Abhinav Agrahari

Mechatronics Engineering

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Summary of Skills

Tools:

- SolidWorks, AutoCAD, Git, MATLAB, Fusion360

Languages:

- Java, C, C++, Processing, JavaScript, HTML/CSS

Frameworks:

- Familiar with Bootstrap and Node.js

Soft Skills:

- Teamwork, leadership and communication skills
- Flexibility developed through student design teams
- Able to learn quickly, creative, minimal supervision required

Education

University of Waterloo
Candidate for B.A.Sc., Mechatronics Engineering (2018-2023)

Awards

- Achieved top 25% in the Pascal and Fermat Math Contest (2016-2017)
- Governor General's Bronze Academic Medal for Highest Grade 11 and 12 Average (2018)

Interests

- Robotics, photography, woodworking, playing various musical instruments, Inner workings of electronics and repair processes

Projects

PS2 Controller Interface (circuits.io, C) Oct 2017 – Feb 2018

- Designed and etched a PCB to interface a Sony PS2 controller with a PIC Microcontroller
- Programmed and debugged PIC Microcontroller to handle the standard PS2 communication protocol

Flex Sensing Robotic Hand (Fusion 360, C) Apr 2017 – June 2017

- Designed and 3D printed a robotic hand capable of mimicking a user's hand movements, that could be further improved to function as a prosthesis
- Created flex-sensing glove using conductive foam

Music-synced Light up Gramophone (C) Oct 2017 - Jan 2018

- Facilitated design of low pass filter, to sync the flashing of NeoPixel LED light strips with the bass of a song being played, for high school arts festival

Personal Website (HTML, CSS, JavaScript, Bootstrap) July 2018 - Current

- Implementing Bootstrap framework and JavaScript libraries to create personal website

TwitterBot (JavaScript, Node.js, Puppeteer, Heroku) Dec 2017

- Self-taught JavaScript to create a TwitterBot that web-scrapes wikiHow pages for images, and tweets them

LibGDX Platformer (LibGDX, Box2D, Java) Nov 2016 – Feb 2017

- Implemented Box2D and Box2DLights to create a 2-D platformer with realistic physics

Don't Give Up (Processing) Oct 2015 – Dec 2015

- Co-created 2D platformer game and physics engine with collision detection, using object-oriented programming concepts

Extra-curriculars

UW Alternative Fuels Team Sep 2018 - Current

- Learning basics of MATLAB for vehicle automation and object detection purposes, as part of the software sub-team
- Currently co-designing a PCB for CAN interfacing to communicate with a vehicle

MIT's Battlecode Competition

- Designed an AI bot in Java to compete in MIT's Battlecode competition
- Reached 3rd round of qualifying tournament

Junior Achievement's Company Program Nov 2015 - May 2016

- Co-founded a company as Vice-President of Finance, prepared financial statements, and won Best VP of Finance Award

Other Experience

Cashier – Walmart Sep 2017 – Aug 2018

- Followed protocol to safely scan and package goods for customers

Supervisor of Senior Robotics – Brickworks Academy Jul 2015 – Aug 2015

- Mentored 6 - 14-year-old participants in the Senior Robotics program to design and program LEGO Mindstorms Robots, as a volunteer