Jakob Madgar

Mechanical Engineer

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Summary

5+ Years in Automotive Vehicle Design, Simulation, and Testing
- CAE, Vehicle Dynamics, Chassis/Suspension Design and Testing

3+ Years in Autonomous Vehicle Systems Test Engineering
- Platform Dev, Motion Control, Software and Test Automation

Skills

Python, Canalyzer, MATLAB, Simulink, Maplesim, CarSim, Ansys, Linux, Tensorflow/Keras, JIRA, Git, Solidworks, Basic Web App Dev, Basic Machine Learning Ops, Basic SQL

Major Experience

Engineering Technical Team Leader

Transportation Research Center — Jul 2021 - Present

Contracted to work with Waymo on Test Engineering, Test Automation, and Platform Development

- Successfully organized and led 10+ major campaigns in various domains of autonomous vehicle test engineering and development towards major milestones and process improvement projects.
- Completed hundreds of non-automated and automated analysis/assessments of vehicle dynamics, actuator level, and integration test cases in major campaigns and investigative efforts.
- Developlend Trained, onboarded, and organized testing efforts and daily assignments of 10+ test engineers contributing to a variety of autonomous vehicle testing campaigns.
- Other major work involves interpreting systems engineering requirements to effectively support design and execution of verifications on multiple different testing platforms; In-Vehicle, HIL, SIL.
- Motion control trajectory design and scripting for vehicle and controller testing.
- Safety focused test plan design, negotiation, and coordination on multiple testing facilities and surfaces.
- Interpreting a variety of programming languages C++/python for debugging of autonomous systems.
- Python/SQL based tool development for data analysis and campaign status tracking.
- Hands-on electric vehicle testing and base vehicle ECU integrations.
- Hands-on diagnostic and validation of autonomous systems at a component level.

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.
- 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 onto 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

Interests / Personal Projects

- Vehicle Dynamics Projects, Propulsive Trailer Research
- Learning C++ and Rust
- Machine Learning for Controls and Finance

Education

- Pursuing M.S. in Computer Science from CU Boulder
  Expected Graduation 05/2025
- B.S. in Mechanical Engineering from The Ohio State University

Work Example

trailer.jakobmadgar.com