



Lehrstuhl für Sicherheit in der Informatik
Prof. Dr. Claudia Eckert



Announcement: Student Assistant (m/f/) at Fraunhofer AISEC*

Developing a Graph Neural Network to Detect Vulnerabilities in Source Code

Motivation and Task Description

Identifying vulnerabilities in source code is a complex and challenging task, as many underlying problems are undecidable. While traditional methods such as abstract interpretation have been widely used, machine learning is emerging as a promising alternative.

In this project, we aim to leverage the graph representation of source code to train a Graph Neural Network (GNN) for vulnerability detection. GNNs have shown great success in fields such as biology, pharmacy, and social network analysis, and we aim to bring this technology to the domain of code analysis.

A basic machine learning pipeline is already in place, and the primary focus of this project will be on improving the model's generalization capabilities. Particular attention will be given to self-supervised pre-training using various learning tasks.

Requirements

- Advanced experience with machine learning and PyTorch
- Programming skills in Python (knowledge of C/C++ is a plus)
- Familiarity with static code analysis techniques
- A high level of self-motivation and the ability to work independently
- Availability for 15–20 hours per week

Contact

Please send your application with current CV and transcript of records to:

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