Ahmed Radwan

ahmedyradwan02@gmail.com +1 (437) 440-1525 Portfolio GitHub LinkedIn

SKILLS

Languages: Python, Java, SQL
Technologies & Tools: Git, Arduino, JAX, Pandas, NumPy, Matplotlib, Seaborn, Scikit-learn, PyTorch, TensorFlow, Keras, Transformers, Hugging Face, vLLM, YOLO, NLTK, SpaCy, OpenAI APIs
Machine Learning & Deep Learning: Distributed Training, Autoregressive Models (e.g., Transformers), Supervised, Unsupervised, and Self-Supervised Learning, CNNs, RNNs, Transfer Learning, Time-Series Data Processing, Model Optimization, Data Augmentation Techniques, Exploratory Data Analysis, Feature Engineering

EDUCATION

M.Sc Computer Science Toronto, Canada
York University
3.96/4.0 GPA.

B.Sc Computer Science
King Abdulaziz University
4.98/5.0 GPA.

PROFESSIONAL EXPERIENCE

Applied Machine Learning 2025 – Present
Vector Institute Toronto, Canada
- Engineered a distributed inference system using Accelerate to shard open-source models, enabling large-scale execution on resource-constrained multi-GPU clusters.
- Built an end-to-end audio-vision benchmark pipeline, managing data curation, distribution cleaning, and ground-truth validation via a custom Human-in-the-Loop tool.
- Developed a Multi-Agent Audio-Video RAG prototype by replicating state-of-the-art architectures to evaluate reasoning capabilities across multimodal data streams.
- Synthesized Agentic AI interpretability research into a comprehensive system design, drafting a policy-aligned explanation schema and guidelines for autonomous systems.

Research Assistant 08/2024 – Present
York University Toronto, Canada
- Developed and deployed self-supervised models for time-series human activity recognition using Wi-Fi sensing signals, enabling scalable training without labeled data.
- Developed tailored data preprocessing pipelines for WiMANS, UT-HAR, and SignFi time-series datasets, ensuring clean and structured inputs for activity recognition models.
- Designed and implemented data augmentation strategies—including masking, noise injection, and dimensionality reduction—to enhance model robustness across domains.
- Built few-shot learning frameworks that reduced labeled data requirements by up to 90%, enabling rapid adaptation to new tasks with minimal supervision.
- Developed a joint time-series compression and prediction pipeline that improved inference time 17×, reduced model size by 20%, and maintained over 90% signal similarity, supporting real-time performance on resource-constrained devices.

Research Engineer 09/2023 – Present
Asas.Ai
- Developed a Context-Aware Story generation framework using Large Language Models (LLMs), integrating multimodal input via the GPT-4 Vision API.
- Enhanced language understanding and task-specific performance through instruction-tuning on Arabic datasets for various creative writing tasks.

Research Engineer 05/2024 – 08/2024
King Abdullah University of Science and Technology (KAUST)
- Designed a real-time Rak'ah tracking algorithm utilizing smartphone IMU sensors to recognize prayer motions accurately.
- Developed motion recognition models optimized for real-time sensor data, ensuring high accuracy and low latency performance.
- Deployed a fully functional Android application with real-time accuracy monitoring and error detection to assist users in reducing prayer-tracking mistakes.

Research Assistant 02/2024 – 10/2024
King Abdullah University of Science and Technology (KAUST)
- Developed energy-efficient NLP models for sentiment classification on edge devices, leveraging TinyML techniques such as quantization and model compression to reduce memory and computation while maintaining high accuracy.
- Applied Split Learning to enhance data privacy in decentralized NLP systems, demonstrating improved efficiency and resilience in noisy wireless environments compared to traditional Federated Learning.

Artificial Intelligence Intern 07/2023 – 08/2023
King Abdullah University of Science and Technology (KAUST)
- Selected among the top 100 out of 10,000 applicants for an elite, fully funded AI program.
- Built and optimized generative models for deep unsupervised learning, focusing on scalable real-world applications.
- Applied advanced NLP methods for sentiment analysis and machine translation across multilingual datasets.
- Gained practical experience in reinforcement learning through hands-on implementation.

PROJECTS

Context-Aware Recommender for Fairness Requirements Engineering
- Implemented the ReFAIR framework for fairness-aware requirements engineering.
- Validated reproducibility and documented findings to support fairness research.

Fairness-Aware Medical Imaging
- Implemented adversarial and balanced fine-tuning methods to mitigate demographic bias in chest X-ray classification.
- Achieved improved fairness across race, gender, and insurance subgroups without sacrificing clinical performance.

Compact Multimodal Threat Detection System
- Designed a cyclist safety system using audio-visual threat detection on Arduino Nano.
- Ensured low-latency performance for real-time hazard alerts.

PUBLICATIONS

A Tutorial-cum-Survey on Self-Supervised Learning for Wi-Fi Sensing: Trends, Challenges, and Outlook
IEEE Communications Surveys and Tutorials
Radwan, A. Y., Mustafa Y., Navid H., Hina T., & Shahrokh V.

TinyML NLP Approach for Semantic Wireless Sentiment Classification
2025 EuCNC & 6G Summit - AI4C.
Radwan, A. Y., Shehab, M., & Alouini, M.S.

SARD: A Human-AI Collaborative Story Generation
HCI International 2024
Radwan, A. Y., Alasmari, K. M., Abdulbagi, O. A., & Alghamdi, E. A. (2024).

Addressing Bias Through Ensemble Learning and Regularized Fine-Tuning
Preprint
Radwan, A. Y., Zaafarani, L., Abudawood, J., AlZahrani, F., & Fourati, F. (2024).

AWARDS

1st Place Winner for 2024 Student Games
Orgenized By International Society of Automation and Sponsored by Aramco

1st Place Winner at Sehah Thon
Ministry of Health with Ministry of Hajj and Umrah

COURSES

TinyML Course
King Abdullah University of Science and Technology (KAUST) in collaboration with UNESCO

Mathematics for Machine Learning and Data Science Specialization
DeepLearning.AI

Machine Learning Specialization
DeepLearning.AI