

Dina Abi Akar

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Computer & Communications Engineering student specializing in signal processing and machine learning. Built reproducible ML pipelines (TensorFlow/scikit-learn) and sensor-signal analysis tools (ECG, FFT validation).

EDUCATION

American University of Beirut (AUB), Beirut, Lebanon
Bachelor of Engineering, Computer & Communications Engineering
Aug 2023 - Jun 2027

EXPERIENCE

Web Development, AUB

Jun 2025 - Sept 2025

- Led the full redesign of the Faculty of Health Sciences main website architecture, UI/UX, and responsive layout.
- Used HTML/CSS and targeted JavaScript (menus, CSS complications) to improve navigation and readability.
- Coordinated with the faculty's project organizer/marketing lead on content, branding, and approvals.

Robotics Subcabinet - Web Development Team and Technical Collaboration, AUB Robotics Club

Oct 2025 - Present

- Build and maintain pages for event registration, schedules, inventory, and updates.
- Assist with workshops and collaborate with other members of the cabinet and subcabinet in free-topic technical projects.

PROJECTS

Alzheimer's Disease Classification (ML) - Python, scikit-learn, TensorFlow, XGBoost

- Built and compared supervised baselines (Logistic Regression, XGBoost, ANN) for classification on clinical/tabular data.
- Implemented a clean evaluation workflow with train/validation splits, reported AUC/ROC, precision/recall, confusion matrix.
- Performed preprocessing and feature handling and documented experiments for reproducibility.

Reference-Guided Image Restoration for Lebanese Cultural Heritage (Deep Learning) - PyTorch, U-Net [In Progress]

- Developing colorization system for archival photographs in collaboration with historical archivists.
- Training U-Net with VGG-based perceptual loss and ResNet feature extraction.
- Building benchmark dataset with validated color annotations for cultural accuracy evaluation.

Full Communication Systems Simulation (MATLAB)

- Implemented full digital communication chain: quantization, entropy coding (Huffman, LZ77), channel coding, modulation (BPSK/QPSK), AWGN and ISI channels.
- Designed and evaluated MLSE (Viterbi) and zero-forcing equalizers; simulated BER vs SNR for 10^6 -bit Monte Carlo trials.
- Analyzed rate-distortion tradeoffs (uniform vs Lloyd-Max quantization) and entropy limits vs fixed-length coding.

Client-Server File-Sharing App (Python)

- Implemented socket-based client/server over TCP with a header protocol, chunked transfers, and integrity checks.
- Built a server (threads/select) to support multiple clients while keeping a clean GUI responsive with basic authentication.

Comprehensive business plan for subscription-based startup (Engineering Economy Course)

- Used excel to obtain revenue projections, cost structures, break-even analysis, and financial forecasting.
- Applied financial analysis principles including cost-benefit evaluation, and investment decision-making frameworks.
- Grew capabilities in data analysis, financial modeling, automated reporting, and scenario planning for business metrics.

SKILLS

Programming: Python, C++, Verilog, Assembly

ML/DS: Pytorch, scikit-learn, TensorFlow/ XGBoost, NumPy, Pandas, Matplotlib, feature engineering, cross-validation

Web: HTML, CSS, JavaScript, Chrome Extensions, Git/GitHub

Systems/Tools/Hardware: MATLAB, SQLite, Arduino, Raspberry Pi, FPGAs, NI myDAQ, Tkinter/PyQt, Excel,

LANGUAGES

Arabic (Native) • English (Native) • French (High Proficiency)