

# Michael Hosue

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☎ 1-519-781-9011  
📄 2A Mechatronics Engineer

## SKILLS

### C and C++

Control software development in side projects, hackathons and school.  
Linux kernel analysis and modifications done in C on prior work term.

### Java, HTML, CSS, JS, MySQL, XML, Tomcat, Cascade CMS

Added functionality to and maintained web application (tomcat with MySQL database) on work term.  
Also developed personal website and hackathon projects on node servers.

### Linux and virtualization

Used Linux VMs on prior work term to test kernel space applications and fuzzing tools.  
Regular use of Linux for school assignments and coding side projects.

### PLCs and circuit design

Gained experience with PLCs and circuit design from university level courses.

## COURSES

### Algorithms and Data Structures

Data structures, ADTs, recursive algorithms, algorithm analysis and design, hashing and problem-solving strategies.

### Circuits

Circuit design and components, magnetic fields and induction, ICs and wave analysis.

### Microprocessors & Digital Logic

PLC programming, sensor technology and computer interfacing.

## WORK EXPERIENCE

### Security Researcher 2015

BlackBerry

Wrote research reports on Linux kernel fuzzer (instructions for cross compilation, use and modification).  
Analysed large code bases and kernel space applications and drivers.

### Web Developer 2015

Canada Company

Design, code and test functionality changes to a charity web site (canadacompany.ca).  
Web application ran on a tomcat server with MySQL database.  
Content updates made using Cascade CMS.

## SIDE PROJECTS

### Control Software Development

Modified RC car using **Arduino** to allow users to steer using hand gestures (with the "Leap Motion") and see from a "real life" POV with the Oculus VR headset.

Built and developed control software for **Lego NXT** nerf turret with automated target lock on and remote control capabilities.

Constructed hydrogen fuel cell car and programmed **MSP430** to allow it to manoeuvre through a maze.

Developed laser alarm system using **Arduino microcontroller**.

### Web Application Development

Made application to help families find missing loved ones using facial recognition APIs, a **NODE server** and **MySQL** database. Won prize from GE for "The Greatest Impact Hack" at Boston Hacks.

Created twitter bot to fight cyber bullying by providing people with an online interface to defend others. Won the prize from Indico for best use of the "Sentiment" API at Hack Princeton.

Developed personal webpage using **HTML** and **CSS** and **Bootstrap**.

### Mechanical/Hardware

Enhanced cooling through implementing vents in body, installation of external USB fans and replacing thermal grease on heat syncs.

Fixed yellow light of death through heating motherboard to reset CPU and GPU solder (CPU & GPU reflow).