

Mahdi Alhakim

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EDUCATION

American University of Beirut

Beirut, Lebanon

Bachelor in Computer and Communications Engineering, Emphasis in Software. Minor in Math. GPA: 3.86/4

Aug 2021 - Jun 2025

- Courses: Intro. to Computer Programming, Data Structures and Algorithms, Design and Analysis of Algorithms, Cloud Computing, Computer Networks, and Computer Organization. Landed on the Dean's Honor List during Fall 2021, Spring 2022, Fall 2022, Spring 2023.

American Community School at Beirut

Beirut, Lebanon

Graduated with High Distinction. Lead Robotics and Coding Coach. MUN Chair. Student Council Member.

Sep 2009 - Jun 2021

WORK EXPERIENCE

CloudGate Consulting, Full Stack Developer

Jul 2022 – Present, Beirut, Lebanon

- Spearheaded the development and orchestration of multiple secure microservices, contributing to trading apps like Fennel and webapps for healthcare and networking, optimizing authentication, and providing adequate documentation and testing using various tools and methods.
- Creating automation scripts for routine tasks, increasing operational efficiency by around 20% and saving an estimated 5 hours per week.
- Testing and documenting various applications and services, ensuring significantly high levels of application security and client satisfaction.
- Collaborated on a telecom networks project with STC, underscoring an ability to contribute meaningfully to diverse large-scale initiatives.

Self-Organized Tutoring, Personal Tutor

Apr 2020 – Nov 2022, Beirut, Lebanon

- Tutored over 15 students in Python and C++ languages, data structures, and algorithms, holding highly beneficial and preparatory mock quizzes and exams on a weekly basis, resulting in a significant average improvement of 20% in their programming skills and knowledge.
- Trained students in competitive programming techniques and strategies, leading to a success rate of 80% in coding contests and events.
- Created personalized learning plans for each student based on their strengths and weaknesses, resulting in above 93% satisfaction rate.

PROJECT AND ACTIVITIES

Unity C# Top-Down Shooter Game

Jun 2021 – Present, Beirut, Lebanon

- Creating a Unity C# top-down shooter game with attractive pixel art, diverse weapon arsenals, and progressive wave survival gameplay.
- Designing captivating lighting effects with Unity's rendering capabilities and particle system, integrating effective game physics with Unity's advanced physics engine, and programming an inventory management system, offering immersive and strategic player experience.
- Demonstrating an adept understanding of Unity's features, optimizing performance, achieving smooth gameplay, and employing efficient resource management, and additionally utilizing Unity's scripting capabilities in C# to develop a polished and responsive game experience.

Game Development Projects with AI and Machine Learning

Sep 2020 – Apr 2023, Beirut, Lebanon

- Programmed a self-playing AI Flappy Bird game, applying reinforced learning through a personally developed neural networks library.
- Implemented various AI and ML algorithms on previously built Snake and TicTacToe games using TensorFlow and the neural nets library.
- Created a fully functional chess game using python with an elegant user interface while incorporating all necessary game mechanics, then implemented a strategically capable computer bot, utilizing the min-max algorithm and alpha-beta pruning with efficient static evaluation
- Developed a Client-Server Liar's Dice Game with Python and implemented AI bots while analyzing the optimal neural network structure.

Neural Networks Library Development

May 2022 – Jul 2022, Beirut, Lebanon

- Engineered a compact efficient neural networks library, providing an unparalleled flexibility for custom neural network architectures.
- Successfully handled large datasets, showcasing the library's scalability and efficiency in training different models on extensive data.
- Prioritized ease of use without sacrificing customization, enabling users to adapt the library to specific project requirements effortlessly.

RESTful Web Services (OpenAPI/Swagger)

Apr 2022 – June 2022, Beirut, Lebanon

- Spearheaded the development of a high performance Node.js microservice with packet analysis capabilities akin to Wireshark, and with real-time packet processing and storing with MySQL while handling network traffic, verifying results through intensive Wireshark testing.
- Engineered an efficient Python-Flask microservice to perform Fuzzy Search on a MongoDB user database, utilizing Levenshtein's method.
- Generated comprehensive OpenAPI documentation ensuring RESTful compliance and integrated Swagger Codegen to synchronize code.

Gymthetics — Fitness Connection App, (American University of Beirut)

Oct 2021 – Dec 2021, Beirut, Lebanon

- Led the development of a fitness connection app design to conveniently link athletes with gyms as a solution to a study on poor fitness.
- Consulted with physical therapists and engineered a prototype app with features for scheduling gym sessions, connecting users with personal trainers, providing real-time updates on gym facilities and machine availability, and including user progress tracking capabilities.

SKILLS & INTERESTS

Skills:	Python, C++, C#, JavaScript, TypeScript, HTML, CSS, Git, Gitlab, DevOps, OpenAPI, Flask, Node.js, React.js, MySQL, MongoDB, Azure, Docker, TensorFlow, VS-Code, PyCharm, Postman, Unity, Wireshark, Agile, Design, Data Modelling		
Languages:	Arabic (Fluent), English (Fluent)	Hobbies:	Game Jams, Gym, Sudoku, Wordle, Writing
Interests:	Lex Fridman, NYT Connections, Pixel Art, Poetry	Channels:	Discovery, Shark Tank, TED-Ed Riddles, VSauce