




HOWARD DONG

MECHATRONICS ENGINEERING

CONTACT

 h53dong@uwaterloo.ca
 github.com/howard-dong
 linkedin.com/in/howard-dong

SKILLS

Programming Languages:

Java, Python, C++, RobotC, SQL

Web Development:

HTML, CSS, JavaScript, React,
Bootstrap

Development Tools:

Visual Studio Code, Eclipse,
Pycharm, IntelliJ, Netbeans

EDUCATION

- BAsC Candidate in
Mechatronics Engineering.
- The Woodlands Secondary
School Enhanced Program
Graduate.

ACHIEVEMENTS

- FRC 2019 STEMly Cup
International Champions
- FRC 2018 Ontario Provincial
Semi-Finalists
- FRC 2018 World Championship
Semi-Finalists
- UW President's Scholarship of
Distinction

INTERESTS

- Video Game Development
- Piano, Drums
- Basketball, Ultimate Frisbee

PROJECTS

Employee Management System | Java

github.com/howard-dong/employee-management-system

- Built a data management system using **Java Swing** libraries, **object-oriented** principles, and **file manipulation** to store and edit employee information.
- Developed a **dynamic hashtable** that ensured data traversal efficiency.
- Conducted unit and function testing using **JUnit** to ensure system functionality.
- Synchronized and expanded the functionality of others' code as a collaborative team.

Shoot the Circles! (FPS Game) | Python

github.com/howard-dong/pygame/tree/master/FPS%20game

- Designed **physics engines** in **Pygame** to simulate a pseudo three-dimensional world.
- Used **object-oriented principles** to randomize gameplay.
- Created **graphics algorithms** to optimize gameplay over unstable hardware conditions.

Assembly Robot | RobotC

github.com/howard-dong/assembly-robot

- Designed and built a LEGO robot that assembles parts in a user-specified order and developed **RobotC algorithms** so it can perform any combination of the orders.
- Used **integration testing** to ensure that the robot was efficient throughout its subtasks.
- Followed the design cycle to bring a product from ideation through to implementation.
- Enforced a project plan **GANTT chart** under a strict timeframe despite delays.

Personal Portfolio | HTML, CSS, JavaScript

github.com/howard-dong/employee-management-system

- Created a website from scratch as a personal portfolio displaying all previous projects using Visual Studio Code.
- Implemented responsive web design using **CSS Grid** with custom **HTML**, **CSS**, and **JavaScript** to introduce an interactiveness aspect to the website.

To-do List | JavaScript, React

<https://github.com/howard-dong/react-todo>

- Created a **React** web application that adds and removes to-do items from a list using Visual Studio Code and **Node.js**.
- Implemented responsive web design using **Flexbox** and custom **CSS**.

EXPERIENCES

Absolute Robotics (FIRST Robotics Team 4308) | Executive Member

2017-2019

- Used **Oracle APEX** to design a database that organized competition data.
- Led a group of **50+ members** in collecting and analyzing data to gain a competitive edge leading to multiple finals and semi-finals appearances.
- Created an instructional guide and held training sessions for general members to collect data effectively.