

Technische Universität Berlin

Institute for Machine Tools and Factory Management - Chair of Quality Science
Prof. Dr.-Ing. Roland Jochem

Development + implementation of predictive quality for FDM Bachelor-/Masterthesis (English or German)

MOTIVATION

Even though additive manufacturing exists for many years, quality control is still challenging [1]. Therefore, the production process must be investigated further using sensors that capture relevant in-process data [2]. Using such data, in this thesis, the after-process quality of parts ought to be predicted before its assessment using machine learning.

REQUIREMENTS

- Programming, preferably Python or R
- Knowledge in FDM advantageous, but not a must
- Experience or willingness to learn and apply machine learning using respective programming libraries
- We look for a systematic and open-minded thesis student
- The thesis can be written in English or German

YOUR TASKS

- Development of a concept to predict quality given part/sensor data
- Literature research
- Experimental design for data generation in the Quality Science Lab
- Implementation of the concept
- Execution of experiments including quality data assessment
- Performance evaluation using data from the experiments

REFERENCES

[1]	Moreau, C. (2021). The state of 3d printing.
[2]	Kim, H., Lin, Y., & Tseng, T. L. B. (2018). A review on quality control in additive manufacturing. <i>Rapid Prototyping Journal</i> .

CONTACT

Please send your CV and study curriculum by e-mail to Timo Hinrichs

T 030/314 23565

E timo.hinrichs@tu-berlin.de

