

# Ahmed Radwan

## Machine Learning Engineer

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### PROFILE

I am a computer scientist with expertise in AI, NLP, and backend development. I've led projects in AI for wireless communications and real-time feedback systems. Committed to continuous learning, I also contribute to educational initiatives through teaching and mentorship.

### EDUCATION

<b>M.Sc Computer Science</b> York University	09/2024 – Present Toronto, Canada
<b>B.Sc Computer Science</b> King Abdulaziz University 4.98/5.0 GPA	2019 – 06/2024 Jeddah, Saudi Arabia

### WORK EXPERIENCE

<b>Researcher Assistant</b> York University Research Assistant under Prof. Hina Tabassum at LE-NGWN Lab. <ul style="list-style-type: none"><li>Working on self-supervised learning for Wi-Fi sensing and diffusion models for RF-Coverage map reconstruction.</li></ul>	09/2024 – Present Toronto, Canada
<b>Researcher</b> Asas.ai <ul style="list-style-type: none"><li>Developed LLM-based applications focused on Arabic language processing.</li><li>Conducted comprehensive review and analysis of Arabic instruction-tuning datasets to improve model performance.</li></ul>	09/2023 – Present
<b>Research Assistant</b> King Abdullah University of Science and Technology (KAUST) Research Assistant under Prof. Mohamed-Slim Alouini, Communication Theory Lab <ul style="list-style-type: none"><li>Optimized energy efficiency in AI tasks using quantization to reduce model complexity and data transmission.</li><li>Analyzed centralized, federated, and split learning methods for NLP sentiment analysis, focusing on performance, privacy, and scalability.</li><li>Led research merging AI with wireless communications, testing models on real-world noisy communication channels.</li></ul> Researcher under Prof. Tareq Y. Al-Naffouri, Information Science Lab <ul style="list-style-type: none"><li>Developed a real-time feedback algorithm for tracking Rak'ah completion during Salah using smartphone IMU sensors.</li><li>Processed and classified sensor data for motion recognition.</li><li>Deployed and enhanced an Android app for real-time accuracy and error detection.</li></ul>	02/2024 – 10/2024
<b>Leader of AI Unit</b> Drone and Robotics Aziz Group at KAU <ul style="list-style-type: none"><li>Manage a team of 50 members, overseeing their development and preparing them for participation in hackathons.</li><li>Teaching Introduction to AI, Computer Vision, and TinyML bootcamps.</li><li>Led the AI team for DRAG SUAS 2024, achieving a ranking of 16th.</li></ul>	09/2023 – 06/2024
<b>Artificial Intelligence Intern</b> King Abdullah University of Science and Technology (KAUST) <ul style="list-style-type: none"><li>Deep Learning: Autoencoders, VAEs, GANs; unsupervised &amp; generative modeling</li><li>Reinforcement Learning: Optimal policies in dynamic environments</li><li>Graph Neural Networks: Concepts &amp; implementation in recommendation systems</li></ul>	07/2023 – 08/2023 Thuwal, Saudi Arabia

- NLP: Text/sentiment analysis, language modeling

### Teaching Assistant

KAUST Academy

03/2023 – 03/2024  
Thuwal, Saudi Arabia

- Taught Introduction to AI (Calculus, Linear Algebra, Machine Learning, Deep Learning) and Advanced AI (CNNs, Dataloading, AutoEncoders, Segmentation, Object Detection).

## PUBLICATIONS

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### 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

First Author for a 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

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### 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 an image classification model using CNNs in TensorFlow with optimized data loading. Deployed on Flutter for real-time mobile image recognition.

## COURSES

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### TinyML Course

Thuwal, Jeddah

King Abdullah University of Science and Technology (KAUST)

### Mathematics for Machine Learning and Data Science Specialization [↗](#)

DeepLearning.AI

### Machine Learning Specialization [↗](#)

DeepLearning.AI

## AWARDS

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### 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 [↗](#)

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

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### 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.