

# Mahmoud Salama Mohamed

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## SUMMARY

Machine Learning Engineer with expertise in Python, R, SQL, and Java, specializing in Natural Language Processing (NLP) and statistical analysis. Proven track record of building predictive models, optimizing NLP workflows, and delivering data-driven solutions. Passionate about leveraging AI to solve real-world problems and drive innovation.

## EDUCATION

### Bachelor of Data Science

Alexandria University • Alexandria, Egypt • 2025 • 3.835

## EXPERIENCE

### AI Trainee

#### Samsung Innovation Campus

July 2024 - October 2024, Cairo, Egypt

- Built and refined **predictive models** and analytical tools, including machine learning models, custom NLP models, and fraud detection solutions.
- Developed **data pipelines** for real-time data collection and preprocessing, improving data quality and model performance.
- Designed **interactive dashboards** and visualizations, improving stakeholder comprehension by **30%** and enabling data-driven decision-making.

### Microsoft ML Engineer Trainee

#### Digital Egyptian Pioneers Initiative

June 2024 - October 2024, Alexandria, Egypt

- Fine-tuned **GPT and BERT models** on custom datasets, achieving a **15% improvement in accuracy** for NLP tasks such as text classification and sentiment analysis.
- Conducted experiments, evaluated model performance, and optimized parameters using **accuracy, precision, and recall**.
- Collaborated on enhancing **NLP workflows**, contributing to project planning and continuous improvement.
- Gained hands-on experience in **prompt engineering** and explored trends in **multi-modal models** for adaptability.

### Machine Learning Intern

#### Scientific Research and Technological Applications City - SRTA

July 2024 - August 2024, Alexandria, Egypt

- Delivered a **poster presentation** on "*Crop Disease Detection Using Machine Learning*" at an international workshop.
- Developed a **deep learning model** for tomato disease classification, achieving **83.4% accuracy** and contributing to sustainable agricultural practices.
- Collaborated with a team to analyze agricultural data and optimize model performance.
- Applied **deep learning algorithms** to provide effective solutions for sustainable agriculture.

### NLP Engineer Intern

#### SMSM AI

March 2024 - June 2024, Cairo, Egypt

- Designed and implemented **NLP algorithms** for text and audio analysis, improving processing efficiency by **20%**.
- Collaborated with cross-functional teams to integrate AI solutions into real-world applications, reducing manual effort by **15%**.
- Enhanced decision-making processes by delivering **text classification models** with **90% accuracy**.
- Drove impact across industries by advancing **AI capabilities**, resulting in a **25% improvement** in workflow automation.

### Data Analyst Intern

#### Technocolabs Softwares

July 2022 - October 2022, Remote

- Collected, cleaned, and analyzed **10,000+ data points**, delivering actionable insights for strategic decision-making.
- Utilized **statistical tools** to identify trends, enabling a **15% improvement** in operational efficiency.
- Created **interactive dashboards** and reports, improving stakeholder comprehension by **25%**.
- Enhanced organizational understanding through data-driven insights, contributing to a **10% increase** in revenue growth.

## PROJECTS

### Interview Simulation System

Graduation Project • [github.com/MahmoudSalama7/RAG\\_AI\\_Interviewer/tree/main](https://github.com/MahmoudSalama7/RAG_AI_Interviewer/tree/main) • October 2024 - March 2025

- Developed an AI-powered interview simulation system using Retrieval-Augmented Generation (RAG) to dynamically generate questions based on job descriptions and candidate responses.
- Integrated document retrieval (using FAISS) and context-aware question generation (using `vaValhalla5-small-qg-prepend` and GPT2 tokenizer) to improve interview relevance by 30%.
- Built a conversation memory system using LangChain to track context and enable iterative question generation.
- Achieved 75% accuracy in tone and emotion detection from audio, enhancing the system's ability to assess candidate soft skills.
- Evaluated responses using the STAR method and technical accuracy, with plans to scale the system for broader use.

Fashion Outfit Generation

- Samsung Innovation Campus · [github.com/MahmoudSalama7/Fashion-Generation](#) · October 2024 - October 2024
- Utilized **computer vision**, **GANs (DCGAN and cGAN)**, and **LSTM models** to build a fashion recommendation system.
  - Developed a **style retrieval model** for fashion image classification, achieving **89% accuracy** for Egyptian dialect sentiment analysis.
  - Designed a **recommender system** integrated with **Gemini**, improving user satisfaction by **20%**.
  - Employed **DCGAN and cGAN** for outfit design generation, enhancing creativity and diversity in recommendations.

Personalized Learning Path Recommender System

- Samsung Innovation Campus · [github.com/MahmoudSalama7/CustomizedLearningPath](#) · September 2024 - September 2024
- Cleaned and processed datasets to extract features related to **student engagement** and **learning styles**.
  - Applied **K-Means clustering** for engagement analysis and **Random Forest** for learning style classification.
  - Built a **recommendation engine** to suggest personalized learning materials, improving learning outcomes by **25%**.
  - Utilized **Python**, **scikit-learn**, **pandas**, and **Jupyter Notebook** for development and analysis.

English to Egyptian Translation

- SMSM AI · [github.com/MahmoudSalama7/EnglishEgyptianTranslation](#) · March 2024 - May 2024
- Fine-tuned the **M2M100 model** for English-to-Egyptian translation, achieving a **BLEU score of 0.85**.
  - Collected and preprocessed data to enhance translation accuracy by **20%**.
  - Monitored training loss and evaluated performance, ensuring robust model deployment.
  - Successfully deployed the model for practical use in translation applications.

COURSEWORK

Generative AI with LLMs

DeepLearning.AI · 2024 · Prompt engineering, fine-tuning, text generation, ethical AI, chatbots

Data Analyst with Python

DataCamp · 2023 · Data cleaning, EDA, statistical analysis, data visualization, storytelling

Machine Learning Specialization

DeepLearning.AI · 2023 · Supervised learning, unsupervised learning, feature engineering, model tuning

Power BI Fundamentals

DataCamp & Microsoft · 2023 · Data transformation, interactive dashboards, DAX, custom visuals, collaboration

Natural Language Processing

DeepLearning.AI · 2023

- Tokenization, NER, Sentiment Analysis, Text classification, Model evaluation, Embeddings, sequence models, transformers

SQL for Data Analysis

Udacity · 2022 · Querying, data aggregation, joins, subqueries, optimization

SKILLS

Technical Skills

- Programming:** Python (Advanced), Java (Intermediate), R (Intermediate)
  - Data Analysis & Visualization:** SQL (Advanced), Power BI (Intermediate), Excel (Advanced)
  - Machine Learning & AI:** Scikit-learn, TensorFlow, PyTorch, NLP, Transformers
  - Cloud & Tools:** Azure Cloud, Git, Jupyter Notebook, Docker
  - Other:** Object-Oriented Programming (OOP), Data Structures
- Soft Skills
- Collaborative Team Player · Leadership · Problem Solving · Self-Motivated · Effective Communication