

Ibrahim El Khansa
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DESCRIPTION

I've been a full-stack software engineer since 2022, focused on building practical solutions that solve real-world problems and address gaps in the market. I graduated from the American University of Beirut in May 2025 with a degree in Computer Science Engineering and a minor in Economics. Ever since I learnt to develop web apps in my second year of college, I have been working independently on projects that merge technical expertise with innovative thinking to create value for users and communities.

EDUCATION

09/2020 – 05/2025 **American University of Beirut (AUB)**
Bachelor of Engineering in Computer Science Engineering & Minor in Economics

WORK EXPERIENCE

- 06/2025 – Present** **American University of Beirut**
Research Assistant
Beirut, Lebanon
- Developing and documenting the Maqam Network website, an educational platform for Arabic music theory.
 - Collaborating on a research manuscript detailing the Maqam Network's design, implementation, and educational applications.
 - Contributing to the design and development of interactive music theory tools for the Maqam Network.
- 06/2024 – 08/2024** **Murex**
Java Software Development Intern
Beirut, Lebanon
- Designed and implemented new UI components using Java Swing for the BPM module in MX3, enabling users to add editable descriptions to worksheets and comments to tasks for better workflow clarity and reduced errors.
 - Refactored backend systems and integrated database support for new features, ensuring seamless interaction across modules, robust data persistence, and adherence to system standards.
 - Collaborated with QA engineers, product managers, and architects to deliver scalable, maintainable solutions while practicing Agile methodologies and maintaining CI/CD pipelines using Jenkins and Murex's proprietary QA frameworks.
- 08/2022 – 11/2022** **Fits Consulting**
Digital Transformation Consultant Intern
Beirut, Lebanon
- Streamlined business processes using Bizagi, making daily operations more efficient.
 - Created flowcharts and admin portals for clients using Bizagi and Java.
 - Collaborated with teams to ensure software met evolving business needs.
 - Delivered solutions that improved operational efficiency and client satisfaction.

INDEPENDENT DEVELOPMENT PORTFOLIO

- 02/2025 - Present** **Maqam Network – Interactive Platform for Arabic Music Theory**
- Developed Maqam Network, an educational platform to learn and explore Arabic music theory, including maqamat, ajnas, and tuning systems.
 - Built the frontend using Next.js and TypeScript, integrating dynamic visualizations and user interactions for scale analysis, maqam exploration, and pattern playback.
 - Engineered a robust backend structure supporting audio synthesis, complex transposition logic, and dynamic audio playback, ensuring accurate representations of microtonal music.
- 01/2025 - Present** **MusicLeb – Hub for Everything Music Lebanon (www.musicleb.com)**
- Developed MusicLeb, a virtual hub where musicians, artists and music businesses can connect and discover each other.
 - Learned to optimize performance through server-side rendering, lazy loading and page caching techniques.
 - Engineered a secure backend leveraging role-based authentication, encrypted data transfer, and comprehensive API protection to safeguard user data and interactions.
- 10/2024 - 12/2024** **H.A.D.I – Health and Disease Identification (hadi-online-doctor)**
- Designed and developed a machine learning-powered platform to predict diseases based on user-reported symptoms.
 - Built a user-friendly React Next.js frontend and a python backend for real-time symptom analysis and seamless interaction.
 - Deployed the platform using Docker, Vercel, and Fly.io, ensuring scalability, performance, and secure user interactions.
- 11/2022 – 09/2024** **Coursis – Advanced Scheduling Tool (www.coursis.org)**
- Developed Coursis, a comprehensive academic platform designed to help students manage schedules and various academic tasks efficiently using Next.js and Firebase.
 - Single-handedly designed and implemented both frontend and backend systems, including a dynamic scheduling algorithm to generate optimal, non-conflicting schedules based on user preferences.
 - Optimized the platform's performance through custom algorithms and data structures like Graphs, Binary Search Trees, and conflict detection mechanisms to enhance the accuracy of schedule generation. For a summary of all technologies, skills, and tech stacks used, click [here](#).
- 01/2023 - 06/2023** **3azaw2ak Mobile App**
- Developed a cross-platform mobile app for Android and iOS using React Native, Expo, and Firebase, ensuring optimal performance and smooth user experience.
 - Implemented serverless, event-driven backend logic with Firebase Cloud Functions and integrated Firebase Realtime Database for real-time data syncing and offline access.
 - Secured app resources with Firebase Authentication and App Check, enforcing strict access controls and protecting user data.

UNIVERSITY COURSE PROJECTS

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| Final Year Project (EECE 501/502) | Melody Mits – Gesture-Based MIDI Controller Glove <i>Python, Tkinter, ESP32, MIDI, RAVE AI</i> |
| Database Systems (EECE 433) | Farm Management System <i>Flask, PostgreSQL</i> |
| Software Engineering (EECE 430) | E-commerce Dealership for Cars <i>React, Node.js, MongoDB</i> |
| Application Lab (EECE 430L) | Exchange Rate System <i>React, Python, Flask, JavaFX, Kotlin</i> |
| Software Architecture (EECE 437) | Instagram to E-commerce Website <i>React, Node.js, Docker</i> |

RELEVANT COURSEWORK

Software Courses: Design and Analysis of Algorithms, Object-Oriented and Effective Java Programming, Computing Networks and Services, Theory of Computation, Programming Language Design and Implementation, Cryptography and Network Security, Software Engineering, Database Systems, Software Architecture and Design Fundamentals, Web, Mobile, and Application Development Lab, Machine Learning
Hardware Courses: Computer Organization, Operating Systems
Other Courses: Engineering Entrepreneurship, Communication Systems

SKILLS

Languages: Fluent in English, Arabic and German

Computer Skills: Java, Maven, Jenkins, JavaScript, Typescript, HTML, CSS, React, React Native, Next.js, Node.js, Flask, REST API Design, CI/CD Pipelines, Docker, Git, Firebase, MongoDB, PostgreSQL, SQL, Python, Microsoft Office

Soft Skills: Initiative, Management, Research, Leadership, Adaptability, Time Management, Teamwork, Organization

HOBBIES

Drumming, Electric Guitar, Video Editing