Chair of Security in Information Technology
TUM Department of Electrical and Computer Engineering
Technical University of Munich

Bachelor's Thesis

Machine learning for graph clustering

Graphs are a widely used data type for different fields of research. One important methodology in grpah analysis is the so called partitioning, i.e. splitting the graph into meaningful subgraphs at reasonable boundaries.

For the general case, different algorithms for graph partitioning have been described. In this work, you will evaluate the available approaches for graph clustering and use Machine Learning to select high quality clusters depending on different quality criteria.

Prerequisites

The following list of prerequisites is neither complete nor binding, but shall give you an idea, what the topic is about.

- Sufficient knowledge in a High-Level Programming language such as python, c, c++, rust, perl, etc. to implement the method and analyze the results
- Very basic knowledge of a hardware description language such as vhdl or verilog to understand what you are analyzing
- Basic knowledge in graph theory, algorithms etc. to cope with problems on the way.
- Some experience in using machine learning for classification tasks might be helpful

Contact

If you are interested in this topic, don't hesitate to ask for details via

alex.hepp@tum.de

Please include a grade report and a CV, so I can evaluate different focus areas to fit your experience.

Advisors

Alexander Hepp