

Howard Dong

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Mechatronics Engineering '24

Skills

- **Languages:** Java, Python, C++, C, SQL, Git, HTML/CSS, JavaScript, React

Projects

Employee Management System | Java

- Built a data management system applying **object-oriented** principles that stores/edits employee information with text file reading/writing capabilities to persist data
- Developed a custom hash table that dynamically organizes data for efficient access and manipulation by the user
- Used **Java Swing** to design a practical interactive GUI

Shoot the Circles! | Python

- Designed physics engines to simulate a pseudo three-dimensional world through a first-person perspective
- Leveraged **object-oriented** logic to randomly generate obstacles and increase difficulty with level progression
- Created graphics algorithms to optimize display for various FPS speeds with dynamically changing UI content

Personal Website | HTML, CSS, JavaScript

- Created a website from scratch as a personal portfolio displaying previous projects
- Implemented responsive web design using **CSS Grid** and applying a mobile-first design strategy
- Incorporated hover/click interactions, routing, and display size adaptiveness to modernize website

To-Do List Web Application | JavaScript (React)

- Created a web application that creates and removes to-do list items within a list by the user
- Utilized inter-component state management to track to-do item information within the application
- Implemented screen size adaptiveness using **Flexbox** and custom CSS for web aesthetics

Assembly Robot | C

- Built and programmed a robot that assembles parts in a user-specified order
- Followed the development life cycle as a team and organized individual workload using a GANTT chart
- Used **integration and unit testing** to ensure that each of the robot's functionalities are efficient

Experiences

ABSOLUTE ROBOTICS | Vice President

2017 - 2019

FIRST Robotics Competition | Team 4308

- Used Oracle APEX to design a scouting database used to organize competition data
- Led a group of 50+ members in data collection to gain a competitive edge leading to multiple finals and semifinals appearances
- Created an instructional guide and held training sessions for general members to collect data effectively

Awards

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

Interests

- Video Game Development
- Piano and Music Composition
- Basketball and Ultimate Frisbee