Mohamed Zaki

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Profile

Graduated from FCAI, Results-driven **Machine Learning Engineer & Data Scientist** with a strong background in **Natural Language Processing (NLP), Data Analytics, and Software Development**. Passionate about leveraging **AI and data-driven solutions** to solve complex business challenges. Skilled in designing and deploying **machine learning models** and **building scalable backend systems** using Flask, Django, and REST APIs. Adept at **team collaboration, innovation, and community engagement** to drive impactful solutions.

Education

2019/09 – 2023/05	**B.A. in Artificial Intelligence - Computer Science** *Faculty of Computers & Artificial Intelligence Cairo University*

Professional Experience

2024/01 – present Mokattam, Egypt	**Software Engineer at Fritill** *Machine Learning Engineer, Back-end Developer (Flask, Django)*

Ecommerce Chatbot
- Developed an NLP-powered chatbot to automate customer support by providing instant responses to frequently asked questions.
- Utilized Cosine Similarity, Tokenization, and Lemmatization to improve query matching accuracy.
- Optimized preprocessing techniques, reducing response time by 40% and improving answer accuracy by 30%.

OtlohaSah Project
- implemented APIs for key application features, including Tajweed, Khatma, Recitations, User Profiles, and Invitations.
- Worked closely with the frontend team to ensure seamless API integration using Django REST Framework.
- Improved database efficiency by optimizing queries, reducing response times by 35%.

Itqadem Ecommerce Project
- Developed core e-commerce functionalities, including Cart, Wishlist, Product Management, and Inventory Tracking.
- Integrated PostgreSQL and Django ORM to manage complex product relationships and ensure data consistency.

Threads Project
- Contributed to the development of a Q&A platform, enabling users to ask and answer questions.
- Designed upvoting/downvoting logic and implemented an intelligent answer ranking system.
- Integrated topic-based tagging to enhance content discoverability.

Services Project
- Developed a service booking system where users can schedule appointments based on available time slots.
- Designed an administrator dashboard to manage bookings, cancellations, and session availability.

Technologies Used: *NLP Techniques, Flask, Django, REST Framework, PostgreSQL, PostGIS, SQLAlchemy, TensorFlow, Sklearn.*

2022/09 – 2022/10 Nasr city, Egypt	**Machine Learning Intern National Institute of Communications** *Trainee*

- Participated in real-world projects applying machine learning principles to solve practical problems.
- Collaborated with a team of professionals to develop and deploy machine learning models.
- Gained hands-on experience with popular machine learning libraries and frameworks, including TensorFlow and scikit-learn.
- Learned and applied various machine learning algorithms, including Linear Regression, Logistic Regression, Decision Trees, Random Forest, Support Vector Machines (SVM), K-Nearest Neighbors (KNN), Naive Bayes, Gradient Descent, and Neural Networks.

Projects

2024/11	**Amazon Fine Food Reviews Analysis** ⎋ *Analyzed a large dataset to determine the sentiment of food reviews.*

- Analyzed a dataset of 568,454 food reviews, involving 256,059 unique users and 74,258 unique products, performing extensive data cleaning and text preprocessing including stemming, stop-word removal, and lemmatization. Implemented various text vectorization techniques, including Bag of Words (BOW), TF-IDF, and Word2Vec (W2V), to improve model performance. Developed a sentiment analysis model to classify reviews as positive (rating 4 or 5) or negative (rating 1 or 2), ignoring neutral reviews (rating 3).

2023/08	**Image Colorization** ⎋

- Implemented a convolutional neural network (CNN) architecture to predict and add color to grayscale images. Experimented with various datasets and hyperparameters to optimize performance and achieve realistic colorization results.

2022/11 – 2023/04	**Graduation Project - Job Recommendations & Filtering System** ⎋

- Developed a web-based system that recommends suitable Jobs to job seekers and filters resumes for recruiters based on their job postings.
- Uses spacy and resumeParser to extract skills from resumes and word2vec, doc2vec and TF-IDF to get the Word embedding for job descriptions and resumes.

Skills

Machine Learning & Data Science

- Transformers, RAG, NLP (Word2Vec, TF-IDF, BOW), Deep Learning (CNN, RNN)
- Supervised & Unsupervised Learning (Decision Trees, SVM, KNN, Clustering)
- Frameworks: **TensorFlow, Scikit-learn, Pandas, NumPy, Matplotlib**

Software Development & APIs

- Backend: **Flask, Django, REST API Development**
- Database: **PostgreSQL, PostGIS, SQLAlchemy**
- Tools: **Postman, Swagger, Docker, Git**