

# SIMENG YANG

Mechatronics Engineering · University of Waterloo

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## Skills

- Proficient with **C/C++** and **C#**, developed through various projects.
- Experienced with embedded software through **Arduino**, with sensor interfacing.
- Familiar with web development using **HTML**, **CSS**, **JS**, **PHP** and **MySQL**.
- Knowledgeable on tools including **Git**, **MATLAB**, **AutoCAD** and **SOLIDWORKS**.

## Projects

### Student Database Management System · (HTML, CSS, JS, PHP, MySQL) Jun 2016

- Implemented a login-authenticated database to facilitate student registration into courses and manage student records.
- Developed the web interface from scratch, with database integration using **MySQL** and **Apache** and user-interactive dropdown using **JS**.
- Implemented robust input sanitation for text-fields using custom error-handlers and regular expressions in **PHP**.

### SketchIt! – NXT MINDSTORMS 2D Printer · (C++, ROBOTC) Nov 2016

- Implemented a printer to reproduce sketches from a set of 25+ points, built using NXT sensors, motors and a programmable brick microcomputer.
- Developed a graphical interface for plotting points through keyboard and mouse input, using the **Horstmann Graphics** library in **C++**.
- Coded the calibration and 3-axial operation of the printer with **ROBOTC**.

### Skittle Sorter and Dispenser · (Arduino) Jun 2016

- Designed an autonomous Skittle dispenser for allocating Skittles into separate bins, with motors, an RGB sensor and 3D-printed components.
- Synchronized the rotation of the feeding wheel and operation of the release shaft in **Arduino**.
- Optimized reliability of RGB-sensing by compiling consistency analyses for red, blue and green light from **Arduino** serial port data.

### Pong · (Arduino) Apr 2016

- Programmed multiplayer Pong on an 8x8 LED matrix with an **Arduino** microcontroller.
- Developed functions to toggle LED states of matrix to efficiently represent display elements.
- Debugged digital circuit with logic probes to validate output and connections.

## Experience

### Warrant Officer – 62 Royal Hamilton Light Infantry 2013 – 2016

- Coordinated Cadet activities, including the fundraising of \$5,000+ towards the Cadet unit and participation in the city-wide Remembrance Day Parade.
- Awarded '**Most Outstanding Senior Cadet**' and '**Top Master Cadet**' for exceptional service.

### Lifeguard-in-Training – National Lifesaving Society 2015 – 2016

- Created lesson plans for teaching children of varying swimming levels and abilities.
- Supervised a pool of 100+ swimmers under the guidance of a mentor lifeguard.

### Teaching Assistant – St. Patrick's School 2012 – 2013

- Led and provided feedback for groups of students on a weekly basis, improving overall student performance in reading and writing.

## Education

Candidate for B.A.Sc., Mechatronics Engineering · University of Waterloo

Sep 2016 – Present