

Douglas Huang

Mechatronics Engineering | University of Waterloo

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SKILLS

- Proficient in **C/C++**, **Python** development and **Bash** shell scripting.
- Familiarity with web development using **HTML**, **CSS**, **JavaScript**, **jQuery**, and **Flask**.
- Development tools: **Git**, **Eclipse**, **UNIX environment**, **SSH**, and **Heroku**.
- Experience with **Arduino** microcontroller, hardware design, testing, soldering, and assembly of electronic parts.
- Knowledge of 2D and 3D modelling using **AutoCAD** and **Solidworks**, and PCB design with **Altium**.

EXPERIENCE

- Jan. 2015 – May 2015 • **Bioinformatics Software Developer**, Agriculture and Agri-Food Canada
- Developed and maintained data analysis pipelines using Python, Perl, and Bash shell scripting for DNA sequence annotation and genome assemblies of wheat and flax.
 - Implemented GNU Parallel to parallelize microRNA annotation pipeline, decreasing processing time by 40%, and coded new modules for improved data analysis using R.
 - Independently developed a genome assembly file merger using MapReduce programming paradigm to combine 53,000 DNA scaffolds from 403 genotypes.
- Jun. 2014 – Sep. 2014 • **Founder and Instructor**, Android Academy for Young Learners
- Developed unique curriculum to introduce computer science principles through building mobile apps and hardware applications with Arduino.
 - Instructed over 20 students ages 10-18 in Android app development.
 - Created and maintained company website with course registration functionality and utilized social media and press mediums to advertise.

PROJECTS

- Jan. 2015 • **CodePaper**, UofT Hacks
- Created a graphical programming language that interprets user-drawn flow diagrams for functional programming.
 - Implemented Python OpenCV computer vision library for image processing and used a binary search tree algorithm to identify nodes and edges.
 - Developed web application using Flask for photo submission and online processing.
- Nov. 2014 • **Serial Protocol Parser**, Waterloo Hybrid SAE Team
- Developed engine data parser in C to transform raw data from hybrid race car vehicle control unit into analyzable information.
 - Designed multiple test cases to verify code efficiency and accuracy.
 - Utilized Arduino microcontroller and IDE to stream serial data.
- Sep. 2014 • **TurnIT Bike Indicator Light System**, Hack the North
- Engineered a Bluetooth motion-activated bicycle indicator light system using Arduino microcontroller and Pebble smart-watch.
 - Programmed watch accelerometer to detect arm gestures and control corresponding lights connected to Arduino via Bluetooth module.
 - Created a five – segment LED arrow array embedded into a 3-D printed electronics housing designed using Solidworks.

EDUCATION

- 2014 – 2019 • **Bachelor of Applied Science in Mechatronics Engineering**, University of Waterloo
GPA: 3.7/4.0