

# Mohamed Otefi

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## EDUCATION

### Case Western Reserve University

December, 2024

*Bachelor of Science, Mathematics and Physics with a minor in Computer Science*

*Cleveland, OH*

- **GPA: 3.97/4.0;**
- UWC Davis Scholar; Dean's Honors List;

## WORK EXPERIENCE

### Four Growers

May 2022 – Dec 2022

*Software Engineer Intern*

*Pittsburgh, PA*

- Four Growers makes Robots that leverage ML to feed the world by automating fruit harvesting in greenhouses.
- Designed and coded a multithreaded orchestrator that made use of all hardware interfaces to allow harvesting while managing various subsystems.
  - o **Key Result:** Successfully delivered the GR-100 model under a tight deadline, leading to its adoption by major greenhouse providers, including Nature Fresh and Syngenta.
- Built hardware interfaces and motion planning schemes for an AI-driven harvesting machine using C++, Python and ROS, achieving significant 40% reduction in motion planning time through algorithmic optimization.
- Developed an XML-based error reporting framework to enhance error handling and reporting capabilities.

### Case Western Reserve University

*Cleveland, OH*

*Research Assistant | BOTTLE (Funded by the Department of Energy)*

April, 2024 – Present

- Implemented optimization techniques in C++ for Molecular Dynamics (MD) simulations, enhancing efficiency in simulating multi-layered plastics recycling.
- Leveraged CUDA and OpenMP through the Kokkos framework, resulting in a 22x performance improvement in the codebase.
- Currently applying machine learning techniques to identify optimal chemical structures for recycling processes.

*Research Assistant | High Performance Computing(HPC) Lab*

May, 2023 – Aug, 2023

- Optimized deep learning models using K-FAC (Kronecker-Factored Approximate Curvature) across single and multi-GPU environments, focusing on CNNs like ResNet and DenseNet.
- Conducted comparative analysis between K-FAC-enabled Adam and traditional Adam optimizers, demonstrating significant acceleration in CNN training on HPC Clusters.

### Evovor

June 2020 – June 2022

*Software Engineer Intern*

*Remote*

- Engineered a multithreaded, self-updating application launcher using Qt for the UI and C++ for backend development, ensuring seamless software updates and efficient user experience.
- Architected a software framework for 3D pose estimation in Unreal Engine, integrating cutting-edge MediaPipe machine learning models.
- Developed a robust backup application using C++, SVN (Subversion), and Qt.

## AWARDS, SKILLS & INTERESTS

- **Awards:** EOI Gold Medalist, **IOI 2018 Finalist:** The International Olympiad in Informatics (IOI) is the most prestigious global programming competitions for high school students, focused on algorithms and problem-solving
- **Skills:** C/C++, Python, ROS, CUDA, KOKKOS, Machine Learning, Qt, Unreal Engine, Algorithm Design.
- **Interests:** Biking; Reading; Movies; Chess;.