Ahmed Radwan
Computer Science

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PROFILE

I am a computer scientist specializing in AI and data science. With expertise in machine learning, natural language processing, and backend development, I have successfully executed various innovative projects. My dedication to continuous learning is demonstrated through advanced courses in AI and data science. Additionally, I contribute to community and educational initiatives through volunteer work.

EDUCATION

Computer Science   2019 – 06/2024
King Abdulaziz University
4.98 GPA

WORK EXPERIENCE

Research Intern   05/2024 – Present
KAUST, Information Science Lab   Thuwal, Saudi Arabia
- Developed AI components for a mobile app to track and notify users about Rak'ah completion during Salah using smartphone IMU sensors.
- Collected, cleaned, and tested data from accelerometer and gyroscope sensors.
- Implemented real-time motion recognition for prayer and transition classification.
- Deployed the model on an Android app.
- Currently enhancing real-time processing systems for accurate state identification and integrating error detection mechanisms to correct movement deviations.

Research Assistant   02/2024 – Present
KAUST, Communication Theory Lab
- Focused on reducing computational and communication energy in AI tasks.
- Tested on NLP sentiment analysis by comparing centralized, federated, and split learning techniques.
- Applied optimization techniques like quantization.
- Conducted joint research between AI and communication fields.

Researcher   09/2023 – Present
Asas.ai
- Designed and implemented LLM-based applications with a focus on Arabic language processing
- Conducted comprehensive review and analysis of Arabic instruction-tuning datasets to improve model performance

Head of AI Unit   09/2023 – 06/2024
Drone and Robotics Aziz Group at KAU
- Manage a team of 50 members, overseeing their development and preparing them for participation in hackathons.
- Teaching Introduction to AI, Computer Vision, and TinyML bootcamps.
- Led the AI team for DRAG SUAS 2024, achieving a ranking of 16th.

Artificial Intelligence Intern   07/2023 – 08/2023
KAUST   Thuwal, Saudi Arabia
- Deep Learning: Autoencoders, VAEs, GANs; unsupervised & generative modeling
- Reinforcement Learning: Optimal policies in dynamic environments
- Graph Neural Networks: Concepts & implementation in recommendation systems
- NLP: Text/sentiment analysis, language modeling

Teaching Assistant   03/2023 – 03/2024
KAUST Academy   Thuwal, Saudi Arabia
- Introduction to Artificial Intelligence Course: Calculus, Linear Algebra, Machine Learning, and Deep Learning.
- Advanced Artificial Intelligence Course: CNNs, Dataloading, AutoEncoders, Segmentation, Object Detection.

PUBLICATIONS

SARD: A Human-AI Collaborative Story Generation ⊘   30/06/2024
HCI International 2024
First author: "SARD: A Human-AI Collaborative Story Generation" (HCII 2024).
Developed a novel visual interface for AI-assisted story generation, leading design, implementation, and user studies.

Addressing Bias Through Ensemble Learning and Regularized Fine-Tuning ⊘   25/08/2023
Preprint
Co-authored preprint proposing a novel approach to reduce bias in AI models with limited data. Method combines fine-tuning, ensemble learning, and knowledge distillation, demonstrating improved fairness on CIFAR-10 and HAM10000 datasets.

PROJECTS

Compact Multimodal Threat Detection System
Developing a compact Multimodal for cyclists that uses audio-visual data to detect road threats, efficiently running on Arduino for real-time alerts.

Skin Cancer Image classification
Developed a model for image classification using data loading techniques and Convolutional Neural Network using Keras.

COURSES

TinyML Course   01/2024 – 02/2024
KAUST   Thuwal, Jeddah

Mathematics for Machine Learning and Data Science Specialization ⊘
DeepLearning.AI

Machine Learning Specialization ⊘
DeepLearning.AI

AWARDS

1st Place Winner for 2024 Student Games ⊘
Organized By International Society of Automation and Sponsored by Aramco
Developed an AI-driven system, named GreenSightAI, to enhance greenhouse crop cultivation through early disease detection and state assessment, reducing labour costs and improving yield quality.

1st Place Winner at 'Sehah Thon 2' ⊘
Ministry of Health with Ministry of Hajj and Umrah
Developed an AI system to detect individuals needing immediate assistance and pinpoint their geographic location. This solution enhances emergency response efficiency using advanced AI and geolocation technologies.

TECHNICAL SKILLS

Data science and AI libraries
Python, Pandas, Sklearn, Pytorch, TensorFlow, and Keras

Artificial Intelligence
Machine Learning, Deep Learning, Computer Vision, NLP, CNN, RNN, Transformers, GANs, Diffusion models, LLM, HuggingFace.