

Profile

B.E. **with Distinction** (AUB) and winner of the **Abdallah Darwich Award for Best ECE Final Year Project**. Build and ship end-to-end ML, from data pipelines and LLM/VLM fine-tuning to evaluation and deployment, with a focus on machine learning, deep learning, LLMs, computer vision, MLOps.

Education

- 2026 – 2028 **Masters of Engineering. in Electrical & Computer Engineering, AI concentration**, *American University of Beirut (AUB)*, Beirut
- 2022 – 2026 **B.E. Computer & Communications Engineering, with Distinction**, *American University of Beirut*, Beirut
Minor in Mathematics · Graduate coursework: Neural Networks, Large Language Models
Nanodegrees: AWS Machine Learning Fundamentals (Udacity/AWS, 2025); AI Programming with Python (2024)

Experience

- Sep 2025 – Jun 2026 **Final Year Project: Explainable AF Detection from ECG via Vision-Language Models**, *Advisor: Prof. M. Awad, AUB* · **Best ECE FYP (Abdallah Darwich Award)**
- Reached **94%** (12-lead) and **96%** (1-lead) accuracy detecting atrial fibrillation from ECG images with task-specific architectures and losses in an end-to-end pipeline.
 - Generated clinician-style rationales using a modified custom architecture with a RAG-powered chatbot interface, plus guardrails, logging, error analysis, and a task-specific evaluation metric.
 - Validated robustness to device/dataset shift with uncertainty-aware outputs; deployed to a Flutter app connected to a portable ECG device.
- May – Jul 2025 **Machine Learning Engineer Intern**, *BMB Group*, Beirut
- Built computer-vision, time-series forecasting, Whisper ASR, and RAG/LLM pipelines for client demos, deployed into production-style workflows.
- Oct 2025 – Present **Research Member & ML Instructor, AI Computing Hub & Humans and Machines Lab(Volunteer)**, *AUB*, Beirut
- Advanced atrial-fibrillation prediction research; built the curriculum and led hands-on ML workshops for AUB's summer AI academy; co-organized WiDS@AUB.
- Sep – Dec 2025 **Research Team Member, Cognify: Multimodal AI for Dementia Support(Course)**, *AUB*
- Led the Cognify web platform and built multimodal ML prototypes: object detection, BiLSTM affect modeling, and face/voice analytics.

Selected Projects

- 2025 – 2026 **Adversarial Multi-Agent RL for Detective Reasoning**, *Personal research*
Co-trained Investigator vs. Criminal LLM agents (LoRA on Qwen3-4B) with GRPO on procedurally generated mysteries, driven by an LLM-as-judge critique-and-refine reward loop.
- 2026 **LLM-as-a-Reviewer: General Evaluation Framework**, *Graduate LLM course*
Built a modular LLM evaluation framework (rubrics, evidence-grounded critiques, verifier, calibration), RL-aligned to human TA judgments.
- 2025 **Urban Heat Island Prediction**, *Graduate Neural Networks course*
Predicted surface temperature at **RMSE $\approx 0.21^{\circ}\text{C}$** by fusing satellite and auxiliary data with ViTs, CNNs, and physics-informed neural networks.

Skills

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| ML/AI | Python, PyTorch, TensorFlow/Keras, scikit-learn, Transformers, LLMs/VLMs, LoRA/PEFT, RLHF/GRPO, RAG, LangChain, OpenCV, YOLO, Whisper |
| MLOps/Deploy | Docker, Jenkins (CI/CD), AWS SageMaker, Git, MLOps |
| Software | C++, Java, SQL, React, Flutter, MATLAB, LaTeX |
| Languages | English (fluent), Arabic (native), French (beginner) |