Mohammed Aly

Machine Learning Engineer - NLP - Generative Al

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https://github.com/MohammedAly22

SUMMARY

Results-driven AI Engineer with expertise in deploying scalable ML systems, predictive analytics, and personalized recommendations, leveraging Azure to deliver impactful solutions and optimize workflows in healthcare and technology.

PROFESSIONAL EXPERIENCE

Intelance *∂*

Data Science & Al Engineer Associate (Remote)

Oct 2024 - present | London, England

- Developed a multi-modal diagnostic system for Glioblastoma, Adenocarcinoma, and 4 other diseases, achieving 98% accuracy with patient history, imaging, and gene expression.
- Integrated ML models with EHR systems like Epic and Cerner, enhancing clinical decision-making in the UK.
- Architected end-to-end ML pipelines on Azure, reducing deployment time by 30% and enabling real-time REST API integration for diagnosis and treatment.

Data Science & Al Engineer Intern (Remote)

Jul 2024 - Oct 2024 | London, England

- Led ML systems for rare disease diagnosis achieving 95% accuracy and integrating Microsoft Azure for deployment.
- Developed a multi-step diagnosis pipeline, reducing diagnostic error by 15% with symptom, gene, and imaging models.
- Built LLM-driven treatment system, reducing treatment side effects by 20% with optimized drug options and timelines.
- Cut diagnosis time from weeks to days, boosting accuracy by 12% over benchmarks.

Orange Innovation Egypt

Oct 2023 - Mar 2024 | Cairo, Egypt

Data Science Intern *⊘*

- Developed Question Generation app using RAG and Flan-T5-Small for improved context.
- Built "Codify" application with LLAMA-2 7B, instruction-tuning, LoRA, and quantization.
- Applied Generative AI techniques with state-of-the-art transformers, bridging theory and practice.

EDUCATION

Artificial Intelligence & Machine Learning Trainee National Telecommunication Institute (NTI) ∅

Jul 2023 - Oct 2023 | Nasr City, Egypt

- Grade: Excellent with 92/100 GPA

Bachelors' Degree of Computer Science and Artificial Intelligence Helwan University $\mathscr O$

Sep 2019 - May 2023 | Helwan, Egypt

- Grade: Excellent with a 3.56/4.00 GPA

PROJECTS

Kevin | An Agentic Al Software Engineer ∂

- Led the development of Kevin, an agentic AI software engineer, pioneering advancements in code assistance.
- Designed and optimized prompts for base Large Language Models (LLMs), enhancing their ability to generate desired coding outputs, achieving 20% higher accuracy in code-related responses.
- Deployed automated project planning and coding functionalities within Kevin, streamlining workflows and increasing team productivity by 40% through seamless Al-driven assistance.

GenQuest-RAG | An Answer-Aware Question Generation Application $\,\mathscr{D}\,$

- Developed GenQuest-RAG, an innovative answer-aware question generation application, leveraging Retrieval-Augmented Generation (RAG) to produce contextually accurate and relevant questions.
- Engineered fine-tuning methodologies for the T5-small model, utilizing instruction-based techniques on the SQuAD dataset, resulting in a 15% improvement in model accuracy.
- Achieved significant performance benchmarks, including a BLEU score of 24.00 and a BERTScore of 91.00, demonstrating exceptional proficiency and precision in question generation tasks.

Codify | A Text-to-Code Application ∅

- Developed Codify, an advanced text-to-code conversion application, utilizing the LLaMA-2 7B model to deliver high-quality code generation with industry-leading accuracy.
- Curated a specialized dataset using tailored prompts and instruction fine-tuning, resulting in a 15% increase in model performance for more accurate code generation.
- Implemented PEFT techniques, including LoRA and Quantization, improving model efficiency by 20% and reducing computational requirements for training.
- Engineered optimizations for single-GPU training, achieving 40% faster model training while ensuring scalability and seamless performance across various computing environments.

Tasneef | An Arabic Part-of-Speech Tagger ∂

- Developed an Arabic Part-of-Speech (POS) Tagger leveraging the XLM-Roberta model, achieving 97% accuracy on the Arabic-Treebank-UD dataset, significantly outperforming baseline models.
- Improved accuracy by 10% through rigorous model evaluation, hyperparameter tuning, and optimization processes, ensuring robustness and reliability.
- Contributed to advancing Arabic natural language processing by delivering a high-performance POS tagging solution, enhancing linguistic analysis capabilities for Arabic text.

JudgerAI | An Intelligent Legal Judgement Assistant $\mathscr D$ Graduation Project

- Developed and fine-tuned NLP algorithms to capture legal-specific nuances, achieving around 99% model accuracy through optimized preprocessing pipelines and feature extraction.
- Facilitated team collaboration, organizing weekly meetings and reviews to ensure project milestones were met, resulting in 100% ontime delivery of project deliverables.
- Documented project progress and findings in a comprehensive report exceeding 150 pages, which was highly commended during the academic review for its clarity and depth.

SKILLS



LANGUAGES

English | Arabic