

BACHELOR'S THESIS / MASTER'S THESIS

Machine Learning in Materials Science

Various Topics

Background

The digital transformation of experimental labs is an indispensable stepping stone in the broader application of machine-learning-based methods which tackle longstanding scientific challenges. As such, there are essentially two bottlenecks:

- (1) the digitalization of lab process, and the data science problems in research.
- (2) the selection of machine-learning problems and design of algorithms that can solve them.

Possible Topics

There are multiple available projects that we have based around the already collected data and digitalized machines. That's why we are happy to tailor a topic to the candidate's interests that sits somewhere within the triangle below.

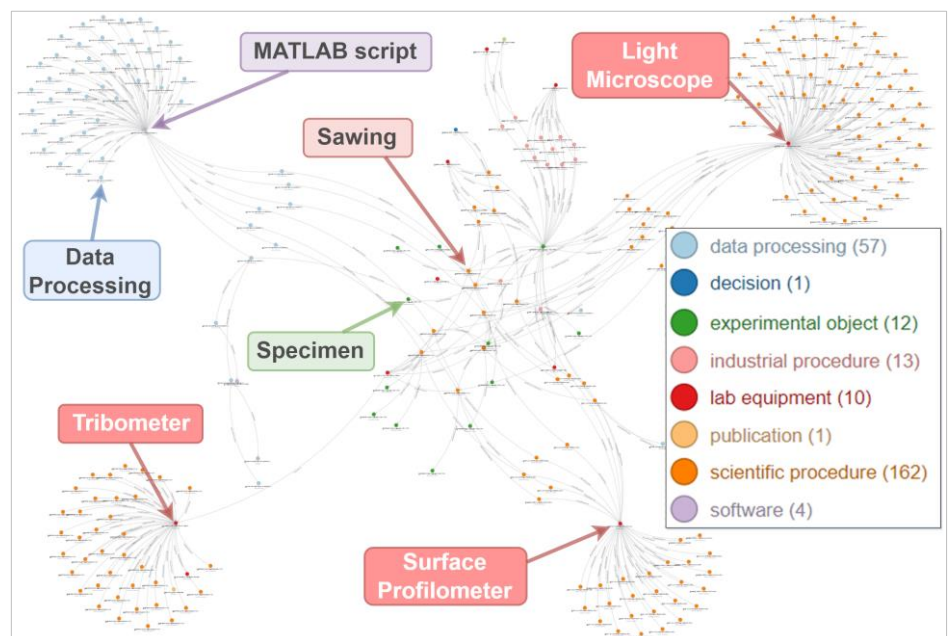
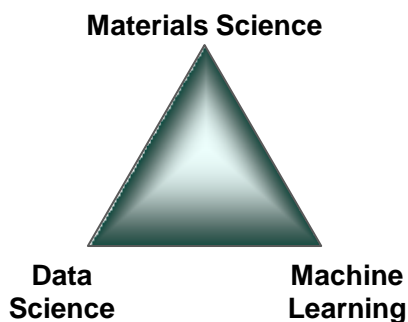


Illustration of some of our materials science data collected as a knowledge graph. The connections provide a framework for scalable machine learning developments.

Requirements

Students who have experience in (or would like to learn) programming are encouraged to apply. The applicant will be part of an active and diverse team of, materials scientists, data scientists, experimental scientists, and mechanical engineers.

Language: German or English

Possible start: as soon as possible

Contact

Nick Garabedian, Ph.D.
 Linked Tribological Data Group Leader
 E-Mail: nikolay.garabedian@kit.edu

Iliia Bagov, M.Sc.
 Research Associate, Linked Tribological Data
 E-Mail: ilii.bagov@kit.edu