

Ali Zahreddine

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Education

American University of Beirut

Beirut, Lebanon

Bachelors in Computer Science and Engineering, Minor in Mathematics.

Sept 2023 – August 2027

Following the AI track

CGPA: 3.83

Early Admission Scholarship Recipient. 1440/1600 SAT scorer. Ranked 11th in the GS Lebanese Baccalaureate.

Best Delegate in the LAU MAL and Best Policy Statement awardee in LAU MGG simulation models (2020–2021).

Research

Research Assistant | Embedding Space Analysis & Distance Metrics

Jan 2026 – Present

- Analyzed high-dimensional embedding geometry in vision and NLP using ResNet-18 (CIFAR-10) and E5 (Flickr8k) embeddings, guided by foundational work on distance metric behavior in high-dimensional spaces. Built an end-to-end evaluation pipeline using NeMo Data Designer, Ollama, and LLaMA-3.1-8B to generate, preprocess, embed, and index 1,000 synthetic text statements. Compared Manhattan, Euclidean, cosine similarity, and fractional distance metrics via top-10 retrieval precision and mean precision analysis, supporting similarity and distance-metric research with Dr. Ali Chehab.

Research Assistant | Clinical Outcome Prediction (EDA/NEDA) with LLaMA 3.1

Feb – July 2025

- Built an end-to-end **LLM fine-tuning + evaluation pipeline** to predict disease-activity outcomes (**EDA/NEDA**) from prompt-serialized clinical records, comparing multiple datasets (single-visit 1-year, multi-visit x -month, and consecutive-visit variants). Implemented **PEFT/LoRA** with memory-efficient settings to iterate in Colab/Kaggle; evaluated **accuracy/precision/recall/F1** and achieved a **69.8%** accuracy (class-balanced) and **69.6%** accuracy (population-balanced).

Projects

ClassCast Multimodal Lecture-to-Podcast Pipeline

GitHub

Sept – Nov 2025

- Co-built a prototype that converts lecture videos into a searchable, multilingual podcast by integrating ASR, OCR, TTS, semantic search, and a speech-to-speech chatbot UI, implementing clean GitHub workflows, Dockerized components, and a full Python/FastAPI/OpenCV/OpenAI/AssemblyAI stack.

AUBoutique Online Campus Marketplace

GitHub

Sept – Nov 2024

- Co-developed an online campus marketplace with secure buying/selling, real-time messaging, and a client-server architecture, built using Python socket programming, multithreading, SQLite, Tkinter UI, and HTTP requests.

Trafero Public Transportation Navigation Platform

GitHub

July – Sept 2024

- Contributed to Trafero, an MVP for improving public transport navigation in Lebanon, taking a leading role in coordination, planning, and pitching while supporting backend API testing, route-search validation, and database review, using FastAPI, PostgreSQL (asyncpg), SQL helpers, PyJWT.

Extracurricular Activities

AUB ACM Club Secretary | AUB

July 2025 – Present

- Coordinated operations and events for the ACM Student Chapter at AUB, including co-organizing the ACM Alumni Day (130+ attendees, 13 alumni). Supported outreach initiatives such as a two-day programming workshop (700+ applicants), LCPC training, and AI/cybersecurity sessions with industry professionals.

Founding Member | AI Journey (AUB)

Sept 2024 – October 2025

- Co-founded AI Journey, a leading AI student community at AUB. Helped organize a winter ML Bootcamp in collaboration with AUB IEEE (50+ attendees), weekly introductory AI sessions, and advanced workshops on AI tools, LLM alignment, and Arabic language modeling.