

Master Thesis – Start-up Track

SECOR - Smart Recommendation Tool for Automotive Semiconductors

Assessing the potential of Data Analytics and AI for recommending suitable automotive semiconductors, across suppliers, to developers of automotive electronic units.



Image: TUM

Project-/Topic description

The SECOR Initiative

The role of semiconductors in the global automotive industry continues to grow rapidly and so does the amount of chips on offer. This implies an ever-increasing complexity for electronic unit designers to select the most appropriate chip for a specific project.

SECOR is a fresh startup, initiated by a group of senior executives from the automotive and electronics industry. It's first priority is to address the regular chip shortage situations in the automotive supply chain. It's next phase is to provide services to help automotive electronics designers to select the most appropriate chips for their design project. To prepare the groundwork for this second phase, SECOR is looking for a Master Student to design the basic data structure and analytics, and to explore the potential of AI. A future role within the young company would be strongly welcomed.

Focus of work

The following areas of work are envisaged:

1. Define a data & database structure to store information about all global standard automotive semiconductors as well as key characteristics of automotive electronics unit development projects.
2. Demonstrate the feasibility of automatically finding relevant data about automotive semiconductors on the internet, extracting this data and normalising it into standardised formats in the specified database.
3. Design a method for automatically allocating semiconductors to specific applications.
4. Design, or at least validate the feasibility of, a (self-learning) system to recommend the most suitable semiconductors for individual automotive electronics development projects.
5. Validate the overall approach, through a demo system or prototype, with stakeholders from the automotive electronics industry.

Requirements

- Current enrolment in a master's degree program at TUM, e.g. Electrical Engineering and Information Technology, Data Engineering and Analytics, or Automotive Engineering with strong affinity to databases and AI, as well as an understanding of semiconductors and electronics design.
- Fulfilment of all pre-requirements for registration of a master thesis
- Interested in and ideally exposure to automotive electronics industry
- Strong motivation and independent, entrepreneurial working style
- Close collaboration with the founders of SECOR
- Interested in joining SECOR, after finalising the Master project
- Practical experience with data acquisition, data analysis, data bases, data science and AI concepts

What we offer

- Participation in the TUM Entrepreneurial Masterclass (separate application process required) and application-oriented Master thesis with real value add to the global automotive industry
- Close cooperation with the founders of SECOR, highly experienced and networked in the global automotive world
- Opportunity to join a start-up with high potential to scale fast and become a global category leader
- Change to work as part of a highly motivated team, which considers a pleasant and open team spirit as most important success factor

