

# Ali Toyserkani

Research Assistant by Day, Hardware Enthusiast by Night

+1 (226)-600-7210  
ali.toyserkani1998@gmail.com  
linkedin.com/in/alitoyserkani  
alitoyserkani.me  
github.com/alitoyserkani  
grabcad.com/ali.toyserkani-1

## SUMMARY OF QUALIFICATIONS

- Competent with → Machining Tools, **C/C++**, **Java**, SolidWorks, AutoCAD, **Prototyping**, Arduino, Soldering, FDM 3D Printers
- Experience with → **Python**, **JavaScript**, PCB Design (Altium & DipTrace), **Troubleshooting**, Part Sourcing, Sensors, Statistics
- Familiar with → ROS, **C#**, **HTML/CSS**, **Objective C**, GD&T, Raspberry Pi, MATLAB, NX

## WORK EXPERIENCE

**Additive Manufacturing Laboratory | Research Assistant | University of Waterloo** Dec 2016 – Present

- Implementing a new big-data processing system using OpenCV for image processing with laser diodes, readings from **ultrasonic**, **temperature and pressure sensors to analyze 5 GB/s of raw data, to decrease analysis time by 60%**
- Developed an  $O(\log n)$  response algorithm to make swift modifications to the **3D printers' substrate location, internal temperature and pressure to improve printer's manufacturing quality** while maintaining speed

**Fluid Mechanics Research Laboratory | Educational Outreach Intern | Waterloo** Jul 2016 – Present

- Created mechanical models of the human vocal tract using multi-polymer plastics and rubber silicon material
- Used Arduino UNO, **sound IoT**, 555-timers and amplifiers to emulate a changing human voice
- Constructed roughly 75 metal, plastic and wood parts for the assemblies of multiple trachea models

**Precision Controls Laboratory | Part Manufacturer | University of Waterloo** Jul 2015

- Designed and manufactured assembly parts for **industry-grade machines using SolidWorks**, AutoCAD, and machining tools
- Increased project efficiency by 10%, by creating parts **quickly and accurately with required specifications**

## PROJECTS

**ExtensaArm | Term Project | C++, RobotC, SolidWorks, AutoCAD** Oct 2016 – Dec 2016

- Constructed a **multidisciplinary servo-controlled robotic arm** with 4-axis freedom to repeat sets of user-taught tasks
- Developed a custom library to allow game-controller Bluetooth connection with the robotic arm

**shYft | HACKference 2016 | JavaScript, Node.js, Objective C, Firebase** Nov 2016

**Best Workforce Hack, Top 10 Overall**

- Built a **scheduling platform** where employees can seamlessly swap shifts, contact managers, change availability, and financials

**Interactive Physics Simulator | Personal | Java** May 2016

- Created a 2D user-prompted **collision simulation program** with tools to numerically analyze multi-object collisions

**Space Dodgers | School | Python** Feb 2015

- Designed a game using PyGame and tkinter graphics classes that tested user's reaction time and mouse maneuvering abilities

## EDUCATION

**BASc, Honors Mechatronics Engineering | University of Waterloo** Class of 2021 (Expected)

- Academic Representative: Algorithms (MTE 140) ---- Clubs: Intramural Soccer, Engineering Society, Poker Club*

## EXTRACURRICULAR ACTIVITIES

- Robotics:** Electrical team member of the university's robotics team, working on **power distribution and battery management**
- Finance:** Top 10 at ICDC (International Career Development Conference) for DECA Stock Market Investing Challenge
- Track & Field:** 2<sup>nd</sup> best 4x100m Relay Team in West Ontario (OFSAA), 2014-15 School MVP
- Piano:** Performed in 4 local community concerts around the Kitchener/Waterloo region