# Michel Karam

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## Education

**Portland State University** — *Portland, OR*
***Bachelor of Science in Computer Science*** — ***Sept. 2023 – April 2026***

- **GPA: 3.89**
- ***Key Coursework:*** **Operating Systems, Data Structures, Algorithms & Complexity, DBase Management Systems, APL Linear Algebra**

**Portland Community College** — *Portland, OR*
***Associate of Science*** — ***Jan. 2022 – Mar. 2023***

- Completed the Early College High School (ECHS) Program, earning college and high school credits concurrently.

## Skills

**Programming Languages:** C, C++, Python, Java, JavaScript, Assembly x86/x86-64, Lua, HTML, CSS

**Frameworks & DevTools:** React, React-Native, Node.js, Expo, VS Code, Vim, RESTful API, Git, NASM, Modern C++, GDB, Valgrind, PostgreSQL, MongoDB

**Core Competencies:** Functional Programming, Data Structures, Algorithms, Space & Time Complexity, Object-Oriented Programming (OOP), AI/ML Integration, Functional & Structural Testing, Low-Level Debugging

**Power Skills:** Brain Storming, Attention to Detail, Organization & Time Management, Dependable & Responsible, Active listening

## Projects

**Prep&Count: 3-in-1 Fitness AI Application** | *React Native, Node.js, Express, MongoDB, JavaScript, RESTful APIs, Git*

- Implemented a comprehensive fitness platform combining **workout tracking**, **nutrition logging**, and **AI-driven meal planning** through seamless integration with the OpenAI API.
- Architected **scalable REST APIs** and robust **backend infrastructure** to support real-time data sync, secure user sessions, and advanced analytics.
- Integrated intelligent meal plan generation by leveraging **AI outputs** and interfacing with a third-party **recipe API** for dynamic, personalized recommendations.
- Crafted an intuitive and responsive **UI/UX experience** with modular React Native components to drive user engagement and mobile performance.

**SlimNet: Light CNN Comparison Framework** | *Python, TensorFlow, Keras, OpenCV, Saliency Maps*

- Trained a custom CNN on the MNIST dataset to create a baseline for evaluating lightweight deep learning models in constrained environments
- **Applied post training quantization (PTQ), and quantization-aware training (QAT)**, to reduce model size and increase bandwidth while preserving accuracy.
- **Saliency Maps with Back-Propagation (BP)** to interpret attention maps across both models, revealing key differences in focus, and abstraction.
- Analyzed results to draw **theoretical insights** into the relationship between layer depth, feature representation, and classification accuracy in CNN's.