ADITYA BHATNAGAR

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EDUCATION

University of Michigan, Ann Arbor, MI   December 2023
Master of Science in Engineering in Mechanical Engineer, Controls Specialization

University of Michigan, Ann Arbor, MI   December 2022
Bachelor of Science in Engineering in Mechanical Engineering, Minor Electrical Engineering
GPA: 3.97/4.00

EXPERIENCE

Tesla Motors Inc - Chassis Engineering Intern   May 2022-August 2022
- Designed 5 degree-of-freedom wheel speed sensor test bench to investigate the effects of sensor air gap and orientation on wheel speed sensor accuracy.
- Performed joint validation calculations and managed joint testing to verify initial assembly and service torques through K-factor and coefficient of friction "slip" testing.
- Assisted with the research and launch of experimental braking system vehicles through installation of prototype components.

Quantum Signal AI - Engineering Research Intern   May 2021-August 2021
- Investigated methods for determining shock absorber wear state using MATLAB to process vehicle corner vibrational response data and characteristics
- Reduced existing code length for image-to-coordinate tracking algorithm by 30% and implemented MATLAB's Parallel Processing Toolbox to reduce total computation time by 63%.
- Created an automated, configurable, and extensible data compiler and result plotter in MATLAB using JSON files to automatically identify dataset variables.

Estrada Lab for Experimental Soft Mechanics - Research Assistant   May 2020-May 2021
- Wrote MATLAB program for kinematic data acquisition of inertial cavitation events through image segmentation
- Adapted Fourier Series fitting for use in inertial cavitation analysis and implemented multiple fit types and options
- Investigated and developed 3D reconstruction algorithms from dual-lens single-sensor viewpoint videos

PROJECTS

Driver Seat Solutions for Reduced Mobility Drivers (ME450/GM Center for Accessibility) September 2022-December 2022
- Designed a powered mechanism to assist up to 280 lbs. drivers enter/egress into/out of a Chevy Equinox
- Manufactured and tested mechanism prototype to evaluate design performance and packaging
- Proposed various design changes based on testing results to further improve mechanism performance

MRacing FSAE Team - Gearbox Sub-Team Lead   June 2020-May 2022
- Designed MATLAB GUI program to import vehicle telemetry data and generate a histogram-based duty cycle based on user input parameters
- Integrated Romax Gear Train analysis software to design, simulate, and optimize a single-stage planetary gearbox for MRacing's 2022 Electric FSAE contender.
- Designed gearbox in Siemens NX and conducted FEA in Ansys Mechanical to verify components stresses were acceptable for the lifetime of the gearbox
- Reduced planetary gearbox weight by 12% without sacrificing safety and strength while increasing gearbox efficiency by 4% through the reduction of rotating components.
- Successfully managed and implemented MRacings transition from a grease-based to oil-based lubrication method for the electric FSAE gearbox

AWARDS

Lloyd H. Donnell Scholarship Winner   *May 2021*

MEUS Best Presentation Award   *December 2020*

William C. Ford Jr. Scholarship Recipient   *December 2020*

SKILLS

MATLAB, Simulink, Simscape, LaTeX, TeX, CAD/CAM (Siemens NX, SolidWorks, Ansys, Autodesk Inventor, Fusion360), Linux, Server Administration, Docker, SSH, HTML, CSS/Bootstrap 5, PHP, Docker, Python