

EXPERIENCE

Simulation and Tire Engineer

Pratt Miller (Contract)

June 2022 — Feb. 2024

Guelph ON, Canada

- Lead developer of a vehicle data processing tool for Corvette Z06 GT3.R factory & customer teams
- Lead developer for a Dymola tire simulation library - implemented numerous tire modeling improvements
- Coordinated with Michelin, Goodyear, Pirelli on their tires used by Corvette Racing and provided tire model support
- Development of regression testing frameworks for validating Corvette Racing and IndyCar vehicle simulation libraries
- Created an advanced track temperature model capable of predicting variation in temperature across a track's surface

Simulation and Tire Engineer

Pratt Miller

July 2019 — June 2022

Huntersville NC, USA

- GM's representative to the NASCAR Tire Testing Consortium (TTC). Responsible for supporting tire force and moment tests, coordinating with Goodyear and other OEMs on testing approach for 25+ different track tire codes.
- Generation of all base Tire Models distributed to Chevy's teams in the NASCAR Cup, Xfinity, and Truck series
- Creation of Tire Reports for NASCAR teams to inform vehicle setup decisions for each race
- Attending of track tests, processing and analysis of vehicle telemetry data
- Tuning of Tire Models during Driver-in-Loop simulation with NASCAR drivers
- Developed improved formulations of Semi-Empirical Tire Models for increased model fidelity
- Developed a comprehensive MATLAB-based tire analysis software package for Data Visualization, Data Processing, Model Optimization and Validation

VOLUNTEER EXPERIENCE

Member

Diyode Community Workshop

May 2023 — March 2024

Guelph ON, Canada

- Member of community workshop for metalworking, woodworking, electronics, manufacturing
- Helped with upkeep of shop space and equipment, built personal projects

Suspension Lead, Suspension Member, Chassis Member

Gryphon Racing Formula SAE (Student Club)

Sept. 2016 — May 2019

Guelph ON, Canada

- Responsible for performing vehicle dynamics analysis to set systems-level design goals for an open wheeled race car
- Managed a team of 7 people carrying out the design and manufacturing of all suspension and steering components
- Created all-new suspension and steering setups for an updated 10" wheel package, significantly reducing center of gravity and overall mass
- Designed and manufactured numerous parts such as hubs, rockers, steering rack & column, suspension links, etc.
- Received the highest Suspension Design score at competition since team inception in 2002, and was one of the team's 4 competition drivers

EDUCATION

Bachelor of Engineering - University of Guelph

Mechanical Engineering Specialization

Sept. 2015 — April 2019

CERTIFICATIONS AND COURSES

Foundational C# with Microsoft - freeCodeCamp

• Introduction to core concepts in C# programming through Microsoft Learn platform

Dec. 2023

Design of Experiments (DoE) for Engineers - SAE International

• Course offered by SAE covering experimental approaches for testing and characterizing physical systems

Aug. 2023

HTML, CSS, and JavaScript for Web Developers - The Johns Hopkins University

• Course on fundamentals of web design covering formatting, styling, and interactivity

Nov. 2022

GD&T Fundamentals Based on ASME Y14.5-2018 - SAE International

• Course offered by SAE covering foundational concepts required for creating and interpreting Engineering Drawings

April 2022

IBM Data Science Professional - IBM

• Comprehensive series of courses covering data science methods and best practices

March 2022

Fundamentals of Audio and Music Engineering - University of Rochester

Aug. 2021

- Course on the physics of sound, and characteristics of electronics such as speakers, amplifiers, instrument circuits

Neural Networks and Deep Learning - DeepLearning.AI

May 2020

- Introductory course to the structure and applications of neural networks using Python

SKILLS

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|------------------------------|--|
| Skills | Mechanical Design, Structural Analysis, FEA, Manufacturing, Fabrication, Data Analysis, Optimization, Mathematical Modeling, Design of Experiments |
| Software | Microsoft Office, SolidWorks, ANSYS, MATLAB, VS Code, Dymola, Jupyter Lab, Git, Pi Toolbox, Dymola, MSC Adams, MasterCam, Fusion 360 |
| Programming Languages | MATLAB, Python, C++, C#, Modelica, LATEX, HTML/CSS |

PROJECTS (PERSONAL & ACADEMIC)

Avera G-60 Electric Guitar Design

Nov. 2021 — Present

- Created a new open-source electric guitar design
- Built project website and shared files for design and manufacturing

Personal Website Design

Nov. — Dec. 2022

- Built Jekyll-based website to share projects related to engineering and personal hobbies

ChassisSim Online Race Engineering Competition

Oct. 2020

- Competition to optimize simulated lap time and drivability of a LMP2 car, by modifying vehicle design and setup parameters
- Placed 10th out of 150+ entries

Carbon Fibre Rim Design

Sept. 2018 — April 2019

- Senior Capstone design project to design and manufacture a prototype carbon fibre racing rim
- Performed structural analysis (FEA) and designed geometry for the carbon fibre wheel
- Designed and manufactured a unique modular mold design for carbon fibre layup

Shock Dynamometer Development

Sept. 2018 — April 2019

- Built a shock dynamometer for testing and characterizing Formula SAE dampers
- Focused on enclosure design, component selection, stress analysis, kinematic analysis, and manufacturing

Precision Irrigation Machine

Sept. — Dec. 2017

- Led a design group that built a proof of concept for a precision irrigation machine, capable of accommodating different watering needs on a plant-to-plant level
- Focused on enclosure design, component selection, stress analysis, kinematic analysis, and manufacturing