CHARBEL AKIKI

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EDUCATION

Notre Dame University (NDU)   **Zouk Mosbeh, Lebanon**
Bachelor of Engineering in Computer and Communication Engineering   **September 2021 - December 2025**
- Cumulative GPA: 3.84/4.00
- Relevant Coursework: Fundamentals of Programming (C++), Data Structures (C++), Database Systems (SQL), Python Programming, Machine Vision (Python), Object Oriented Design (C#)

SKILLS

- **Programming Languages**: C++, Python, JavaScript, Java, C#, HTML, CSS
- **Frameworks**: Angular, Spring
- **Tools**: Jira, Github, PostgreSQL
- **Languages**: Arabic (native), French (advanced), English (professional), Spanish (Intermediate)

EXPERIENCE

Siren Analytics – Y4G Program   **Beirut Digital District, Bachoura, Lebanon**
Software Engineering & AI Intern - On Site   **June – September 2025**
- Developed full-stack features for the Traffic Management Organization (TMO) platform using Angular, Spring Boot and PostgreSQL to handle users' bookings and car registration processes.
- Enhanced the back-office system to let administrators configure client-facing content and functionality.
- Implemented auditing with Hibernate Envers to track configuration changes and ensure data integrity.
- Created an analytics API to deliver chatbot KPIs, enabling insights into chatbot engagement and effectiveness.
- Collaborated in an Agile team using Jira and GitHub, participating in sprints, stand-ups, and code reviews.

Cardinal Health - Wavemark   **Zalqa, Lebanon**
Software Engineering Intern - Hybrid   **July – August 2024**
- Worked on the migration of a module from Java legacy (Java 8) to Spring.
- Designed and Implemented RESTful API webservices following the MVC pattern.
- Tested RESTful API webservices using Postman.
- Performed Unit Testing on services using Junit5 and Mockito.
- Applied Object Oriented Design principles and patterns to optimize code structure and performance.

Inmind.ai   **Mkalles, Lebanon**
Front-end Academy Student - On Site   **July – August 2024**
- Learned advanced Angular front-end development, including:
    o State management using NgRx
    o Asynchronous communication with RxJS
    o JWT Authentication & authorization and token handling
    o UI/UX design and responsiveness using Figma

PROJECTS

Audio RAG Voice Assistant
Angular, Qdrant, FastApi, Docker, Gpt-4o
- Built a real-time, voice-driven AI assistant capable of answering questions from processed audio content.
- Implemented Retrieval-Augmented Generation (RAG) using OpenAI Whisper for speech-to-text, Qdrant for vector storage, and GPT-4o for contextual responses.
- Developed a FastAPI backend to manage transcription, retrieval, and response generation pipelines.
- Designed an Angular-based frontend with voice input and text-to-speech output for interactive user experience.
- Containerized the system with Docker for easy deployment and scalability.

Cheque Processing and Signature Verification System
Python, TensorFlow, OpenCV, OCR (Tesseract)
- Trained a CNN model to classify authentic vs. forged signatures (80% accuracy) with TensorFlow and Keras.
- Developed OCR pipelines using Tesseract to extract check information (number, date, payee, amount).
- Applied advanced preprocessing methods including morphological operations, connected components analysis, and adaptive thresholding to improve OCR and signature extraction accuracy.