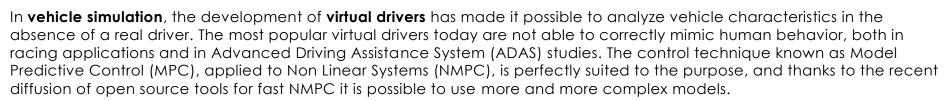# Master Thesis(Automation):
MPC based Human Like Autonomous Driving

In collaboration with Virtual Vehicle, Graz, Austria

https://www.v2c2.at/

Purpose of the thesis:

In **vehicle simulation**, the development of **virtual drivers** has made it possible to analyze vehicle characteristics in the absence of a real driver. The most popular virtual drivers today are not able to correctly mimic human behavior, both in racing applications and in Advanced Driving Assistance System (ADAS) studies. The control technique known as Model Predictive Control (MPC), applied to Non Linear Systems (NMPC), is perfectly suited to the purpose, and thanks to the recent diffusion of open source tools for fast NMPC it is possible to use more and more complex models.

The aim of this thesis is the development of a robust virtual driver based on MPC, able to mimic human behavior. The purpose of this thesis is the development of a robust MPC-based virtual driver capable of mimicking human behavior. This strategy is intended for use in the following scenarios:

1. Maximize the comfort of autonomous driving algorithms.
2. Advanced assistance systems in race scenario with multiple agents
3. Lap time prediction with racing vehicles (both motorcycle and 4 wheels vehicles)

Duration:

6 Months, 3 months in Graz with economical support

Info:

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