

Revolve NTNU: Lap Time Simulation

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Objective

The goal of this thesis is to develop a QSS/Transient vehicle simulator with the aim to quantitatively correlate lap time and vehicle performance improvements. The thesis has a highly variable scope, from a relatively basic point-mass quasi-static vehicle model to the possibility of an extended transient model with a powertrain model, torque vectoring and adaptive damping.

A lap time simulator at a basic level permits the comparison of lap time improvements from:

- Weight reduction, CoG location
- Suspension development (tyre utilisation, platform control, mode rates)
- Aerodynamic development (downforce, drag, mode sensitivity, stability)
- Powertrain development (Available torque, RPM, power and efficiency)

Possible further development of transient models opens for testing of areas such as torque vectoring, damping setup, adaptive damping, tyre performance, stability and handling performance, etc.

Responsibility

The student is responsible for the development of a lap time simulation that can contribute to the development of a better performing car.

Environment

In Revolve you will work closely with an ambitious and goal-oriented team. This is a unique opportunity to meet like-minded and talented students who can help you write a great Master's thesis while partaking in the development of a world class race car.

For more information, see: www.revolve.no/masteroppgave-for-revolve-ntnu