MOHMED ESSAM

Data Scientist —AI Developer — ML Engineer

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Education

Cairo University   Sep. 2020 – jun 2024

Bachelor of Science in Computer Science   *Egypt, Giza*

Experience

Elgammal Electronics Company   Feb 2021 – May 2023

hardware Engineer   *Cairo, Egypt*

- Developed a service to automatically perform a set of unit tests daily on a product in development in order to decrease time needed for team members to identify and fix bugs/issues.

Information Technology Institute (ITI)   August 2023 – Sep 2023

AI Developer, Summer code camp   *Cairo, Egypt*

- Probability and Statistics for Machine Learning, Linear Algebra for Data Science, Numerical Optimization for Data Science.
- Data Preparation and Exploration, Neural Network Deep Learning.

Certifications&Courses

ALX's Data Science course   May 2024 – July 2024

- Completed ALX's Data Science course, acquiring skills in Python programming, statistical analysis, and data visualization.

Power BI Course-Data Analysis   July 2024

- Developed advanced skills in data visualization and business intelligence using Microsoft Power BI during college coursework.

Generative AI Foundations Certificate ,Self-paced Course, Mahara-Tech Platform   November 2024

- Comprehensive training in cutting-edge Generative AI, covering transformer architectures (BERT, GPT, ChatGPT) and retrieval-augmented generation (RAG) for advanced language tasks; hands-on experience with GANs (DCGAN, Conditional GANs) and VAEs for image generation; and exploration of multimodal (DALL-E, CLIP) and diffusion models (Stable Diffusion, Latent Diffusion) for text-to-image and domain adaptation (CycleGAN, Pix2Pix) applications.

SQL Advanced Certificate, HackerRank   June 2024

- Demonstrated expertise in advanced SQL topics, including optimization techniques, advanced joins, complex aggregations, and database design principles for high-performance querying.

Problem Solving Intermediate Certificate, HackerRank   June 2024

- Proven skills in intermediate problem-solving, including more complex algorithms, data structures, and the ability to approach and solve a wider range of programming challenges.

Database Fundamentals, Mahara-Tech   Sep 2024

- Acquired a comprehensive understanding of database concepts, including design principles, normalization, SQL basics, and data management practices.

Data Fundamentals, IBM SkillsBuild   Sep 2024

- Gained foundational knowledge in data analysis, data management, and data visualization techniques, with an emphasis on practical applications and industry-standard tools.

Data Analysis Fundamentals, IBM SkillsBuild   Sep 2024

- Developed key skills in data analysis, including data cleaning, statistical analysis, and interpretation of results, with practical experience using industry-standard tools and methodologies.

Artificial Intelligence Fundamentals, IBM SkillsBuild   Sep 2024

- Acquired essential knowledge in AI concepts, including machine learning principles, neural networks, and AI applications, with hands-on experience in implementing basic AI models and solutions.

Applied Data Science with Python, IBM SkillsBuild   Sep 2024

- Mastered data science techniques using Python, including data manipulation, statistical analysis, machine learning algorithms, and visualization, with hands-on experience in applying these skills to practical data problems.

Projects

Conditional Variational Autoencoder (CVAE) for Image Generation | *Python*   **January 2023**
- Developed a CVAE model using Keras and TensorFlow to generate high-quality RGB images from two distinct classes, leveraging conditional inputs for class-specific image generation.

Branch Optimization for Fawry | *Python, Pandas, NumPy, KDTree, Matplotlib*   **November 2023**
- Optimized branch selection by developing a spatial model that maximized sales within a 5 km radius using KDTree for efficient queries, covering different branch types (A and B). The algorithm balanced sales potential against operational costs, identifying high-profit branches.

AI Vocabulary English Test | *Python, Pandas, WordNet, NLP*   **November 2023**
- Developed an AI-powered vocabulary test generator that creates multiple-choice questions (MCQs) using WordNet and Natural Language Processing (NLP) techniques to assess a user's English vocabulary proficiency based on CEFR levels (A1 to C2).

Quadruped Robot | *Arduino*   **January 2024**
- Designed and developed a versatile quadruped robot for basic locomotion and entertainment, utilizing 3D printing technology and advanced mechanical design.

Vethub website(GP Graded with A) | *python*   **june 2024**
- Developed an advanced chatbot for veterinary doctors integrating NLP and CV technologies. Designed the NLP system to interpret veterinary terminology and respond to queries about symptoms and treatments.
- Implemented a CV system to analyze pet images and diagnose conditions. Enhanced efficiency in diagnostics and treatment planning. Trained AI models extensively with veterinary data to ensure high accuracy and reliability.

Customer Segmentation using Behavioral Data | *Python, Pandas, Scikit-learn, Matplotlib* October 2024
- Implemented DBSCAN-based customer segmentation to identify key consumer groups, leading to insights for personalized marketing strategies and improved customer retention.

Relevant Coursework

- Python
- problem solving
- Introduction to Artificial Intelligence
- SQL
- Machine Learning
- Deep Learning
- Natural Language Processing (NLP)
- Computer Vision
- supervised and unsupervised learning
- Reinforcement Learning
- Power BI

Technical Skills

Languages: Python, C++, SQL
Developer Tools: VS Code, pycharm, Power BI , Google Colaboratory
Technologies/Frameworks: GitHub

Language Skills

- English: Proficient in speaking, reading, and writing.
- Deutsch (German): Beginner level in speaking, reading, and writing.
- Arabic: Native speaker with excellent fluency in speaking, reading, and writing.