

Material Extrusion with a Multi-Axial Additive Manufacturing System for Resource-Efficient and Sustainable Production



Motivation and Relevance

- Current 3D printers are limited by their speed and have low extrusion rates
- Nearly all usable materials are petrochemical and not eco-friendly
- Creation of support structures requires a lot of material

Approach

- Development of a pellet-based 3+2 axes 3D-printer, especially designed for the use of biopolymers
- Adaption of a slicing software for 3+2 axes
- Reduction of support material by using 3+2 axes

Results

- Industrial 3+2 axes machine setup with the ability to use biopolymers
- Development of a pellet-based material extruder with high extrusion rates up to 500 g/h

Research Area

- Material extrusion
- Productivity
- Sustainability

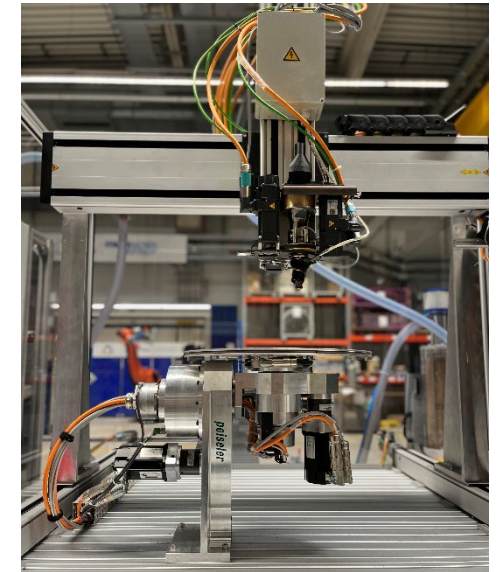
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