

# Kieran Broekhoven

2B Mechatronics Engineering  
University of Waterloo

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## Software Knowledge

Well experienced in C, C++,  
Python, PHP, HTML, CSS,  
MatLab, Bash and Batch

Familiar with ROS, PLC  
programming, Assembly,  
XML and JavaScript

Strong in Windows  
command line and Unix  
terminal.

Knowledge of source control using  
Git and Subversion

## Design Skills

AutoCAD, SolidWorks, MIMICS and  
3-Matic

## Other Technical Skills

Proficient in Microsoft Word,  
PowerPoint and Excel

Machine shop experience using  
lathes and drill presses.

Strong knowledge of human  
biomechanics

## Summary of Qualifications

- Aptitude for problem solving and logical thinking under pressure, developed from coordinating events, programming problems, math competitions and directing plays.
- Excellent communication skills cultivated through working as a karate instructor, actor and tutor.
- Strong leadership abilities gained as an Engineering Society Executive and senior martial artist.

## Relevant Experience

### Build Master Intern – Radialpoint, Inc.

May – August 2015

- Main project: creating a system using Python that automates the process of setting up virtual machines on different build system machines.
- Creating a web service that allows users to utilize the system with a user interface on the company's intranet.
- Assisting developers with problems they ran into with the company's build automation system.

### Biomechanical Design – Soochow University, China

September – December 2014

- Independently designing and 3D printing an ankle and foot orthotic (AFO) for people suffering from chronic ankle instability using 3-Matic and MIMICS.
- Improving and optimizing current AFO designs in order to create an effective and stylish brace.
- Designing the structure for a team member's brace in SolidWorks.

### Research Assistant – University of Waterloo Neurorobotics Lab

January – April 2014

- Working in the Ubuntu terminal to run Robot Operating System (ROS) actions through bash scripts, XML launch files and C++ nodes.
- Collaborating with other engineers to program a robot with the ability to intelligently navigate through a crowd.
- Reverse engineering and debugging ROS software in order to adapt applications of the Clearpath Robotics Turtlebot.

## Education

September 2013 – April 2018

### Candidate for Bachelor of Mechatronics Engineering, Co-op. Minor in French Studies.

University of Waterloo. Waterloo, Ontario.

#### Relevant Courses:

- Sensors and Instrumentation
- Computer Structures and Real Time Systems
- Data Structures and Algorithms
- Microprocessors and Digital Logic
- Engineering Graphics and Design
- Mechanics of Deformable Solids
- Linear Systems and Signals

## Work Experience

### Karate Instructor

March 2010 – July 2013

- Communicating and demonstrating martial arts to students from 4 year olds to adults.
- Teaching a group of 15 children age 4 and 5 alone, and worked with other instructors to teach groups of up to 30 children age 6-12.
- Acquired tolerance, patience, leadership abilities, teamwork, problem solving and quick thinking abilities.

## Awards

- University of Waterloo honourable distinction scholarship (over 90% average).
- “Engineers of Kingston Bursary”: an award given to a graduating high school student of high academic standing with great potential in the field of engineering.
- Ontario-Jiangsu Scholarship: awarded to a student excelling in an exchange from Ontario to the Jiangsu Province in China.

## Leadership Experience

- University of Waterloo Engineering Society
  - Vice President External
  - Chair, Board of Directors
- Spring 2014 Student Council Treasurer at Conrad Grebel University College.
- Director and lead actor in plays.
- Canadian Youth Team Leader at 2010 World Youth Butokusai. Leader of approximately 200 youth martial arts practitioners.

## Activities and Interests

- Martial Arts: Goju Ryu Karate, Southern Shaolin Kung Fu and Matayoshi Shinpo Kobudo.
- Arts: Involvement in several plays and musicals, as well as performing as a guitarist, pianist, bassist, drummer and vocalist.
- Recreation: volleyball, basketball, longboarding, and snowboarding.