**Situation**

In modern factories, a substantial amount of data is generated alongside the actual product: More than 1 TB per day can accumulate in even small and medium-sized companies (SME). The major challenge is the analysis of this huge amount of data. As entrepreneurs aim to reduce costs and increase productivity, one can employ state of the art machine learning methods to derive quality and process models. The generation and evaluation of these models requires highly efficient algorithms that use distributed systems: both in the cloud and on the edge.

The Risk-Based Process Control group at the Machine Tool Laboratory (WZL) is investigating how knowledge can be extracted from production data.

**Keywords**

Data Science, Machine Learning, Artificial Intelligence, Big Data, Tensorflow, Python, MongoDB, InfluxDB

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**General Context**

Storing manufacturing data alongside its metadata is a major concern for SME. The data storage has to facilitate online analysis, batch requests for model training and high volume insertion of new data.

**Potential Topics**

- Implementation of an ORM in python
- Combining InfluxDB/MongoDB/SQL for efficient storage
- Handling changing metadata
- Versioning of (meta)data for ML-experiments
- Performance evaluation of different databases
- !?Your idea here !?

Type and scope of the work can be adapted to your preferences.

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**Our Offer**

- Extensive support
- Introduction to data science and related fields
- Well-defined topics for a prompt start
- Participation in current research projects

**Are you interested?**

I am looking forward to your email! Please send your latest grade report to the contact person listed below. In case of any questions or if you are interested in a related thesis feel encouraged to contact me.

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**Laboratory for Machine Tools and Production Engineering (WZL)**

**Chair of Production Metrology and Quality Management**

**Department Model-Based Systems**

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**Last Update**

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