

# Marc Abou Serhal

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## Education

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**American University of Beirut**

**August 2023 – April 2026 (Expected)**

Bachelor of Science in Computer Science

GPA: 4.0/4.0

- **Higher Education Scholarships Program (Fully Funded Scholarship)**

## Technical Skills

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- **Languages:** Python, JavaScript, Java, C++, HTML, CSS, SQL, Bash
- **Frameworks and Libraries:** React, Django, Spring Boot, Mapbox GL JS, NumPy, scikit-learn, PyTorch
- **Others:** Data Structures and Algorithms, Machine Learning, Mathematics

## Experience

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**GEOAI – Software Engineering Intern**

**May 2025 – August 2025**

- Worked on the alpha to beta transition of the Django RASID SaaS
- Built GitHub Actions workflow with API mocking (pytest + responses) for automated testing
- Worked on the automation of the orthorectification process for satellite imagery

**Research Assistant**

**September 2025 – Present**

Worked on finding a polynomial-time combinatorial solution to the feedback vertex set problem on cubic graphs.

## Projects

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**Trafo**

**June 2024 – September 2024**

An application that helps people better navigate public transportation. It has live vehicle tracking with ETAs, route visualization, nearby route discovery, navigation with chained routes, and more.

- Created a responsive UI for riders and drivers (React + Tailwind CSS)
- Implemented map features using Mapbox GL JS and Turf.js

**Botanica**

**January 2025 – April 2025**

An application that helps farmers in choosing and cultivating crops. It can predict the optimal plants using soil and weather data, and give watering reminders and weather alerts based on forecasts and plant tolerance.

- Created a simple UI (React + Tailwind CSS), using Mapbox and SoilGrids for the map and soil layer
- Designed REST API in Django and integrated soil and weather APIs

**Machine Learning for Longest Paths**

**September 2025 – December 2025**

An approach for finding approximate longest simple paths in graphs based on learned feature-based heuristics.

- Created efficient and highly relevant features; implemented extraction algorithms (C++ and Python)
- Trained a PyTorch model to rank vertices based on the expected length of a simple path starting from each
- Designed a pathfinding algorithm guided by the learned heuristic, achieving an average performance ratio of 0.877 and performing 17% better than the greedy heuristic

**Competitive Programming Library**

**October 2024 – Present**

Developed and maintained over 100 Java classes for competitive programming and general use.

## Extracurriculars

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- Placed 1st in LCPC 2025 and qualified to ACPC 2025
- Led competitive programming training sessions for both high-school and university students