

# Paolo Torres

2A Mechatronics Engineering, University of Waterloo

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## 🔧 Skills

**Languages/Tech:** C/C++, Python, Arduino, JavaScript/Node.js/JSON, HTML/CSS/Bootstrap

**Libraries/APIs:** OpenCV, scikit-learn, Tkinter, jQuery, RESTful APIs, Twitter API, Riot Games API

**Tools:** Linux, Terminal, Jira, Git, SVN, Jenkins, Visual Studio, Eclipse, SolidWorks, AutoCAD

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## 🧰 Experience

**Robotics Engineering Intern** - Aeryon Labs

Sep 2017 - Present

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**Software Developer** - WATonomous

Sep 2017 - Present

- Designed a **detection model** in C++ and OpenCV that processes camera and LIDAR to track objects
- Integrated with a neural network program for shape-based identification and image-based classification
- Researched tracking and detection techniques to merge the perception module into the software system

**Software Developer Intern** - Solink

Jan 2017 - Apr 2017

- Developed central **data source connector** in Node.js for 10,000+ POS device transactions a day
- Wrote **software tools** and **automation scripts** through **Scrum/Agile** practices saving hours of work
- Prototyped and pitched computer vision implementation to initiate early development of new features

**Embedded Developer** - Waterloo Aerial Robotics Group

Sep 2016 - Dec 2016

- Designed a **debugging system** in **C** for the **GPS** to prevent coordinates from incorrectly locking values
- Utilized integer-based commands to control decision-making for the aircraft's probe drop mechanism
- Employed pulse width modulation code on mounted camera to manage payload imaging for competition

**Programming Instructor** - Addity

Jul 2016 - Aug 2016

- Implemented Lego Mindstorms activities and taught 40+ students about the **fundamentals of robotics**
- Configured Gradle automation system with Windows batch files to build and host project workspaces
- Led the WordPress course for 30+ students and integrated HTML and CSS to deepen the program

**Computer Technician** - Y2K Computers

Jul 2015 - Aug 2015

- Prioritized client specifications and built custom-made desktops to **boost company revenue** by 50%
- Utilized BIOS firmware for OS updating and component testing to improve overall performance
- Applied troubleshooting to effectively repair system errors, intrusive software, and hard drive failures

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## 🔗 Projects

**Vehicle Tracker** - (C++, OpenCV)

- Created an application enabling users to upload traffic video and have the data analyzed at 96% accuracy
- Employed **computer vision** and **image processing** techniques to separate static from dynamic instances

**Sign Language Translator** - CUHacking (Python)

- Built a sign language recognition system via Leap Motion technology with incorporated video chat
- Won Indico's Challenge for **best use of machine learning** through SVMs and the scikit-learn library

**Pathfinding Simulator** - (C++)

- Implemented A\* search algorithm to simulate closest path **robotic navigation** with obstacle avoidance
- Allowed users to create the environment and visualize movement and heuristics via binary representation

**Toast the North** - Hack the North (Arduino, Python)

- Developed a system that allows users to create their own design and have it come to life through toast
- **Wrote all the code** consisting of the heat control mechanism, Processing software, and Tkinter GUI