

Profile

Description: I am a dedicated Computer Science graduate from the Lebanese American University, where I achieved a CGPA of 3.9 and earned a place on the High Distinction List. Throughout my studies, I developed strong technical and analytical skills, with a deep passion for technology, programming languages such as Java and Python, and applying mathematical concepts alongside Machine Learning and Deep Learning algorithms to solve complex problems. Having completed my Bachelor's degree, I am now pursuing a Master's degree at the American University of Beirut (AUB), where I currently maintain a CGPA of 4.06. Beyond academics, I am also a skilled photographer and video editor with a passion for creativity. Additionally, my involvement in scouting (LSF) has strengthened my leadership, teamwork, and communication skills—qualities that continue to support my academic and professional growth.

LinkedIn profile link:

https://www.linkedin.com/in/mohammad-jaafar-farhat-b7b04b267?utm_source=share&utm_campaign=share_via&utm_content=profile&utm_medium=android_app

Education

Lebanese Baccalaureate – Life Science | 2021

- Grade: 18.556/20
- Rank: 18th on Lebanon

Bachelor of Computer Science | 2021 - 2024

Lebanese American University (LAU)

- CGPA: 3.9/4
- Research Recognition Award
- Dean's High Distinction List
- Baccalaureate Scholarship (50%)
- KANIYA Scholarship (100% for one semester)

Masters of Computer Science | 2025 - present

American University of Beirut (AUB)

- CGPA: 4.06/4
- Full Scholarship (100%)
- Graduate Assistantship
- Department Development Team Lead

Main Courses

OOP	Operating Systems
Software Engineering	Discrete Structures
Algorithms & Data Structures	Theory of Computation
Computer Networks	Web Development
Calculus	Machine Learning
Cloud Computing	Deep Learning
Mobile Applications	Probability & Statistics
GPU Computing	IR and Web Search
Reinforcement Learning	AI in Industry

General Skills

Microsoft Office	Photography
Full Stack Development	Communication
Leadership	Academic Advising
Analytical Skills	Microservices
MLOps	LLMOps
Teaching	AI Engineer

Top Projects

Lebanon Aid Website

A full stack website project focused on assisting those who have been evacuated from their homes during the war and are facing extremely challenging circumstances while facilitating safe resource access, hospitalization, and relocation.

StylePulse AI – AI Engineering

Built StylePulse AI, a production-grade decision-support system for apparel retailers, deployed on cloud infrastructure with full observability and monitoring. The platform orchestrated multiple independent services via a FastAPI external endpoint, including competitor market intelligence, decision intelligence with a CatBoost model, and campaign creative generation. Implemented automated MLOps pipelines for training, evaluation, and rollback with MLflow tracking, alongside unit, integration, and end-to-end tests, regression protection, and schema validation. Delivered containerized services with Docker/Kubernetes, public API deployment, Prometheus/Grafana dashboards, and robust security features such as input validation, rate limiting, and fallback logic, ensuring explainable, reliable, and review-ready recommendations for SKU-level pricing and promotion decisions.

AI-Driven Chief of Operations Agent for Conut

Developed an AI-Driven Chief of Operations Agent for Conut, using real operational data to deliver actionable insights across product strategy, staffing, expansion, and sales growth. The system optimized product combinations from purchasing patterns, forecasted branch-level demand to support inventory and supply chain decisions, evaluated new branch feasibility through location analysis, estimated staffing needs per shift using time-series data, and designed targeted strategies to boost coffee and milkshake sales. Fully integrated with OpenClaw, the solution enabled real-time operational queries such as demand prediction,

staffing recommendations, combo suggestions, and growth strategies, directly enhancing Conut's scalability and decision-making efficiency.

Legal Sentencing Prediction in the Lebanese Judicial System - ML & DL Project

This project studies the application of deep learning and machine learning to help in the process of predicting legal sentences in the Lebanese legal system. I created models to categorize different types of crimes, punishment categories, and predict sentence duration using a dataset of Lebanese court rulings. TF-IDF with linear models, FastText-based LSTMs, and a refined AraBERT model were among the methods employed. To evaluate these methods, I trained each model on real judicial texts and tested them on separate cases that the models had not seen before. The TF-IDF models gave clear baseline results for crime type classification and sentence duration prediction. The FastText LSTM served as a deeper baseline to compare with. The AraBERT model achieved the strongest performance for predicting punishment type, especially because it handles Arabic text more effectively. Overall, the results show that machine learning can assist in organizing and predicting sentencing information for Lebanese criminal cases, and they highlight the importance of building a dataset that reflects the local legal system.

Supply Chain Optimization for Small Businesses

Developing an optimization algorithm to improve inventory management, minimize shipping costs, and reduce stockouts/overstocking for small businesses. I have used machine learning to predict demand and optimize the timing and quantities of inventory orders.

AcademeXperience Website

Academy Website, a dynamic space offering a diverse range of expertly crafted courses to suit every learner.

Meditation App

A comprehensive platform designed to guide users through the practice of meditation and mindfulness. With a diverse range of meditation sessions catering to various needs such as stress relief, focus, and sleep aid, the app fosters a serene environment.

Face Recognition - DL Project

A facial verification system using deep learning, specifically through a Siamese neural network. Facial verification plays an important role in improving security by using an advanced authentication approach to access personal information. The system will verify a person's identity by comparing their facial features with a known set of images.

Sudoku | Spm*Spm – Parallel Programming Projects

These projects parallelize Sudoku solver and Sparse Matrix multiplication based on recent published research papers and parallelization techniques.

Alzheimer Detection - ML Project

Developing a model using the Alzheimer's Disease dataset available on Kaggle. This dataset provides various features that can be analyzed to identify patterns and indicators of the disease. By leveraging this data, I have built a robust model that can accurately detect Alzheimer's, thereby contributing to the efforts in early diagnosis and intervention.

LLM-based SPARQL Query Generation - IR Project

I addressed the challenge of converting natural-language questions into SPARQL queries over a large knowledge graph. Many systems either retrieve incorrect entities or generate syntactically invalid queries, resulting in poor execution accuracy. My work combines symbolic retrieval (BM25) and semantic retrieval (dense vector search) with large language models—fine-tuned T5-base, OpenAI's GPT-4o, and Anthropic's Claude—in a unified pipeline. We evaluate on LC-QuAD2.0, a benchmark dataset with over 30000 question-query pairs on Wikidata, and demonstrate that our hybrid method offers potential advantages over both purely symbolic and purely neural baselines.

Experience

Development Team Lead | Spring 2026 - Present

American University of Beirut (AUB)

I am leading a team that is developing an administration system with AI integration for the Department of Computer Science at AUB.

Lab Instructor | Spring 2025 – Fall 2025

American University of Beirut (AUB)

Lab instructor of Introduction to Programming course (CMPS201) at AUB. This course introduces students to programming and computational thinking. Java programming language is used. Students learn the principles of imperative and object-oriented programming in addition to basic data types, flow control (repetition and selection constructs), procedures and functions, parameter passing, scoping, recursion, arrays, and classes. Students are briefly introduced to simple algorithms and data structures.

Official Tutor | Fall 2024

Lebanese American University (LAU)

Tutor of Data structures course (COE312) at LAU. This course is given to Engineering students at their 2nd year and covers the programming principles, stacks and recursion, queues, lists, searching, and sorting algorithms, binary trees, and the object-oriented programming concepts.

Business Lab Instructor | Spring 2025

American University of Beirut (AUB)

Lab instructor of Computing for Business course (CMPS208) at AUB. This course introduces Excel as a computer tool to plan, create, and use spreadsheets to formulate and solve business problems. It exposes

students to a wide coverage of spreadsheet topics from introductory concepts such as problem formulation, writing formulas and functions, charting, grouping, and error prevention to more powerful and advanced features such as pivot tables, and analysis needed in decision-making. In addition, it boosts students' ability to collect, analyze, and forecast business and financial data to generate valuable insights. It provides the tools to perform modeling, calculations, analysis of various phenomena encountered in other courses such as finance, operations management, human resources, etc.

Tutor | Spring 2022 – Present

Private

Private tutor of Computer Science courses given at LAU and AUB.

Internships

IDS (Integrated Digital Systems) | Summer 2023

Web Development

CodeAlpha | Summer 2024

Machine Learning

Volunteering

Teacher | Spring 2024

MMKN NGO

Helping Grade 9 Lebanese public schools students study chemistry through tech-driven experience.

Proctor | Spring 2022 – Present

LAU and AUB instructors

Helping LAU and AUB instructors proctoring exams. I ensure exam security, monitor students throughout the exam, and assist with logistical needs that arise.

Research

VoI-Aware Energy-Efficient UAV-Assisted Data Collection Using Genetic Algorithms

Authors: Dr. Nadin Abbas, Me, and Hasan Eid

The growth of the Internet of Things (IoT) has triggered a technological revolution leading to significant advancements in various fields and industries, especially with the ability to connect and collect data from a wide range of devices and sensors. The collection of relevant and important data with high Value of Information (VoI) from sensor nodes (SNs), generally located in difficult-to-reach limited access areas, can allow the systems to learn from their environment, adapt, and improve the decision-making process. In our work, we consider VoI-aware energy-efficient data collection from sensor nodes using Unmanned Aerial Vehicles (UAVs). We formulate the joint UAV deployment and SN-to-UAV association problems as an optimization problem, aiming at

deploying the minimum number of UAVs to collect the maximum amount of data with a maximum value of information while minimizing energy consumption, subject to latency and coverage constraints. We then propose using Genetic Algorithms (GAs) to provide real time sub-optimal solutions while ensuring the tradeoff between different objectives. Simulations were conducted to show the performance and effectiveness of the proposed approach under different system parameters. This paper was accepted in **IEEE Consumer Communications & Networking Conference 2025** held in **Las Vegas, NV, USA**. It has also won the **Research Recognition Award** at **LAU**. This award is given for a student's contribution as an Author on a Q1 or Q2 article.

Adaptive and Fault-Tolerant P4-NEON: A QoS-Aware SRv6 Architecture for Vehicular Networks

Authors: Me, Mostafa Fatayri, Hazim Hareb, and Mohammad Elouzeir

Emerging INT-enabled P4 SRv6 architectures must deliver stringent latency guarantees, rapid congestion response, and reliable Quality of Service (QoS) differentiation for modern delay-sensitive applications. Conventional controller-driven approaches remain limited by periodic telemetry analysis and delayed reaction to transient network conditions. This work presents APQC, an intelligent and predictive QoS control framework that enhances the P4 data plane with event-driven awareness and class-based scheduling. APQC introduces a data-plane. Early Analyzer Trigger (EAT) mechanism that continuously monitors queue dynamics and initiates controller intervention upon persistent congestion, reducing detection latency to approximately 150 ms compared to multi-second control-loop intervals. To enforce differentiated forwarding, APQC implements a DSCP driven QoS scheduler that classifies EF, AF, and BE traffic and maps them to strict-priority queues, ensuring preferential treatment of high-priority flows under load. The architecture also incorporates in-switch Fast Reroute (FRR) for local protection upon link degradation; although implemented, comprehensive failover evaluation is left for future work. A full prototype is deployed on a 14-switch Mininet/Stratum BMv2 testbed controlled by ONOS. Experimental evaluation demonstrates that APQC achieves an average end-to-end latency of 18.17 ms under mixed traffic conditions while significantly improving the timeliness of congestion awareness. Highlighting the practicality and effectiveness of predictive, event-driven QoS control within INT-enabled P4 SRv6 networks. This paper is not published yet.

Programming Languages & Frameworks	Python	Java
	Docker	CI/CD
	Kubernetes	MlFlow
	NextJS	N8N
	OpenClaw	SupaBase
	C/C++	Cuda
	HTML	JavaScript
	PHP	SQL
	CSS	Flutter
	NodeJS	Flask
	Postman	.Net
	SPARQL	P4
	LLMs	Angular
	LangChain/LangGraph	Scrapy
	REST API	FastAPI
	Unix	XML/XSL

Clubs & Workshops	Google Developer Group (GDG)	Beirut AI
	LAU Music Club	LAU Human Rights Club
	LAU Arabic Club	LAU CS Club
	LebNet tech program	Build with AI
	Google DevFest	Meta DevFest

Languages *Fluent in English and Arabic*

References *Available on request*

