RAIYANN JACOB

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EDUCATION

University of Toronto, *Bachelor of Applied Science in Engineering Science* Expected 2027
Honours Student, Dean's List
Machine Intelligence specialization with minor in Robotics and Mechatronics
Courses: Algorithms and Data Structures, Applied Fundamentals of Deep Learning, Digital and Computer Systems

SKILLS

Programming Languages	Python, Java, JavaScript, C/C++, HTML, CSS, MatLab, Verilog
Frameworks & Technologies	PyTorch, MongoDB, Express, React, NodeJs, OpenCV
Design & Engineering Tools	AutoCAD, OnShape, Canva, Visual Studio Code, GitHub, LaTeX

PROJECTS

House Price Predictions - *PyTorch, Deep Learning, Neural Networks* June 2023 - August 2023

- Predicted house prices by creating a **machine learning model** that simultaneously reads both images and numerical data, which achieved a **32%** percent error
- Using **PyTorch**, created a combined **convolutional neural network** and **multilayer perceptron** architecture that analyzed over **15,000** houses
- **Collected data** from North American real estate sites for a **60/20/20%** training, validation and testing split

BudgetMe - *MERN, Full Stack Dev, Website Application* July 2023 - August 2023

- Used the **MERN** stack to develop an **expense tracker** web app to reduce monthly spending by **$140**
- **Designed** a complex **interface** using **React, TailWindCSS** and **HTML** for an engaging user experience
- Managed **server** and **databases** through **MongoDB, Express** and **NodeJS** to adequately handle requests

Seam Carving - *C, Data Structures/Algorithms, Dynamic Programming* March 2023 - April 2023

- Achieved a grade of **100%** on a project implementing an **abstract data type** in **C** that resizes PNG images
- Calculated the **gradient energy** of binary converted images and used **dynamic programming** as well as **lowest cost algorithms** to remove seams for a **30%** narrower photo

EXPERIENCE

Computer Vision/Machine Learning & Rover Developer July 2023 - Present
University of Toronto Autonomous Rover Team

- **Developing** a pipeline consisting of **spatial sensors** and **cameras** to serve as the eyes of an autonomous rover
- With **OpenCV**, increasing object detection accuracy by **15%** using image processing and machine learning
- **Competing** against **10** teams at the **International Ground Vehicle Competition** in Michigan

Executive Director of Sponsorships June 2023 - Present
University of Toronto Robotics Association

- Collaborating with a team of **talented executives** to **lead** one of the **biggest robotics clubs** at the University, fostering innovation and creativity in over **200** members
- Created an **outreach package** using graphic design skills to **build partnerships** with over **20+** companies

Mathematics and Coding Tutor May 2023 - Present
Tutorax

- **Accelerating** the academic success of **6** diverse students in various courses; Advanced Functions, Calculus, Physics, & Computer Science. **Tailoring** assistance to meet each student's personalized needs and goals.