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Master's Thesis

Event Prediction in Multi-System Monitoring through Deep Learning

Student:	Mario Kahlhofer
Advisor:	Dipl.-Ing. Andreas Schörgenhumer
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Prediction of failures and events plays an important role in today's software systems. An open challenge is to find similarities in failures across different systems. The sheer amount of available monitoring and event data in this field is a perfect test bed for data-driven supervised learning methods.

The goal of this thesis is to build and evaluate Deep Learning models for event prediction based on multi-system time series monitoring data. A special focus should be put on evaluating state-of-the-art architectures for dealing with temporal data and modern regularization techniques.

The scope of this thesis is as follows:

- Provide an explorative overview of the data
- Build, implement and evaluate various Deep Learning architectures with a focus on architectures that are specifically designed for temporal data
- Compare the results to a baseline achieved with a traditional method (e.g., Random Forests)
- Discuss various regularization techniques necessary for achieving good generalization results

Modalities:

The progress of the project should be discussed at least every three weeks with the advisor. A time schedule and a milestone plan must be set up within the first 3 weeks. It should be continuously refined and monitored to make sure that the thesis will be completed in time.

The final version of the thesis must be submitted not later than 30.09.2019.

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