TECHNISCHE UNIVERSITÄT CHEMNITZ

Fakultät Maschinenbau
Institut für Werkzeugmaschinen und Produktionsprozesse
Professur Fertigungsmesstechnik

TOPIC FOR A PA/ SA/ BA/ MA

ANALYSIS OF G-CODES IN ADDITIVE MANUFACTURING

Additive manufacturing is becoming increasingly important in industrial production. A key component of process planning is the generation of G-codes, in which the underlying process parameters are encoded indirectly via the commands. These parameters are crucial to the quality of the components, particularly regarding geometrical deviations, surface quality and mechanical properties. However, there is a lack of direct, automated access to these values during the manufacturing process.

The aim of this thesis is to develop an approach for analysing G-codes in order to identify the process parameters hidden within them. Based on these findings, the aim is to enable data-driven process monitoring.

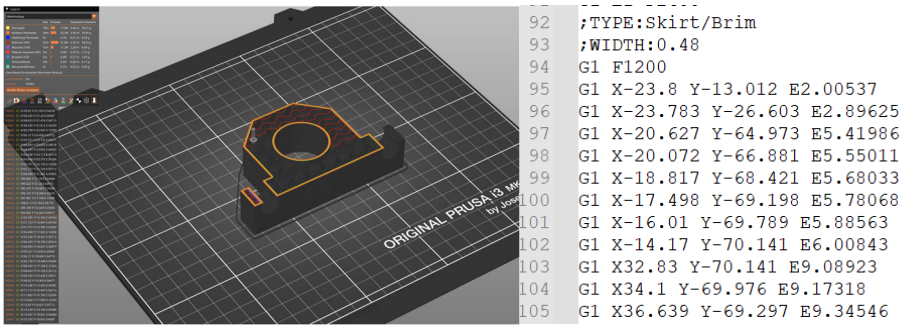

Fig. 1.: Illustration of the slicing process (left) and conversion to G-code (right)

TASKS:

- Research into the principles of process control and the state of the art
- Analysis of G-code structure using G-codes from various software programmes
- Identification of relevant process parameters
- Development of a methodology for automated G-code monitoring
- Compilation of findings and formulation of an outlook

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