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: 3.80/4　　*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.

WORK EXPERIENCE

CloudGate Consulting DWC-LLC, *Full Stack Developer*　　　　　　　　　　*Sep 2022 – Present,* **Beirut, Lebanon**
- Spearheaded the development and orchestration of multiple secure microservices, contributing to trading apps like Fennel and web apps 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.
- Collaborated on a telecom networks project with STC, underscoring an ability to contribute meaningfully to diverse large-scale initiatives.

American University of Beirut, *Volunteer Teaching Assistant*　　　　　　　*Jan 2024 – Present,* **Beirut, Lebanon**
- Assisting in three 3-hour labs per week, teaching python programming to AUB students taking *Introduction to Computer Programming*.

CloudGate Consulting DWC-LLC, *Back End Intern*　　　　　　　　　　　　*Jul 2022 – Sep 2022,* **Beirut, Lebanon**
- Trained and collaborated in developing microservices for a networking web app familiarizing myself with industry standard methodologies.
- Testing and documenting various applications and services, ensuring significantly high levels of application security and client satisfaction.

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.

American Community School at Beirut, *Summer Camp Teacher*　　　　　　*Jul 2022 – Sep 2022,* **Beirut, Lebanon**
- Taught robotics and programming to four sections of different age groups and selected as the only student to lead the teaching of a course.

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