Abschlussarbeiten

Universität Bayreuth

Prof. Dr. Agnes Koschmider

Lehrstuhl für Wirtschaftsinformatik und Process Analytics

https://www.pa.uni-bayreuth.de/

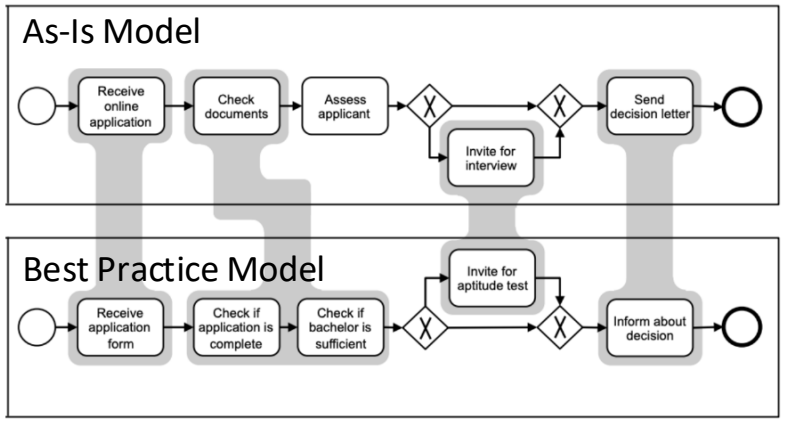
Projektgruppe Wirtschaftsinformatik
des Fraunhofer FIT

Allgemeines / Ablauf

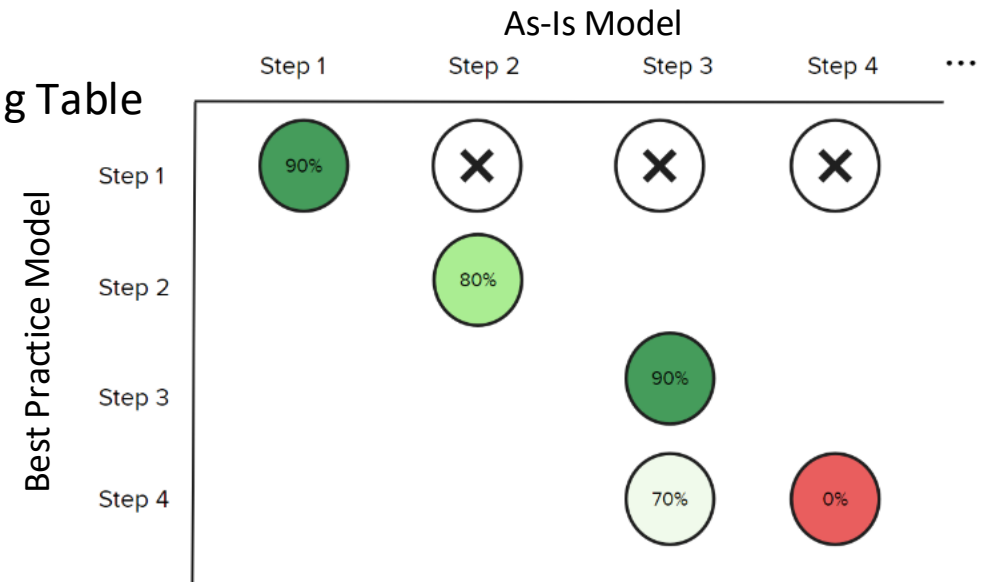
1. Thema Aussuchen und mit Betreuer*in treffen.
2. Exposé schreiben.
3. Thema beim Datenanalysetreffen präsentieren.
4. An Datenanalysetreffen teilnehmen (1x im Monat) auch wenn man selber nichts präsentiert.
5. Über Fortschritt beim Datenanalysetreffen mindestens ein Mal präsentieren.
6. Abschlusspräsentation halten.
7. Abschlussarbeit abgeben.

Process Model Similarity - Potential Visualization

Side-by-Side Process Diagrams



Mapping Table



Overall Scoring Criteria

Based on both structural and behavioral analysis, an overall scoring criteria would be generated from step-level comparisons of both as-is and best practice models. Scoring criteria involve;

- ❑ Check the existence of steps in both models
- ❑ Check the order of steps
- ❑ Check 1:1 task mapping
- ❑ Check labels matching
- ❑ Overall behavioral similarity

Process Model Similarity - Main requirements

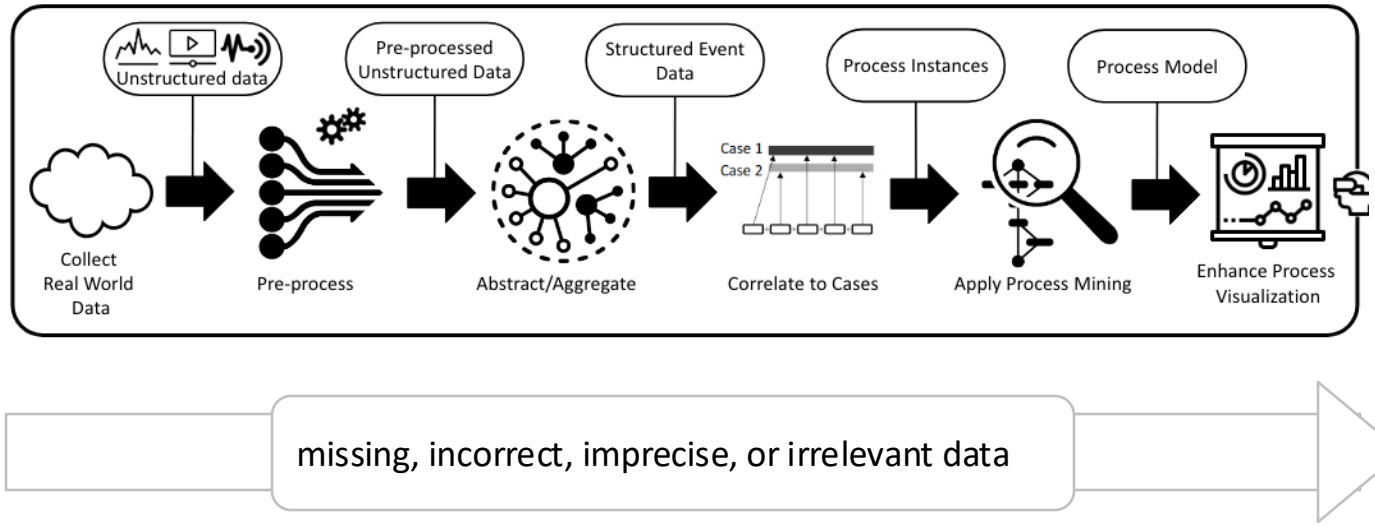
- ❑ Good knowledge of Process Mining / Business Process Intelligence
- ❑ Strong Development Skills, particularly in **Python** and **JavaScript**
- ❑ Good knowledge of classical ML and GenAI

What you will get

- ❑ Monthly financial support during the project (6 months)
- ❑ Working with senior researchers/engineers in the field.
- ❑ Contribute to long-term product innovation in the realm of Business Process Intelligence.

A Framework for Communicating Data Quality Issues in the Process Mining Pipeline (Bachelor/Master)

Problems with data quality are common in most process mining projects, particularly when the domain relies on unstructured data (e.g., sensor readings).



- Many practitioners **delete** or **manipulate** the data to address these quality issues.
- In fact, people often delete the data and forget about it, even though it may contain **valuable information**.

A Framework for Communicating Data Quality Issues in the Process Mining Pipeline

Approach:

• Conduct a systematic literature review to identify and propose solutions for communicating data quality issues at each stage of the process mining pipeline

• Use a taxonomy to categorize and structure these solutions

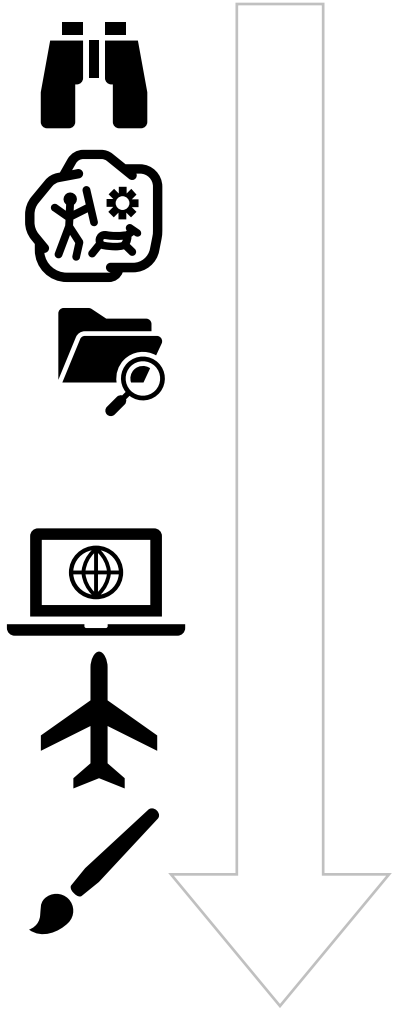
• Develop a conceptual framework that combines the identified solutions into a unified approach

Goal of the Thesis:

• Develop a framework that propagates and communicates how data quality issues are handled throughout the pipeline from raw data to process visualization

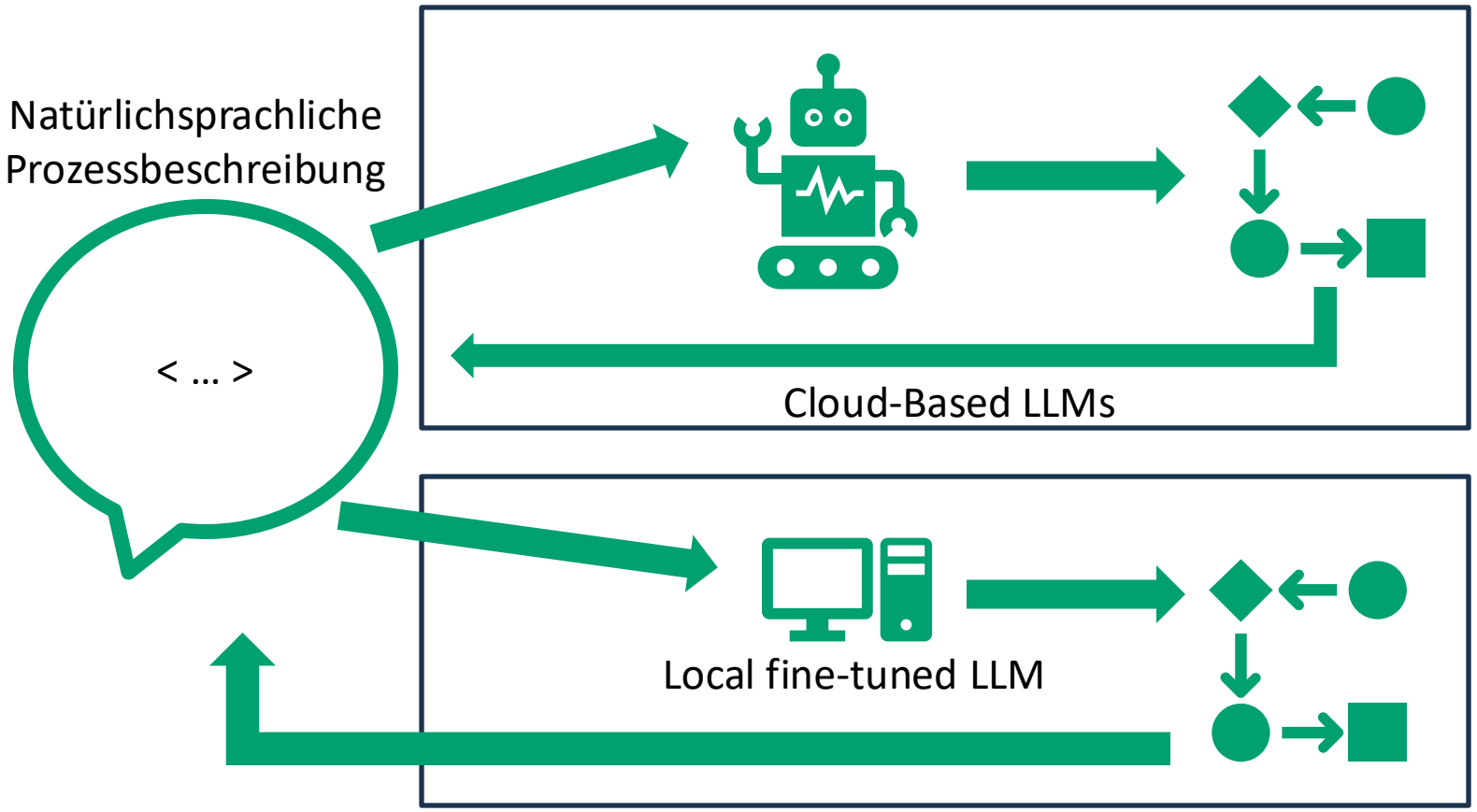
• Develop a "Proof-of-Concept" to demonstrate the feasibility and practical application of the proposed framework

• Ensure that decisions like deleting data are well-documented and visible and visualized



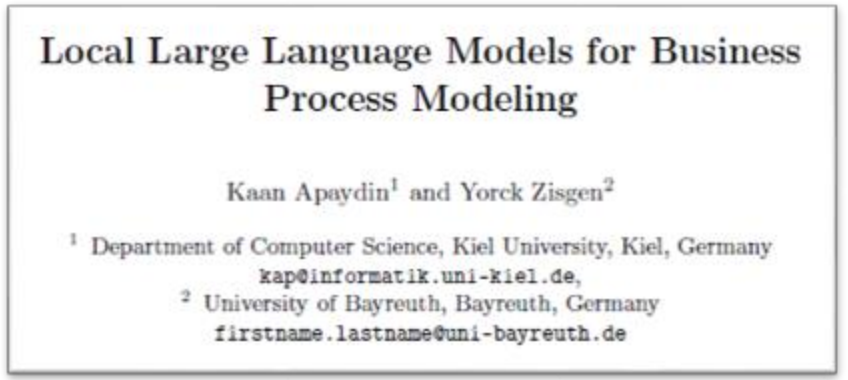
Kontakt: Christian Imenkamp *(christian.imenkamp@uni-bayreuth.de)*

1: Fine-tuning Local LLMs for Process Models (Schwerpunkt: Technisch)



Follow-Up:

1. Einfluss größerer und breiterer Trainingsdaten
2. Automatisierte Generierung von Prozessbeschreibungen mittels PM4PY.LLM
3. Umfangreichere Evaluationen



Local Large Language Models for Business Process Modeling

Kaan Apaydin[1] and Yorck Zisgen[2]

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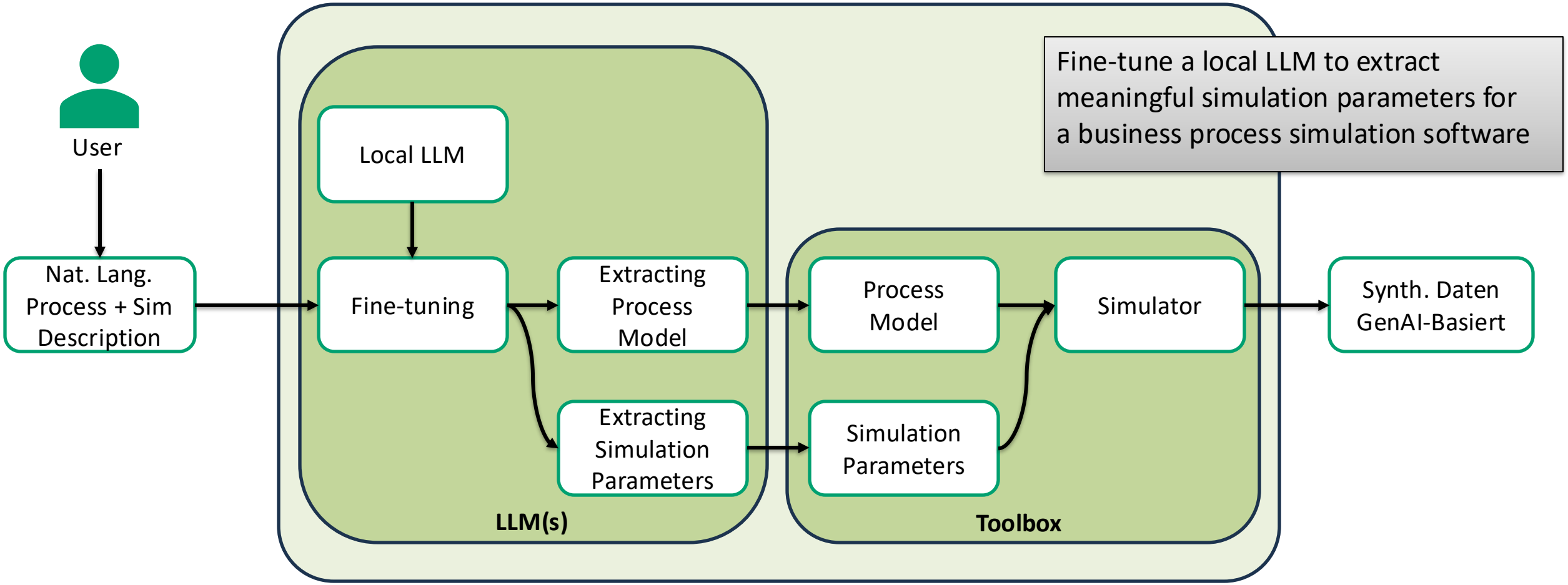
ICPM Workshop, Kopenhagen, 14.10.2024

Kontakt: Yorck Zisgen *(yorck.zisgen@uni-bayreuth.de)*

2: Fine-tuning Local LLMs for Simulation Parameters (Schwerpunkt: Technisch)



Kontakt: Yorck Zisgen *(yorck.zisgen@uni-bayreuth.de)*

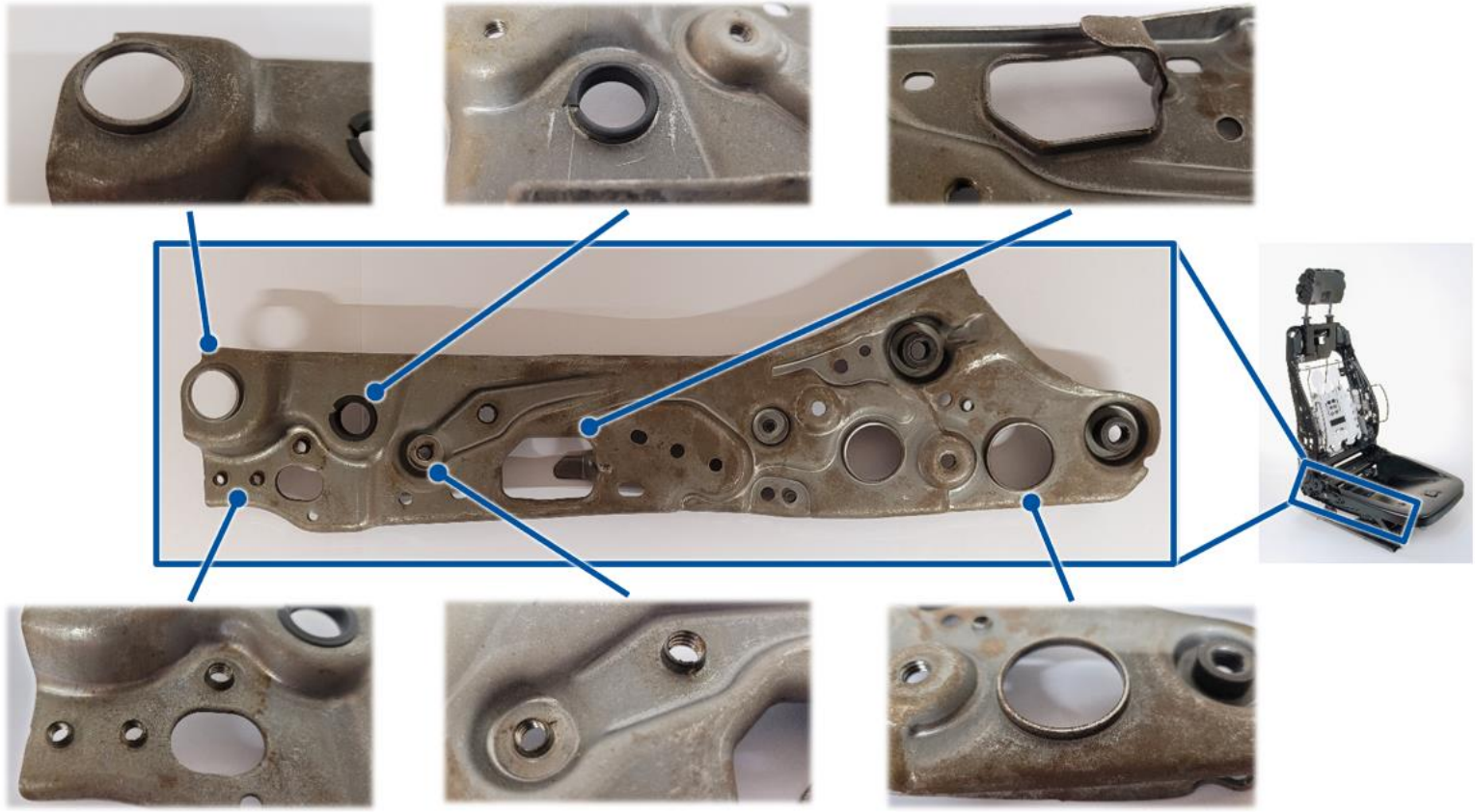
Unsichere Daten im Process-Mining

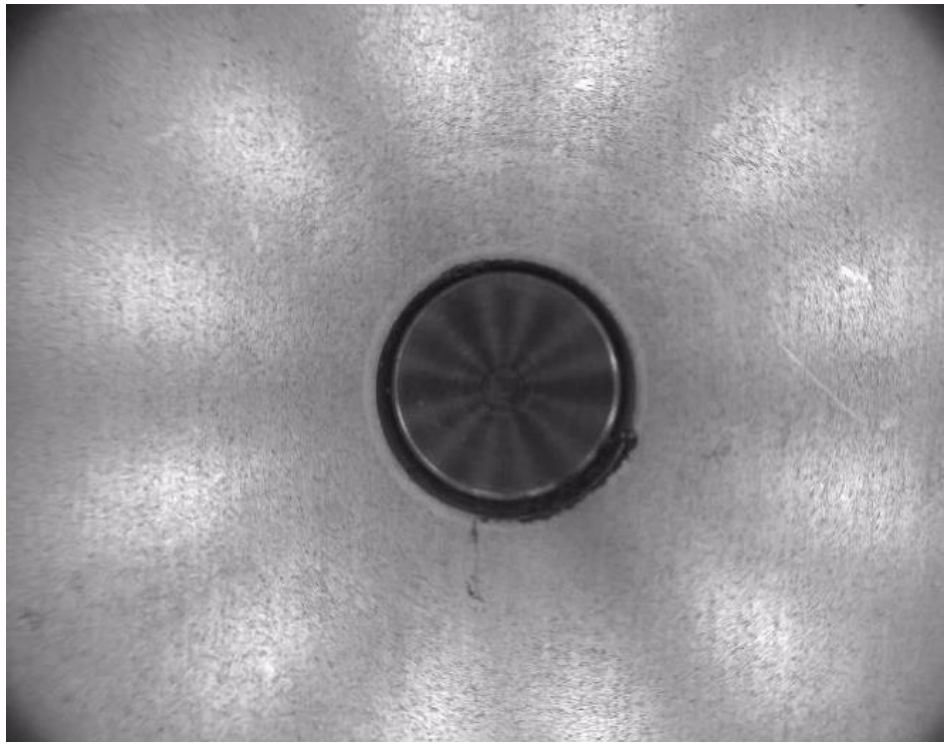
- Zentrales Datenformat im Process-Mining: Event Logs (Ereignisprotokolle)
- Bei Erstellung von Event Logs mittels KI entstehen Unsicherheiten
- Offene Themen:
  - Erweiterung eines Datengenerators zur Erstellung synthetischer unsicherer Event Logs
  - Erweiterung von Process-Discovery-Verfahren für Top-K Ausführungssemantiken

Case ID	Event ID	Timestamp	Activity	Indeterminate
192	e_1	5	A	?
192	e_2	8	{B, C}	!
192	e_3	[4, 10]	D	!
192	e_4	12	E	!

Kontakt: Arvid Lepsien *(ale@informatik.uni-kiel.de)*

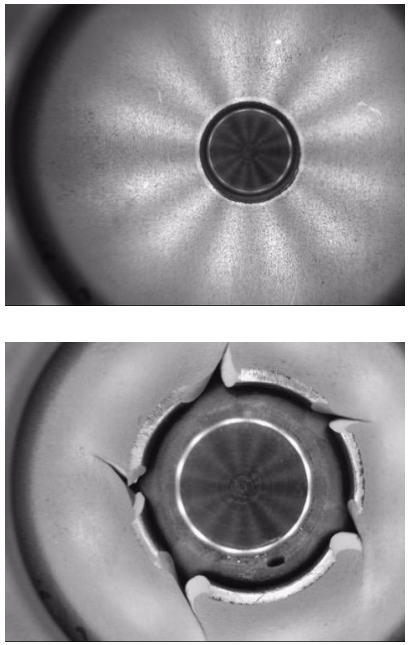
Risserkennung im Kragenziehen



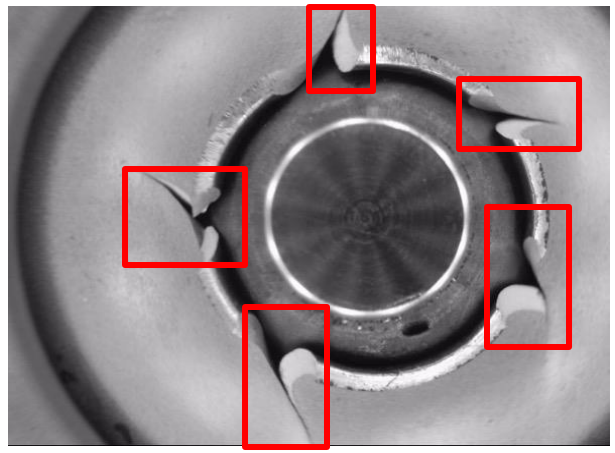


Kontakt: Frederik Fonger *(ffo@informatik.uni-kiel.de)*

Risserkennung im Kragenziehen



Machine Learning



- **Aufbau auf Vorarbeit** mit erster Bilderkennung
- Bilderkennung auf realem Datensatz
- Gelabelte Daten stehen zur Verfügung

Kontakt: Frederik Fonger *(ffo@informatik.uni-kiel.de)*