Bachelor / Master Thesis

Aushang ab:
Aushang bis:

Status: open
Research group: Design Methods

Contact

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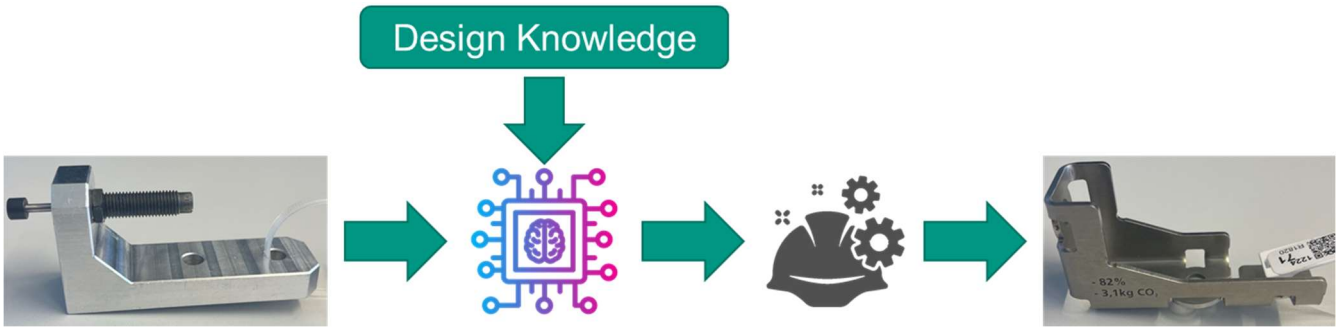
Development of algorithmic support for the selection of optimal manufacturing processes in the development process

Although there is an optimal manufacturing process for every component, there is currently a lack of sufficient assistance for designers to select this process in a data-based and targeted manner. In addition, there is considerable potential for optimization when changing manufacturing processes, which has so far only been insufficiently exploited.



Objective:

This thesis aims to optimize the design process through the use of data-driven approaches. The aim is to provide designers with valuable support in selecting the optimal manufacturing process. The focus is on the application of machine learning and rule-based algorithms to analyze the potential of different manufacturing processes and to optimize the component design (semi-)automatically.

Possible Tasks:

- Literature review on data-driven design optimization and manufacturing processes
- Collection and preparation of data on various manufacturing processes and their application to different components
- Development and implementation of machine learning models and rule-based algorithms to analyze and optimize the design
- Integration of design knowledge and guidelines into the developed models to improve prediction accuracy and decision-making

Profile:

- Independent and structured way of working
- Basic knowledge in the areas of machine learning and data analysis
- Analytical skills and interest in optimizing technical processes