Joshua **Brown**

Edmonton, Alberta, Canada

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Education

University of Alberta
Edmonton Alberta, Canada

B.Sc. in Mechanical Engineering, Minor in Mathematics
Sept. 2019 - Jan. 2024

- Will finish upcoming fall semester
- Cumalitive GPA 3.8

Skills

Solid Modelling SolidWorks, Onshape, Fusion 360
Programming Python, ROS/ROS2, MATLAB, LaTeX
Manufacturing CNC Router, Carbon Fiber, Power/Hand Tools, 3D Printing

Experience

Dr. Martin Barczyk, University of Alberta
Edmonton, Alberta

Bimanual Force Control Undergraduate Research
Jan. 2024 - Apr. 2024

- Worked independently with vague direction
- Implemented simple bimanual force control algorithm
- Reviewed force control and dynamical systems control literature
- Created docker environment for portable development

Defence Research and Development Canada (DRDC)
Suffield, Alberta Canada

Defence Robotics Research Student
Sept. 2021 - Apr. 2022

- Researched LiDAR Following Algorithm using Machine Learning
- Developed Several Following algorithms with varying complexities
- Debugged and Augmented a pre-existing Codebase For UGV Autonomous Navigation and Control
- Tested Visual Odometry Software

Pegasus Imagery
St. Albert, Alberta Canada

Mechanical Engineering Student
Sept. 2022 - Nov. 2023

- Iterated on a Drone Tail Design with Little Oversight
- Manufactured Composite Drone Parts in House
- Used a CNC Router to Manufacture Parts as needed
- Designed and Modelled FDM printed Parts
- Lead the Creation of Build Manuals for Manufacturing Repeatability

Projects

YeeHaw Hacks, Major League Hacking
Online

Juan Wick
Aug. 2020

- Collaborated with four team members to create a computer game with the use of public assets in a span of 48 hours
- Executed most of the back-end work such as converting user input into character actions and creating enemy behaviour in C#
- Presented project to a panel of judges and awarded first place of over 50 projects

Second Year Design Course
University of Alberta

Puck launching vehicle
Sept. 2020 - Dec. 2020

- Drafted the chosen concept of team vehicle
- Designed a Mount of Sheet Metal to connect several Launching assemblies with a Main Chassis
- Chosen as Most Promising Design of 20 groups

Third Year Design Course
University of Alberta

Transmission Design
May 2022 - Aug. 2022

- Created code in SMath to analyze structural failure criteria of a transmission shaft
- Awarded best in class project of 8 competing groups

Mechanical Engineering Capstone

University of Alberta

FSAE Rear Wing

Jan. 2024 - Apr. 2024

- Lead a design team to create a formula student rear wing
- Used FEA to optimize design for weight and cost
- Fully modelled rear wing using SolidWorks

HackED 2023

University of Alberta

Democratic Ouija

2023

- Created an autonomous ouija board with a group of five
- Used printrun suite to control two axis gantry using python sent GCode
- Developed paths for gantry to follow

HackED 2024

University of Alberta

Froute

2024

- Bluetooth connection between a laptop server and hc-05 bluetooth module
- Interpretting serial data on a microcontroller

Purely Personal

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Mobile Robot

2023

- Designed and made a simple mobile robot
- Sourced motors, sensors, and development boards
- Designed and 3D printed a chassis to mount all electronics

Student Clubs

Autonomous Robotic Vehicle Robot (ARVP)

University of Alberta

Software Co-Lead

Jan. 2022 - PRESENT

- Implemented a basic Kalman filter for an AUV
- Wrote a basic driver for a Doppler Velocity Log (DVL) and IMU
- Implemented a P-controller for visual servoing
- Reviewed and merged code from a small team
- Troubleshooting hardware such as CAN bus

Honors & Awards

Awards

2023	**3rd Place**, HackED	*Edmonton, Alberta*
2021	**1st Place**, YeeHaw Hacks	*Online*
2021	**Best Design**, Second Year Design Course	*University of Alberta*
2022	**Best Design**, Third Year Design Course	*University of Alberta*

Certificates

2021 **Certified Solidworks Professional (CSWP)**, Dassault Systemes