

EZZAT ESAM ELSAYED

AI/ML Engineer | Data Science & Computer Vision

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EXPERIENCE

Intern, Using AI in Wireless Communications

Zewail City of Science and Technology

📅 2023 (3 months)

- Developed a **machine learning** pipeline for predicting the throughput of a 5G mobile network using environmental data.

PROJECTS

League of Legends Assistant, A RAG Chatbot full stack app

Python, Langchain, ChromaDB, FastAPI, SQLAlchemy, React.js, react router, TailwindCSS, Antd

- Developed a **full-stack website** for a League of Legends chatbot with **FastAPI** and **SQLAlchemy**. Includes **authentication**, chat history, and model selection.
- The website used a **RAG pipeline** with **Langchain** and a vector database (**ChromaDB**) built from auto-updated League of Legends data.
- Built a responsive frontend using **React** and the **Antd** component library.

Game recommendation system

Python, PySpark, SparkML, Word2Vec

- Created a game **recommendation system** utilizing a Steam reviews dataset with over 50,000 games and 41 million user reviews.
- Developed an embeddings generation pipeline using game tags and descriptions with the **Word2Vec** algorithm, including preprocessing steps such as **tokenization** and stop-words removal.
- Applied **Cosine-Similarity** to suggest games to users based on their preferred games.

DDPM Model for Image Generation implementation from scratch

python ,PyTorch, torchvision

- Implemented the Denoising Diffusion Probabilistic Models (**DDPM**) algorithm for image generation from scratch using **PyTorch** and **torchvision**.
- Built a custom **UNet** architecture for the model with **self-attention** modules.
- Trained the model on the **CelebA**(64x64) and **FashionMNIST**(32x32) datasets and was able to generate moderate quality images.

Face Gallery App

PyTorch, YOLO, FastAPI, FAISS

- Developed** an application that generates a **web gallery** by identifying and grouping faces from a photo collection.
- Implemented **face detection** using a pre-trained **YOLO** model and face embeddings via **InceptionResnetV1**. Grouped similar faces with the **FAISS** library (Facebook AI Similarity Search).

Scene Classification Using HOG, Bag of Words, Kmeans, and SVM Algorithms

Python, Numpy, Scikit-learn

- Developed a scene classification pipeline by extracting **HOG features** and applying **Kmeans** clustering to create Bag of Words descriptors.
- Trained** and fine-tuned an **SVM** classifier, achieving **75% accuracy** in classifying 15 distinct scene classes.

EDUCATION

BS. Communications and Information Engineering

Zewail City of Science and Technology

📅 2019 - 2024

📍 Giza, Egypt

GPA: 3.61/4.00

Coursework

Artificial intelligence Machine learning
Deep learning Computer vision
Linear & nonlinear optimization
Big data analysis Information theory

SKILLS

Core Skills

Machine learning Deep learning
Computer vision Data analysis
Visialization Object detection

Programming Languages

Python C++ MATLAB Java

Data Science & Analytics

Numpy Pandas Hadoop PySpark
Matplotlib Seaborn

AI/ML Frameworks & Tools

PyTorch TensorFlow Scikit-learn
OpenCV YOLO Langchain

BADGES AND AWARDS

Hacktrick 2024 1st place winner

Dell technologies

📅 2024

📍 New Cairo, Egypt

- Participated in Dell's 2024 hackathon in a team of 4 and won 1st place.
- The hackathon involved challenges in machine learning, computer vision, encryption, and problem solving.

Applied Data Science Lab badge

WorldQuant University

📅 2023

📍 Remote

- Completed eight applied data science projects involving data cleaning, exploration, ETL pipelines, machine learning models, and visualizations.