Jakob Madgar

Mechanical Engineer

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Summary

Energetic engineer with an expanding skill set looking for a dynamic team to contribute to in either tech or advanced mobility.

5+ Years in Automotive Vehicle Design, Simulation, and Testing

- Focuses : CAE Design, Vehicle Dynamics, Chassis/Suspension Design

2+ Years in Autonomous Vehicle Systems Engineering

- Focuses : Platform DVP, Body/Motion Control, Power/Comms

Skills

Python, MATLAB, CarSim, Ansys, Linux, Tensorflow/Keras, Jira, Canalyzer, Git, Solidworks, App Dev, Basic Web App Dev, Basic Machine Learning Ops, b

Major Experience

Research Engineer II

Waymo via Transportation Research Center — Jul 2021 - Present

Working with Waymo Systems Engineering on Autonomous Vehicle DVP and Platform Development

- Design Verification and Planning of Requirements and Testing of Autonomous Vehicles
- Body/Motion Control Scripting in Python, Testing, and Analysis
- Reading and Creating Electrical Harnesses and diagrams for power and communication systems
- Test design, scheduling, coordination of collision avoidance and vehicle limit testing
- Interpreting embedded languages and code like C++ for debugging/troubleshooting of motion control systems
- Low Mu and Hydroplaning Characterization
- Web App Tool Development for Data Analysis and Test Result Tracking
- Various levels of vehicle control scripting design, analysis, and execution
- Hands-on diagnostic and validation of autonomous systems at a component level
- Autonomous Heavy Truck Drive Cycle Design and Testing

President and Technical Director

Formula Buckeyes at The Ohio State University — Aug 2017 - May 2021

Design, Built, and Raced 4 Formula Style Vehicles

- Coordinated and managed end-to-end vehicle architecture/attribute design and testing
- Design and Simulated full vehicle and suspension systems in Carsim and matlab/simulink
- Developed tools in matlab for tire analysis, later converted tools to python
- Design and made parts for additive, composite, and billet manufacturing
- Coordinated vehicle testing at TRC and analyzed data to then be used for proceeding vehicles
- Managed 50+ person team for 3+ years, before and through the pandemic with top 5 results in FSAE Design

Test and Simulation Engineer Co-Op

American Showa R&D — May 2019 - Dec 2019

Shock absorber laboratory and on-vehicle testing

- Independent projects involved the implantation of laser displacement sensors on to vehicles along with comparing them to current technology for damper displacement sensing.
- Installed a suspension oriented sensing package on a OEM side-by-side for ride characterization and analysis
- Electrical, Mechanical, and Data Engineering principles were applied consistently to solve problems.
- All work needed to be properly documented and effectively presented to management.

Interests / Personal Projects

- Propulsive Trailer Research
- Learning Rust and more Python through Algorithmic Trading and Open Source
- Machine Learning for Controls and High Frequency Trading

Education

B.S. in Mechanical Engineering from The Ohio State University

- GPA: 3.3
- Provost Merit Scholarship

Work Example

trailer.jakobmadgar.com