

# Omar Shalash

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## EDUCATION

### University of Toronto

Bachelor of Science, Computer Science Specialist Program (cGPA: 3.87/4.0)

Toronto, ON

Sept. 2019 – Jun. 2023

## TECHNICAL SKILLS

**Languages (Proficient):** Python, Java, C, JavaScript, HTML/CSS **(Familiar):** C++, Dart/Flutter

**Technologies & Frameworks:** React, Node.js, Express, MongoDB, PyTorch, Keras, Git, Firebase, PostgreSQL, Bash

## WORK EXPERIENCE

### Undergraduate ML Researcher Intern

May 2022 – Apr. 2023

The AMBIENT Project Team Supervised by Babak Taati, University of Toronto

[Final Report]

- Developed an end-to-end automated pipeline using **Python** and **OpenCV** for processing raw video data, extracting key 3D joint locations, and computing gait features for fall risk assessment in dementia patients, enhancing the accuracy of clinical analyses.
- Conducted a comprehensive review and quantitative analysis of heel-strike detection methods in clinical settings, utilizing advanced **machine learning models** to compare 3D and 2D pose analysis, and provided insights for data quality improvement.
- Implemented and evaluated gait feature estimation algorithms in clinical settings, introducing a greedy evaluation algorithm for enhanced accuracy. Demonstrated expertise in **Python**, **NumPy**, and **Matplotlib** for effective data analysis and visualization in healthcare technology.

### Software Developer Intern

May 2021 – Aug. 2021

ThinkOn Inc.

- Implemented features for microservices, including email testing prior to mass emailing clients using the SendGrid SMTP API, while also contributing to the front end using **ReactJS** and the backend REST API development using **Java (Dropwizard)**, ensuring quality and professionalism.
- Troubleshoot and resolved critical **SQL** bugs, ensuring accurate classification of customer information on the web portal, thereby mitigating potential business impact.
- Contributed to the maintenance of the portal code-base, which included identifying and resolving critical bugs that impacted users' ability to accurately produce documents and access consumption metrics.
- Proposed and implemented UI/UX improvements on customer-facing pages such as the services health page which enabled quicker identification and resolution of service problems by developers before they were reported by customers through intuitive design.

## EXTRACURRICULAR EXPERIENCE

### UofT AI

May 2021 – Aug. 2022

Co-director of Partnerships

- Led a group of 16 students responsible for fielding **26 teams** for a machine learning competition from North American universities such as CMU, Cornell, and Yale, and helped raise over **\$100,000** by contacting and maintaining sponsors such as Google, IBM, and the Vector Institute.

## PROJECTS

**Personal Portfolio :** [www.omarshalash.com](http://www.omarshalash.com) (for additional information and projects)

[Code]

**Idea Hut | MERN Stack**

[Code]

- Developed a web application that connects creative idea proposers with motivated developers, enabling the implementation of innovative technological projects.
- Integrated a **RESTful** API with **MongoDB**, **ReactJS**, and **Bootstrap** for responsive front-end development, and ensuring user authentication and security by using **JSON Web Tokens** and **Bcrypt**.

**ImageQualityAnalysis | OpenCV**

[Code]

- Engaged in developing a convenient-to-use interface that allows users to detect facial features in an image.
- Aided in implementing head-tilt detection with spontaneous feedback, prompting the user to adjust their head as needed for centering.