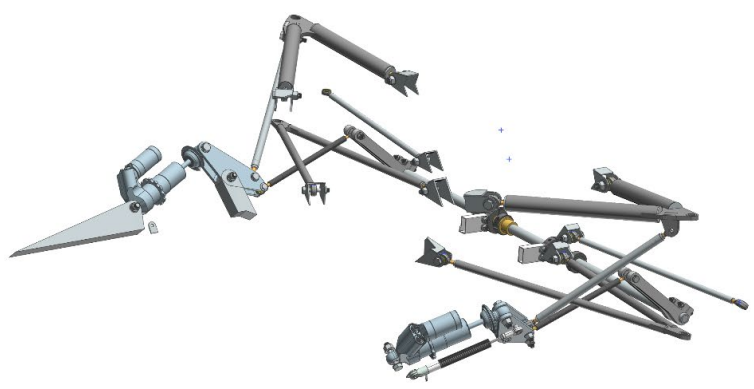
Suspension System for Formula Style Racecar

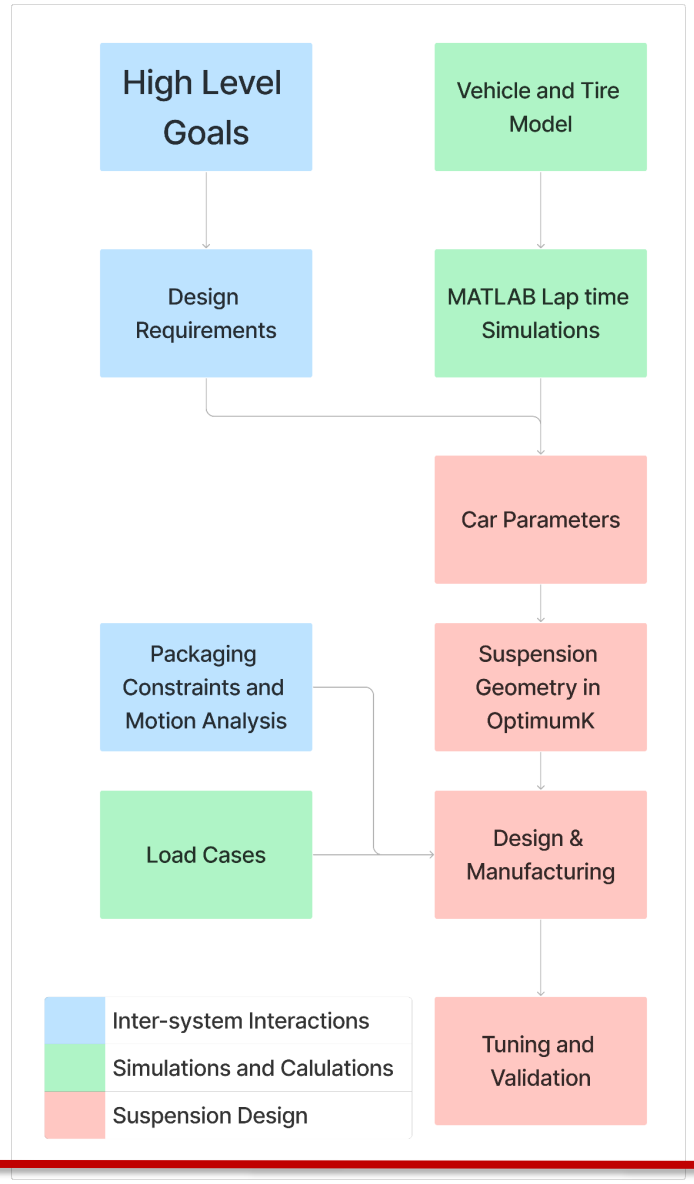
High-Level Goals

- Maximize lateral and longitudinal acceleration while maintaining stability
- Consistent and predictable driver feedback

Design Overview

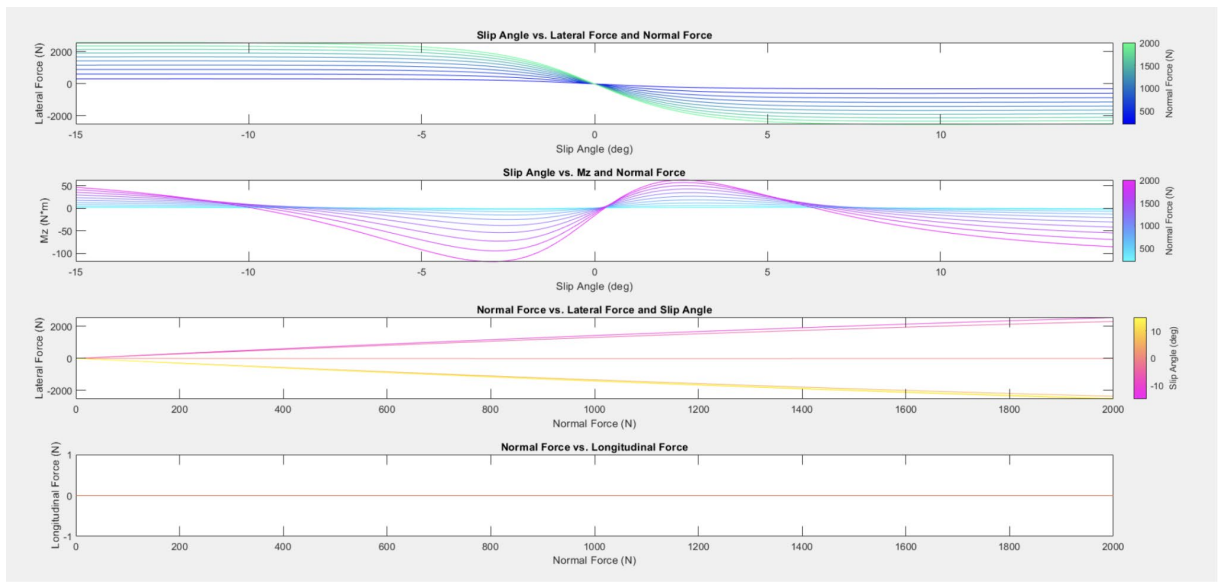
- Double Wishbone Single Linking Arm Architecture
- Adjustable Pull Rod, Camber, and Toe

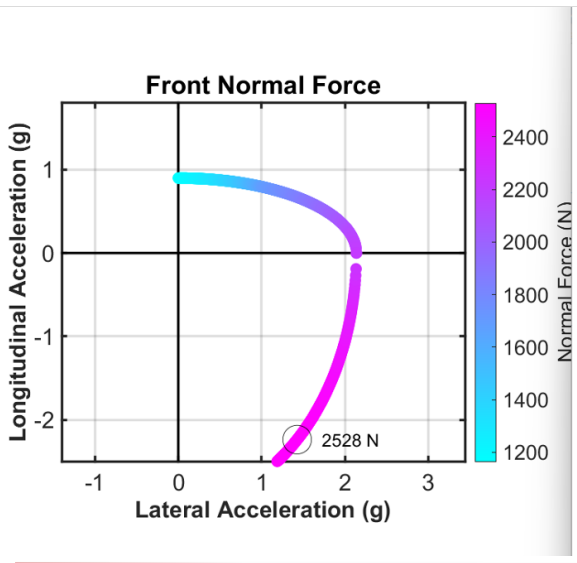


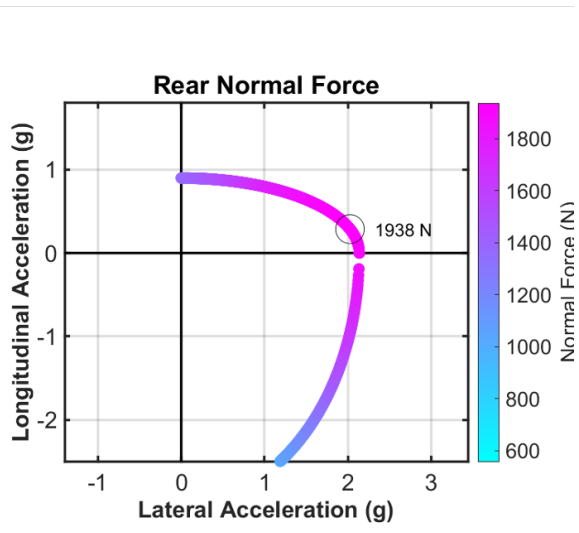


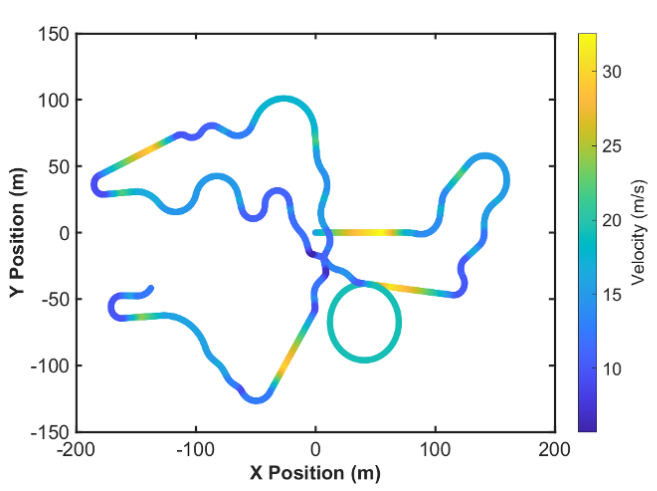
Simulations

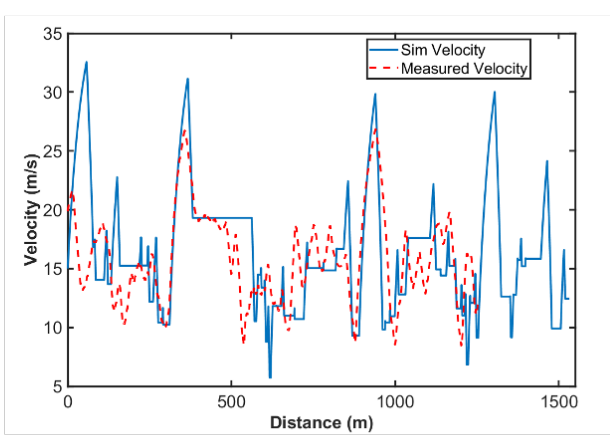
- Data from TTC fitted with Pacejka Formula
- Tire and Vehicle model integrated into validated lap time simulation
- G-G plot from skidpad and accel lap simulations converted into maximum lateral and longitudinal acceleration
- Car Parameter Optimization in MATLAB











Design and Manufacturing

- Suspension Geometry determined in OptimumKinematics based off simulations
- Hand Calculations for load cases and component sizing
- CAD and Motion Analysis to check clearances
- Welded on jigging plate to maintain tolerances of 0.1”