Ricardo O. Jacome

• Detroit Metropolitan Area • (956) 821-5386 • rickjacome95@gmail.com • LinkedIn

EDUCATION

University of Nebraska – Lincoln   2017-2021
- Doctor of Philosophy Ph.D. in Mechanical Engineering and Applied Mechanics (3.94 GPA)
    - Area of Study: Vehicle Dynamics
- Dissertation: "*On Road Coordinates for Autonomous Vehicle Guidance*" Advisor: Dr. Cody Stolle

University of Texas – Rio Grande Valley   2013-2017
- Bachelor of Science in Mechanical Engineering (3.98 GPA)
    - Minor in Business Administration (4.00 GPA)

WORK/RESEARCH EXPERIENCE

Associate Vehicle Engineer   *Exponent Inc.*   2025-Present
- Engineering consulting for automotive OEMs in the technical fields of ADAS performance, car-crash worthiness, vehicle dynamics under all crash modes, and tire mechanics performance.
    - Created project budgets, technical documentation, testing plans, and evaluation for OEM litigation cases.
    - Vehicle and Tire performance evaluation under standards FMVSS 119, 139, 208, 214, 216a, and 301.
    - Performed vehicle EDR analysis, forensics, and tire failure analysis for car-crash reconstructions.
    - Developed software applications and processes/standards, resulting in 40% savings for clients.

Senior Systems Engineer   *Bridgestone Americas Technology Center*   2021-2025
- R&D at the Advanced Digital Solutions group, in charge of cross-functional projects for algorithms in Predictive Maintenance Simulation and Digital Twins for Tire Mounted Sensor Technology.
    - Developed digital twin models and algorithms for intelligent tires and vehicle performance attributes (e.g. Tire Wear, Vehicle Fuel Economy, Vehicle Load Estimation, Friction Estimation).
    - Developed and optimized accurate vehicle dynamics models for passenger, light-truck, and commercial vehicles.
    - Experience with HPC for running FEA simulations in Abaqus.
    - Experience with Tire Product Development Cycle: Material Testing, CAD Design, and Manufacturing Processes.
    - Standardized, automated (Python scripting), debugged, optimized and created instructions for tire mechanics simulations code.
    - Extensive tire mechanics knowledge: tire contact mechanisms, longitudinal/lateral slippage, fore/aft performance.
    - Continuous improvement (version control on DevOps) and modularity for data pipelines in global platforms for multiple models.
    - Developed localization algorithms using Kalman Filtering for vehicle state estimation.
    - Constructed vehicle models in CarSim and TruckSim for vehicle dynamic simulations.
    - Extensive experience with Pandas, Numpy, and Scipy for data analysis and visualization.
    - Experience with de-noising and interpreting sensor data through FFT, high-pass, low-pass filters.
    - Experience in scaling algorithms with SQL and PySpark in Azure cloud infrastructure.
    - Performed statistical analysis, machine learning, and algorithm development on large datasets.
    - Performed root cause analysis to address sensor data quality and developed data quality metrics.
    - Summarized and communicated research updates to key stakeholders, and research associates.
- Experience in testing and instrumentation with planning, DAQ, and post-processing data of the following:
    - Vehicle/Fleet testing, both commercial and passenger vehicles with tire embedded sensors and DAQ systems.
    - Vehicle/Tire Friction testing at Proving Grounds in snow, ice, dry and wet surfaces.
    - Drum/Flat-trac testing of commercial/passenger tires with embedded sensors.

Graduate Research Assistant   *Midwest Roadside Safety Facility*   2017-2021

- FEA simulations in LS-DYNA for full-scale car crash testing analysis of vehicle and barrier systems.
- Experience with Linux OS and HPC cluster simulations.
- Coordinated with construction crews and design teams for development and testing of barrier systems.
- Experience in the execution of testing for car crash worthiness and evaluations for DOT clients.
- Evaluation of barrier car crash worthiness in accordance with NHTSA standards for occupant safety.
- Experience with instrumentation on high-speed DAQs and high-precision localization.
- Data Analysis with MATLAB from sensor data (accelerometers, rate transducers) for both car-crash worthiness evaluations and vehicle-dynamic performance.
- Experience with standards and procedures for car crashes, and friction bed tests in accordance with SAE.
- Lead in charge of managing and organizing student teams (~20) for car-crash documentation and analysis. Acted as student liaison to the administration and increased the department's efficiency.
- Virtual and physical material characterization and strength measurements.

Graduate Research Assistant   *University of Nebraska – Lincoln*   2017-2021

- Lead researcher in autonomous vehicle research in trajectory generation, geometric road representation, and vehicle dynamics.
  - Simulation and testing for vehicle stability performance and analysis of vehicle trajectory generation.
  - Developed mathematical trajectory generation path planning for CAVs.
  - Developed state-space models for vehicle dynamics control with Kalman Filtering on MATLAB.
  - Simulations of ADAS systems: Lane Keeping Assist and Adaptive Cruise Control.
  - Developed test plans for vehicle-dynamic performance and stability evaluations in accordance with AASHTO's Geometric Design of Highway and Streets.
  - Collaborated closely with students and professors from multi-disciplinary engineering areas including Control Systems, Software Engineering, and V2X Communications.
  - Coordinated, planned, executed, and post processed analysis for split-mu testing.

PROFESSIONAL ACTIVITIES

- Peer Reviewer for the Tire Science and Technology Journal.	2021-Present
- Peer Reviewer for WCX SAE World Congress Experience.	2025-Present
- Treasurer for B-Unidos (ERG); creating yearly budgets and coordinating cultural outreach.	2021-2024

SOFTWARE PROFIENCY

- *CAE/Design/Simulation Software*: SolidWorks, AutoCAD, Adams MSC, CarSim, & TruckSim
- *Finite Element Analysis Software*: Autodesk Simulation, Abaqus & LS-DYNA
- *Cloud Computing:* Databricks on Microsoft Azure, AWS, Google Colab
- *Programming/Processing Software:* MATLAB, Simulink, Python, SQL & Apache PySpark
- *Example Python Libraries*: Numpy/Pandas, Matplotlib/Seaborn, Sci-Kit Learn, Keras/PyTorch & Filterpy

DATA ACQUISITION SYSTEMS

- *Standalone:* Dewesoft, VBox, SLICE, VC4000 & OxTS
- *Telematics:* VBox Sport, Webfleet, & Geotab

GRADUATE PROJECT PORTFOLIO

o [FFT on Steering Wheel Vibration](#)	o [FEA on Tire De-beading Simulation](#)	o [Inverted PID Pendulum Controller](#)	o [Wavelet Analysis on Accelerations](#)

LANGUAGES

- Fluent in English & Spanish	- Intermediate French	- Beginner Italian & Japanese

SELECTED PUBLICATIONS

For a comprehensive list of please refer [here](#).

- **Jacome, R. O.**, Stolle, C., Faller, R. K., Grispos, G., *"A Dynamically-Concise Roadmap Framework for Guiding Connected and Automated Vehicles"* 2021 IFIP/IEEE International Symposium on Integrated Network Management (IM), 2021, pp. 1009-1017.