Ricardo O. Jacome

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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

Senior Systems Engineer   *Bridgestone Americas Technology Center*   2021-2025

- Senior Engineer in R&D at Bridgestone Americas, in charge of cross-functional projects involved in the deployment of algorithms for Predictive Maintenance and Tire Mounted Sensor Technology in Intelligent Tires.
  - Tire-Wear Model: Developed tire and vehicle digital twin models for wear projections. The process involved coordinating with multidisciplinary teams such as: material testing, indoor testing, outdoor testing, FEA simulations, data science, and working with tire design teams.
  - Standarized, automated, optimized and created instructions for current methodologies while maintaining continuous improvement for multiple projects.
  - Tire-Load Model: In charge of project for developing conception, testing, validation, implementation, and scaling of algorithms in telematics systems.
  - Extensive experience with Python for data analysis, data visualization, and algorithm development.
  - Constructed vehicle models in CarSim/TruckSim for simulations with enhanced tire models
- Testing experience includes planning, execution, and post-processing of the following:
  - Drum/Flat-trac testing of commercial/passenger tires with embedded sensors.
  - Vehicle/Fleet testing, both commercial and passenger vehicles with tire embedded sensors and DAQ systems.
  - Friction testing at Proving Grounds in snow, ice, dry and wet surfaces.
- Deploying large-scale data algorithms in cloud computing infrastructure; monitoring and performing statistical analysis, visualization, and research on large datasets.

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

- Lead researcher in autonomous vehicle research in trajectory generation, geometric road representation, and vehicle dynamics.
  - Collaborated closely with students and professors from multi-disciplinary engineering areas including Control Systems, Software Engineering, and V2X Communications.
  - Simulation and testing for vehicle stability performance and analysis of vehicle trajectory generation.
  - In charge of developing test plans for vehicle-dynamic performance and stability evaluations in accordance with AASHTO's Geometric Design of Highway and Streets.
  - Coordinated, planned, executed, and post processed analysis for split-mu testing.
- Data analyst for Midwest Roadside Safety Facility working in LS-Dyna simulations for full-scale car crash testing analysis.
  - 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.

- o   Evaluation of barrier car crash worthiness based on NHTSA standards for rider safety.
- Experience with instrumentation on high-speed data acquisition systems, high-precision localization, filtering techniques, and sensor data analysis (accelerometers, rate transducers) for both car-crash worthiness evaluations and vehicle-dynamic performance.
- Familiarity with standards and procedures for car crashes, and friction bed tests in accordance with SAE J2505, J211-1, J299, and J874.
- Lead in charge of managing and organizing student teams (~20) for car-crash documentation and analysis. Acted as student liaison to the department administration to implement methodology that increased the department's efficiency.
- Material testing experience for characterization and strength measurements.

Teaching Assistant   *University of Nebraska – Lincoln*   2020-2021

- Grader for dynamics class of ~80. Provided students with guidance, tutoring, and mentorship for success in their classes. Developed teaching lesson plans and taught lessons for Partial Differential Equations.

Teaching Assistant   *University of Texas – Rio Grande Valley*   2015-2017

- Mentor for an engineering class of ~120 undergraduate students. Explained concepts to students and graded lab reports. Class topics included: Linear Algebra, Probability, Statistics and Vector Calculus.

PROFESSIONAL ACTIVITIES

- Treasurer for B-Unidos (ERG); created yearly budgets and coordinating cultural activities.   2021-2025
- Peer Reviewer for the Tire Science and Technology Journal.   2021-2025

SOFTWARE/PROJECT PORTFOLIO/ DAQ

- ***MS Office Suite:*** Word, PowerPoint & Excel
- ***Design/Simulation Software***: SolidWorks, AutoCAD, Adams MSC, CarSim, & TruckSim
- ***Finite Element Analysis Software***: Autodesk Simulation, Abaqus & LS-Dyna
  - o   [FEA on Tire De-beading Simulation](#)
- ***Cloud HPC Computing:*** Databricks on Microsoft Azure
- ***Programming/Processing Software:*** MATLAB, Simulink, Python, SQL & Apache PySpark
  - o   [FFT Analysis on Steering Wheel Vibration](#)
  - o   [Inverted PID Pendulum Controller](#)
  - o   [Wavelet Analysis on Accelerations](#)
- ***Python Libraries***: Numpy/Pandas, Matplotlib/Seaborn, Sci-Kit Learn, Keras/PyTorch
- ***Data Collection:*** Dewesoft, VBox, VC4000, SLICE, Webfleet, OxTS & Geotab

SKILLS

- Fluent in English and Spanish
- Intermediate French

SELECTED PUBLICATIONS/NEWS ARTICLES

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

- **Jacome, R.**, Stolle, C. and Sweigard, M., "*Road Curvature Decomposition for Autonomous Guidance,*" SAE Technical Paper 2020-01-1024, 2020, doi:10.4271/2020-01-1024.
- **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.
- **Vogel, K** *"Jacome chosen as a 2020 SAE Doctoral Research Fellow"* 2020, [UNL Engineering College News](#).