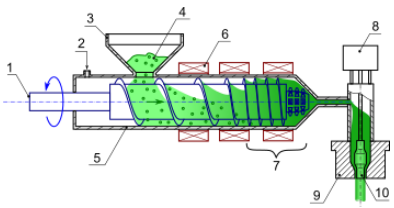
Machine Learning-Based System Architecture Design for Optimizing the Manufacturing Process of Plastic Packaging

Research Question

The use of plastic packaging has increased tremendously over the years, which has resulted in a substantial environmental impact. Recycling and optimizing the manufacturing process of plastic packaging is vital for the sustainability of the environment, the economic growth of the industry, and the quality of the end products. To achieve this goal, the machine learning-based system architecture of the entire manufacturing process needs to be designed effectively. The primary research question for the proposed master thesis is: "What is the most effective system architecture with built-in machine learning models in the manufacturing process of plastic packaging?"



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Research Methodology

- Conduct literature research on various system architectures that include machine learning models in plastic packaging manufacturing.
- Develop a system architecture concept for the manufacturing process of plastic packaging.
- Conduct surveys with industrial partners and summarize the data collected.
- Analyze the results and draw insights that can improve the design of the proposed system architecture.
- Evaluate and discuss the proposed concept.

Objectives and Expected Results

The goal is to design a holistic system architecture that incorporates various machine learning models in order to improve the efficiency and quality of the manufacturing process for plastic packaging. The project outcomes also focus on summarizing the discussions held with industrial partners.

Requirements and Working Conditions

- Strong interest in working on interdisciplinary research topics and a willingness to learn new skills.
- Previous experience in designing system architectures is beneficial, but not required.
- Familiarity with or knowledge of machine learning methodologies is beneficial, but not required.
- We offer a collaborative and supportive working environment that encourages open communication.

Contact

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Type of Thesis

Master Thesis

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