and transparency among team members.
- Contributed to the company's goal of enhancing 3D printing capabilities, delivering a valuable tool for UltiMaker Cura 3D software, significantly improving efficiency and user experience in part production.

### Kocaeli University Labs

Kocaeli, Turkey

#### FULL STACK DEVELOPER

Jun. 2022 - Nov. 2022

- Developed [Food Scholarship Website](#) using [ASP.Net MVC](#) for student applications.
- Built a user-friendly scholarship application form, validating user inputs during submission.
- Ensured robust student login and authentication for secure scholarship application access.
- Designed an intuitive application view page, enabling students to manage submissions.
- Implemented mandatory field validation controls in the application form for data accuracy.
- Proactively addressed and resolved post-deployment bugs and student issues.

## Skills

<b>Programming</b>	Python, TypeScript, C, Node.js, Bash/Linux, Kafka
<b>Back-end</b>	MongoDB, PostgreSQL, RESTful API, Express, Flask, Prisma, Docker, Docker-compose, Google Cloud
<b>Front-end</b>	NextJS, ReactJS, HTML/CSS/Javascript, Tailwind CSS, WordPress, Jest
<b>Others</b>	Git/GitHub, Agile/SCRUM, Debugging, Unit Testing, OOP, Design Patterns, System Design, Machine learning, Data Structure
<b>Languages</b>	Arabic (Native), English (Advanced), Turkish (Professional)

## Education / Awards

### Kocaeli University

Kocaeli, Turkey

#### B.S. IN COMPUTER ENGINEERING

- Turkey Merit Scholarship Holder. GPA of 3.5. Erasmus+ Internship Recipient (3 Months).
- TÜBİTAK 2209-B support for Graduation Project - "6." East Marmara International Project Market 2024 Contributor

## Question Answering System (TÜBİTAK 2209-B Support)

[preview](#) [frontend](#) [backend](#)

NEXTJS / EXPRESSJS FULL STACK

*NextJS, NodeJS, ExpressJS, MYSQL, Docker, ML-AI*

- Developed an AI-driven educational support system that employs OCR and BERTurk to assist students in solving complex questions by connecting them with relevant teachers.
- Achieved a 97.5% accuracy rate (Using 5-Fold Cross Validation) in question classification by fine-tuning the BERTurk model on a dataset of over 10,000 questions, surpassing existing platforms in performance
- Implemented advanced image pre-processing techniques using OpenCV and EasyOCR, optimizing text extraction for Turkish language questions.
- Created a user-friendly frontend using NextJS with TypeScript and a robust backend with Node.js and ExpressJS following the MVC design pattern; utilized NextAuth and JWT for secure user authentication.
- Conducted thorough testing with Postman, ensuring reliability and performance; Dockerized the OCR engine and AI model for deployment on Google Cloud, facilitating scalability and seamless data processing.

## E-Commerce Website

[preview](#)

NEXTJS FULL STACK

*NextJS, Typescript, MYSQL, Prisma, Tailwind*

- Developed a high-performance ecommerce website using NextJS, TypeScript, MySQL, Prisma, and Tailwind, utilizing server-side components to significantly enhance page loading speed, resulting in a seamless user experience and improved SEO performance.
- Implemented a feature-rich product page that dynamically displays products from a MySQL database, accompanied by a robust shopping cart functionality utilizing cookies for seamless user interaction and tracking, enhancing the overall shopping experience.
- Integrated secure user authentication with NextAuth to ensure users can register, log in, and access personalized features, including managing their account information, addresses, and an efficient checkout process that allows for seamless order placement and tracking.
- Designed an intuitive admin dashboard that empowers administrators to efficiently manage orders, update order statuses, add or modify products, and access comprehensive sales and profit reports, providing valuable insights for business decision-making and growth.

## Intelligent Lighting Distribution Planner

[preview](#)

NEXTJS FULL STACK

*NextJS, ChartJS, Problem Solving*

- Developed an interactive lighting planner software that enables room-specific bulb distribution visualization based on user-provided dimensions and room type selection.
- Implemented a dynamic algorithm (Using React States) to instantly adjust bulb placement in the visual chart upon any change in room size, enhancing user experience through immediate feedback.
- Customized lighting solutions for various room types, including a specialized ring distribution for living rooms to accommodate central chandeliers, complete with luminary specifications such as bulb count and lumen requirements.
- Integrated a feature for users to print the optimized lighting chart along with a detailed specifications table, demonstrating attention to user needs and practical functionality.

## Multi-Threading Data Sorting

[preview](#)

DATA ANALYSIS - DESKTOP APPLICATION

*C, Python, PYQT*

- Implemented multi-threading in Python by integrating C to improve execution time. Used it to sort a dataset of 1 million user complaints.
- With 20 threads on a 4-core processor, reduced sorting time from 1.2 minutes to 20 seconds.
- Identified similar customer issues using multi-threading in 0.9 seconds instead of 5 seconds.

## E-Commerce Website - Web Scraping

[preview](#)

MERN FULL STACK

*React JS, Puppeteer, MongoDB, Node.js*

- Scraped 4 E-Commerce websites to find matching laptops with different sellers.
- Implemented a dynamic search engine for searching laptops or specific sellers.

## Bank Management System

[preview](#)

DESKTOP APPLICATION

*Python, PYQT, SQL, Normalization*

- Created a fully functional bank management system consisting of client, clerk, and manager interfaces with related normalized databases.
- Established a connection between clients and clerks for account opening or deletion requests.
- Implemented a loan management system with an interest calculator for requested credit over the loan's duration.