

JILL AGHYOURLI ZALAT

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SUMMARY OF QUALIFICATIONS

- Excellent **communication skills** demonstrated through 3+ years experience in academic writing and extracurricular experience presenting technical information to a mixed audience
- Exceptional **time management skills** demonstrated through internship experience at Movia fulfilling time-sensitive repair orders for mobile GPS devices
- Demonstrated **passion for learning and initiative** shown through taking on extracurricular projects in different engineering fields, including aviation, aerospace, accessible technologies, and hardware engineering

Technical Skills

- Working knowledge of software programming in the languages **Python, C, and Java** and working knowledge of **Unix command line and bash scripting**
- Experience with **source code control** in **Git** and **Sourcetree**
- Proficiency in the simulation software **SolidWorks, Blender, and Unity**
- Strong programming experience in **web technologies**, including **HTML5** and **CSS** through creation of personal website

EDUCATION

Bachelor of Mechanical Engineering: Ryerson University, Toronto, Canada

- Specialization in Mechatronics; Minor in Computer Science
- Dean's List 2019-2020
- **CGPA:** 3.45/4.33
- **Expected Graduation:** 2022

ACADEMIC PROJECTS

ELECTRO-PNEUMATIC HOCKEY HELMET IMPACT TESTER, 2020

- Supervised design analysis process of electro-pneumatic system to simulate 3000 hits on each side of a hockey helmet within an 8-hour workday
- Performed risk assessment analysis on helmet tester design and introduced fail-safe measures into electro-pneumatic system, leading to overall safer design

BALL-BEAM CONTROL SYSTEM, 2020

- Developed analytical skills in control systems by modeling ball-beam system in Simulink and obtaining system responses given a varying gear angle parameter
- Designed PID system to stabilize ball-on-beam motion to obtain a settling time of 3 seconds and overshoot of less than 5%

DESIGN OF A COAL-GEOTHERMAL POWER PLANT, 2019

- Collaborated with peers to design a geothermal and fuel-based power plant, achieving energy needs for a population of 40,000 and optimal trade-off between efficiency, environmental sustainability, and cost effectiveness
- Performed thermodynamic analyses of Rankine and Brayton cycles critical to selection of plant components, meeting energy requirements of 23 MW and allowing for future expansion of power plant if required

DESIGN OF A LEAF MANAGEMENT SYSTEM, 2018

- Constructed a 200 page technical report outlining research and design of a new leaf management system that could be used in Toronto and across the GTA
- Engineered lightweight leaf management device using an iterative process that limits sound produced, is environmentally friendly, and is overall a more usable product for a more diverse range of user groups

PROFESSIONAL EXPERIENCE

HARDWARE ENGINEERING INTERN, Movia Media

Sept. 2020 - Dec. 2020

- Provisioned 50 GPS hardware devices under tight deadlines in order to facilitate launching of 5 advertising campaigns across North America
- Introduced modification to enclosure design, ensuring greater durability of device components and reducing frequency of device maintenance send-backs
- Trained incoming interns on device build procedures and best company practices

EXTRACURRICULAR INVOLVEMENT

ACCESSIBLE ROBOTICS DESIGNER, Tetra Ryerson

Feb. 2021 - Present

- Collaborated with multi-disciplinary team of engineering students to design accessible robotics kit, allowing students with complex disabilities agency to learn computational thinking and basic robotics programming principles
- Conducted needs analysis and studied commercial robotics kits available to determine current obstacles in accessibility

PROPULSION TESTING SPECIALIST, Ryerson Helium

Sept. 2019 - April 2020

- Reduced overall cost by 30% by drafting new compact testing rig design in SolidWorks to be used on flight vehicle, minimizing number of parts required and removing need for custom-fabricated components
- Performed Stress Analysis simulation on testing rig in SolidWorks in order to meet load requirements, ensuring safety of operation for other team members during testing process as well as vehicle operation
- Aided in building prototype of flight vehicle showcased in GoFly \$1,000,000 design competition in February 2020

PROPELLANT MANAGEMENT LEAD, Ryerson Propulsion Group

Sept. 2018 - Feb. 2019

- Spearheaded research and design efforts for design of pressure vessels for bi-propellant rocket system, facilitating completion of overall design in record three months
- Presented findings in Preliminary Design Review to engineering advisors from the Canadian Space Agency

SOFTWARE PROJECTS

ROCKET JUMP GAME, C#, 2021 (in progress)

- Created 2D game with Flappy Bird style mechanics utilizing Unity game engine
- Enhanced knowledge of basic game development principles, including the use of rigid bodies, mapping controls, implementing game assets, and level design

CALIFORNIA HOUSING PRICES PREDICTOR, Python, 2020

- Wrote machine learning model in Python using TensorFlow to predict median housing price in any district in state of California given other metrics
- Improved understanding of machine learning principles such as multiple regression problems and fundamental principles

AUTOCOMPLETE, Python, 2020

- Wrote program to create trie data structure encompassing all words in the American English dictionary, where each node represented a letter or a word
- Implemented autocomplete function to recursively explore trie and return a list of all words in the dictionary that match the user-inputted prefix

SNAKE GAME, Python, 2020

- Created snake game using object oriented programming principles, where snake display moves after every time user inputs position into console
- Integrated apple object that randomly spawns on board display, and causes snake object to grow larger
- Implemented exceptions where game quits after snake runs into itself, or crashes into the edge of the board