Charbel Khayrallah

Computer and Communication Engineering

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Education

UNIVERSITÉ SAINT-JOSEPH DE BEYROUTH - FACULTÉ D'INGÉNIEURIE –ESIB 2020-PRESENT

CISCO CERTIFICATE: CCNAV7: INTRODUCTION TO NETWORKS (ITN) 2022. CCNAV7: SWITCHING, ROUTING AND WIRELESS ESSENTIALS 2023.

COLLEGE NOTRE DAME DE LA DELIVRANDE -ARAYA 2017-2020

ECOLE MAR KERYAKOS DES SOEURS ANTONINES-RECHMAYA 2005-2017

Final Year Project

ESIB Degree Advisor – Retrieval-Augmented Generation System

Université Saint-Joseph de Beyrouth – ESIB | Jan 2025 – May 2025

Built a multilingual academic advising system using Flask API, Streamlit UI, and Chroma DB for semantic search.

Integrated Sentence Transformers, hybrid search, and LLM-based generation (Cohere) to retrieve and synthesize academic guidance.

Designed custom prompts for intent detection, query rewriting, and contextual answer generation in English and French.

Implemented modular architecture with automatic document embedding, personalized form inputs, and persistent chat history.

Used project management best practices and version control with Git throughout the development cycle.

Extra-Curricular Projects

The Seeker: Arduino controlled remotely

Successfully linked and built sensors and transmitters on the Arduino.

Effectively coding the Arduino to transfer data to cloud.

Accurately download the data from the cloud to the website.

Liquid Level Meter

Designing a photoelectric sensor.

Analyzing the data using Arduino.

Determining the volume of liquid present inside a specific recipient.

Work Experience

Development and Networking Intern (6 weeks)

Dar Al-Handasah Shair & Partners, Beirut, Lebanon

Researched TCP/IP protocols and networking basics.

Configured MikroTik routers and managed network security and topologies.

Deployed virtual environments on ESX servers and managed DNS, DHCP, and user domains.

Developed a MERN stack blog platform, focusing on backend API development and frontend user interfaces.

Semantic Segmentation of Maxillary Teeth and Palatal Rugae in 3D images (7 months)

USJ-ESIB

Developed an AI assistant for automated tooth segmentation in 3D X-ray scans.

Implemented a user-friendly web app with offline functionality.

Ensured precise measurements and detailed results.

Selected and optimized DeepLabv3++ model for high accuracy.

Skills & Abilities

Project management, Programming Languages/Tools: C/C++, HTML/CSS/JavaScript, Java, Python, Assembly, SQL(mySQL), Scala, Unix, Git, CCNAv1, CCNAv2.

Languages: Arabic, French, English.