

# Marjan Moro

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## Skills

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**CAD/Analysis:** Catia V5, Abaqus, ANSYS, Patran, Paraview, Sierra Framework, openFoam, SU2, JMP

**Programming:** Python, C++, C, Latex, BASH, MATLAB, Tableau, SQL, VSCode, Git

**Language:** German, Serbian, and Croatian

## Experience

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**Lead Engineer,** Goodyear Rubber and Tire Company – Akron, OH 2022 – Present

- Collaborate with customers and technical partners to define the problem, set timelines, and assess risks.
- Lead technical discussions and offer mechanics-based solutions, ranging from hand calculations to machine learning, high-fidelity FEA, and CFD models.
- Collect, analyze, and update correlation factors for physical to virtual offsets to share with the simulation community.
- Provide high-fidelity, explicit dynamic FEA results for ride and handling analysis, supporting the Vehicle Dynamics group in generating accurate tire models (CDTire, MFSWIFT, F-Tire).
- Manage the applied support workload for the Engineering Mechanics team to ensure simulation results are accurate and complete before tire release deadlines, supporting timely product launches.

**Senior Engineer,** Goodyear Rubber and Tire Company – Akron, OH 2019 – 2022

- Acted as the subject matter expert in thermal and structural modeling during cross-functional FMEA discussions, providing critical insights to guide decision-making.
- Improved design accuracy and efficiency and expedited the Tire Intelligent Group's design process by creating and validating a tire sensor housing stress-strain analysis and a bracket modal analysis.
- Expanded the organization's computational capabilities by proposing and securing approval for new projects during the annual CREDA meeting in collaboration with Sandia National Laboratory.
- Designed and implemented BASH scripts to automate HPC job submissions for multiphysics simulations, resulting in a 30% reduction in turnaround time by efficiently tracking job progress and streamlining the submission process.

**Staff Engineer,** Goodyear Rubber and Tire Company – Akron, OH 2016 – 2019

- Streamlined NVH FT and modal analysis, reducing turnaround time and aligning with the product development timeline.
- Utilized temperature-dependent material model to analyze thermo-mechanical simulations of hysteretic materials, producing crucial findings that influenced the design of new product lines.
- Initiated and promoted Paraview for FEA post-processing, led training sessions, and developed a SharePoint site, enhancing analysis capability and knowledge sharing.
- Improved the understanding of tire wear in commercial truck tires by devising a computational method and validating it with internal testing, which analyzes the contact mechanics between the road and tire interface.

**Associate Engineer,** Goodyear Rubber and Tire Company – Akron, OH 2012 – 2016

- Conducted nonlinear finite element analysis (FEA) to evaluate structural behavior under complex loading conditions, incorporating material nonlinearity, large deformations, and contact interactions for new product development.
- Designed and carried out Design of Experiments (DOE) for Original Equipment Manufacturer tire development programs, optimizing multi-constraint optimization with JMP.
- Facilitated the onboarding process for new hires by compiling comprehensive training material focused on large deformation and constitutive models of hyperelastic material.
- Developed a ring-based durability indicator and leveraged Python's NumPy, Matplotlib, and Exodus libraries to ensure precise post-processing of high-fidelity FEA models.

## Projects

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### Van Build

- Engineered and installed a van's electrical system with three charging sources (solar, DC-DC, and shore power), using Arduino to monitor temperature and automate fan cooling for electrical components, ensuring system efficiency and component safety.
- Performed back-of-the-envelope calculations using Fourier's and Newton's laws of cooling to estimate the size of the heating system for efficiency.

## Education

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**Youngstown State University** – MS in Mechanical Engineering 2012

**Wheeling Jesuit University** – BS in Physics and Math 2010