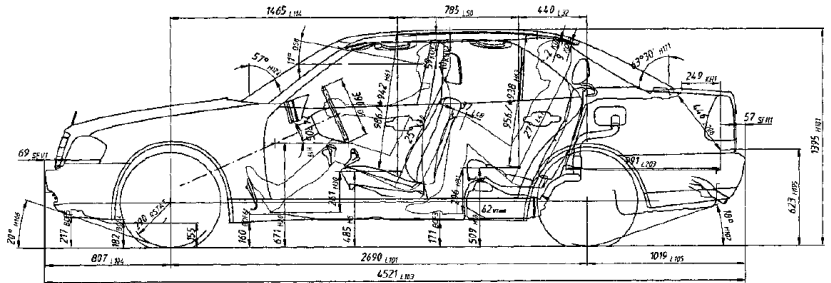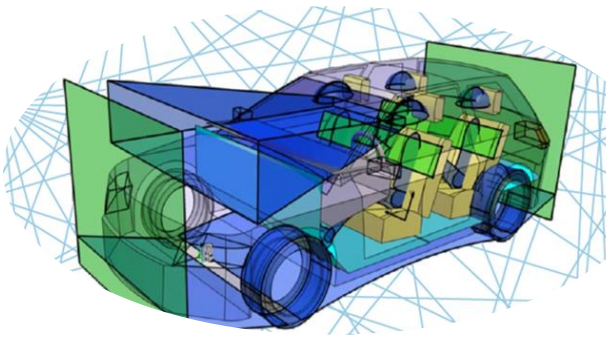# Master Thesis



# Estimation of the mass package and center-of-gravity position of vehicles using variable geometry models

The increasing variety of derivatives (>20 derivatives per OEM) leads to an increased administrative effort of styling (CAS) and design data (CAD) for car manufacturers and suppliers. Above all, the packaging of the various derivatives requires a high level of resource input in the early phases of automotive development. In order to reduce this resources, the development process is to be supported by variable geometry models, which allow a quick estimation of the mass packages and center-of-gravity position. The goal of this master thesis is the development and implementation of knowledge-based tools necessary to support the development process.

## Scope of work:

- Literature survey (automotive development process & packaging)
- Analysis and evaluation of the requirements and boundary conditions, as well as development of CAx-based tools for estimating the mass package and center-of-gravity position
- Implementation of the knowledge-based tools in the system environment of the industrial partner
- Documentation and presentation of the work results

## Requirements:

- Knowledge & experience with CATIA V5 or other CAD systems
- Knowledge in object-oriented programming (Visual Studio, C#, VB.NET)
- Advantageous: Fundamentals of automotive engineering

**Duration:** 6 month
**Start:** As from now
**Workplace:** Institute of Automotive Engineering / AVL List GmbH

An expense allowance is offered for the Master's thesis.

http://ftg.tugraz.at

| Contact: | Research Group of Virtual Product Development (VPD) |
|---|---|
| | Dipl.-Ing. Dr. Alexander Kreis, alexander.kreis@tugraz.at, +43 664 88878948 |

29.06.2020