Graz University of Technology
Institute of Technical Informatics
Cognitive Products

# Student Topic: Model-Based Analysis of NFRs

This project is about modelling non-functional requirements and trying to fulfill them in the context of real-time operating systems, specifically for the automotive domain (AUTOSAR). Automotive software follows the AUTOSAR model to handle complexity and portability. However, this software has to follow different non-functional requirements (NFRs) e.g., response time, data latency, data age, etc. This project aims to develop an analysis framework that evaluates the given AUTOSAR software model for a set of non-functional requirements.

The analysis framework consists of (i) new analysis concepts (ii) visualization of analysis to enhance the explainability of the analysis. This framework will help the designer to identify violations of NFRs in the early stage before running the software on an embedded board.

## Thesis Type: Master Thesis/Seminar Project/Bachelor Thesis

## Goal and Tasks:

- Development of concepts for modelling of non-functional requirements (NFRs).
- Implementation of visualizations for multiple non-functional requirements.
- Implementation of monitoring functions to analyze NFRs at runtime.

## Recommended Prior Knowledge:

- Experience in embedded systems design
- Experience in Python

## Start: a.s.a.p.

## Duration in months: 6-12 months

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