Karlsruhe Institute of Technology
Institute of Applied Informatics and
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Call for Bachelor/Master Thesis
## „Real Time Scholarly Big Data - leveraging NLP to continously integrate heterogeneous data sources"

What is the general goal?

The goal is to leverage Natural Language Processing and Machine Learning techniques to build a robust methodology and system for the continuous ingegration of heterogeneous data sources of academic papers. As timely processing of large quantities of research output (e.g., a flood of preprints during a pandemic) can be crutial, the thesis addresses a relevant and recent problem.

What are the details?

With the growth of Open Access in academia and a need for automated processing of papers for knowledge extraction, the creation of machine readable scientific corpora is an active and evermore relevant area of research. However, existing corpora are often lacking in coverage and/or updated very infrequently.

Having developed our own corpus of over one million academic preprints on arXiv.org [1], we want to explore possibilities of (a) extending the data sources covered (e.g. by including bioRxiv) and (b) set up a system to regularly update the corpus in an automated way.
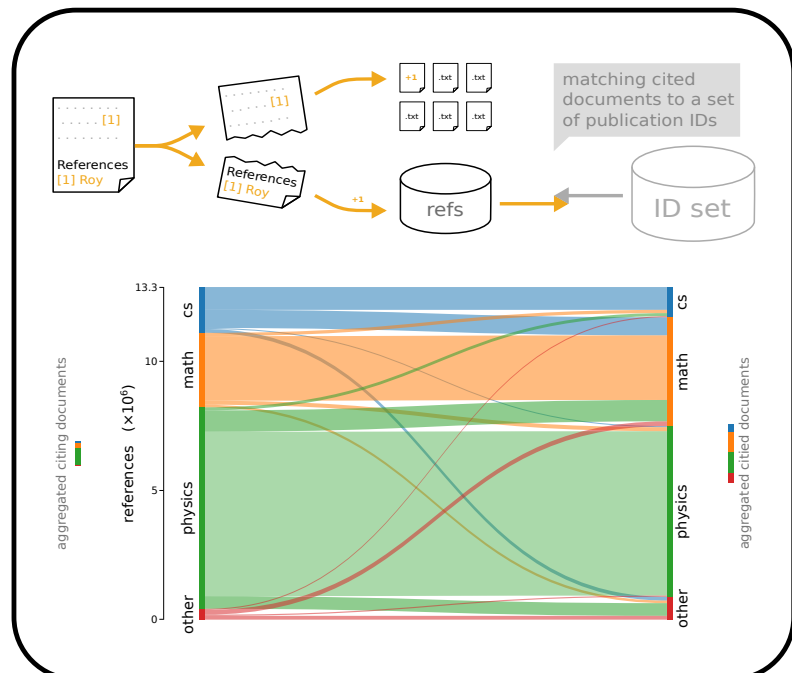
What are the prerequesites?

- Interest in Data Mining, Machine Learning, and working with large data sets.
- No fear of actually implementing the methods you develop.

[1] Tarek Saier, Michael Färber, *"unarXive: A Large Scholarly Data Set with Publications' Full-Text, Annotated In-Text Citations, and Links to Metadata"*, Scientometrics. 2020.