ANITA PETROVIC

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EDUCATION

UNIVERSITY OF ALBERTA **JUNE 2023**

BSc. Mechanical Engineering with Distinction *Edmonton, AB*

- 3.9/4.0 GPA

WORK EXPERIENCE

LUCID MOTORS, CHASSIS MECHANICAL DESIGN ENGINEERING INTERN **MAY 2022 – AUG 2022**

Luxury Electric Vehicle Company *Newark, CA*

- Owned the design and fabrication of a bushing fixture to test components of the Lucid Air Suspension system
  - Used Catia FEA to limit fixture deflection and verified that the design could withstand a max load of 18.2 kN
  - Created and executed a static and dynamic test plan with the CTW LA-48 actuator
  - Wrote a MATLAB program to analyze test data from low-cost bushing suppliers to verify performance similarities for static and dynamic stiffness to current high-cost bushing suppliers
  - Created operational documentation
- Designed, prototyped, and tested string potentiometer fixtures to collect and analyze rear steering data
  - Project involved setting up various sensors and DAQ. VBOX and CANalyzer were used for data logging
- Developed a concept jig model for future rear steering testing of the Lucid Gravity SUV

TESLA, STRUCTURAL DESIGN ENGINEERING INTERN **SEPT 2021 – DEC 2021**

Electric Vehicle and Clean Energy Company *Fremont, CA*

- Redesigned components of the SEMI structural roof which achieved a mass reduction of over 5% while solving for stamping feasibility, mass manufacturing, durability, and component integration
- Designed and released toe board features for Model S/X which reduced cost and weight by over 7% while retaining structural integrity
- Created FDM 3D printed fixtures with feedback from factory technicians that addressed NVH issues and reduced application time of adhesives
- Updated GD&T for new product design changes for Model S/X

ECOCAR, MECHANICAL TEAM LEAD **SEPT 2018 – MAY 2023**

Shell Eco-marathon: Fuel Cell Student Vehicle Team at the University of Alberta *Edmonton, AB*

- Modelled the fuel cell, super capacitor, DC/DC converter, and motor system in Simulink to simulate performance
- Designed, tested, and built components of the 2020 Urban-Concept suspension system to achieve a 48% reduction in weight while fulfilling structural, maintenance, and performance requirements
- Pioneered a compact prototype suspension and steering design made to fit in a confined monocoque while simultaneously being safe, lightweight, and structurally sound
- Managed a 12-person team to execute an industrial scale, 4-month long, fiberglass and carbon composite layup operation for our car body
- Managed build cycles, scrum sprint cycles, sponsorships, and an annual budget of $25,000
- Oversaw the mechanical team of over 30 members while also providing technical guidance and mentorship to junior engineering students

MODERN NIAGARA, MECHANICAL PROJECT COORDINATOR **JAN 2021 – AUG 2021**

Internship at a Canadian mechanical and electrical contracting company *Edmonton, AB*

- Gained knowledge in plumbing and HVAC for commercial, industrial, and government facilities
- Conducted field inspections to compare mechanical drawings and construction progress for a $4,500,000 project
- Processed design change requests, drawings, operation and maintenance reports, and specifications
- Developed safety and risk management plans for a hospitals $110,000 plumbing system renovation
- Drafted operation and maintenance reports for petroleum processing plants, hospitals, and museums

PROJECTS

HYDROGEN POWERED MOTORCYCLE

Final Year University Capstone Project

- Project purpose was to engineer a concept design for a hydrogen fuel cell driven motorcycle that meets client specifications for speed and range
- Project included establishing technical feasibility, fuel cell schematics, Simulink simulations, component cost, and a completed powertrain design
- Achieved a top speed of 140 km/h and a range of 343 km, exceeding the client's requirement of 300 km
- Created Simulink simulations integrating the fuel cell system, supercapacitors, DC/DC converter, and motor to dynamically model and validate the performance of the design
    - The model utilized non-linear differential equations to emulate real-world behaviors and calculate efficiency, speed, range, and acceleration parameters

ARDUINO MEMORY GAME

Memory game using joystick input and four LEDs to create a random sequence of lights

- Created an Arduino-based memory game where players repeat a randomly generated sequence of LED blinks using a joystick
- Utilizes an Arduino MEGA350 R3, joystick, four LEDs, two breadboards, and a buzzer
- Used C++ to code pin definitions, game states, random LED sequence generation, and arrays to store, display, and compare LED sequences

SKILLS & INTERESTS

DESIGN: Catia V5, Catia V6, 3DEXPERIENCE, SOLIDWORKS
CODING: MATLAB, Simulink, C/C++, HTML, CSS, Python
TOOLS: ANSYS, Basic GD&T, Assembly and Component Design, Design for Manufacturing, Microsoft Office (PowerPoint, Excel, Word, SharePoint), Composite Manufacturing, Technical Report Writing
FABRICATION: CNC Milling and Toolpathing, Additive Manufacturing, Hand Tools, Drill Press
INTERESTS: Motorcycling, Outdoor Rock Climbing, Snowboarding, Hiking, Baking, Saxophone, Cello
LANGUAGES: English, Croatian