

[SciPy-User] Multibody Vehicle Dynamic Simulation

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Dear Scipy-Users,

I am a student from Germany and I'm new to Scipy.
It would be nice if you could help me out with your recommendations for the following project:

I am planning to do a *vehicle dynamic simulation with a multibody system for a race car*.
The suspension of the car is very simple and the whole car can be simplified.

Goal:

The vehicle should automatically follow a given path/trajectory (which is the racing line of a racing track) at the maximum possible speed/acceleration.
I want to optimize some suspension parameters to get the minimum lap time of the given path/trajectory. This is called a lap time simulation.
It should be possible to visualize the car in a (simple) 3D Model.

The conditions for this project:

I have time of 5 months for this project. I am a bachelor student of automotive engineering. I am working full time on this project. I am willing to do programming. I have some basic experiences in python and i have installed the anaconda distribution on a Linux distribution. I have basic knowledge of kinematics/dynamics.

Some doubts and questions that i have:

1. In general: is it possible and advisable to do this in python? If not, which free software would you recommend? MBDyn? GNU Octave? SciLab? OpenModelica? MBSymba?
2. Which python environment (for Linux) would you recommend for programming? Spyder? Jupyter Notebook?
3. Which software would you recommend for visualization?
4. Which package should I use for the multibody approach? PyDy? SymPy?
5. How should I model the tires? With OpenTyre?
6. Which book is recommendable for my project? "The Multibody Systems Approach to Vehicle Dynamics" by Mike Blundell? Do you know any other source of information which could be helpful for me?
7. Do you think I can handle this project in the given time?

Thanks a lot!
Greetings

----- next part -----

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