



## **Abschlussvortrag Masterarbeit Marco Jeffrey Pansa**

„Experimental data augmentation methods for univariate time series classification tasks“

In recent years many performance increases in deep learning were achieved through novel neural network architectures, often leading to a rise in model complexity and parameters. Complex models in turn bear the risk of overfitting to the training data, which leads to worse generalization on unseen data. In order to properly train these deep neural networks a variety of techniques has been proposed, such as Dropout, residual connections, Batch Normalization, as well as various data augmentation methods. While many of these techniques, like Dropout, are data and model agnostic, research in data augmentation methods primarily focused on image data. This thesis specifically concentrates on data augmentation for time series classification tasks. Robust data augmentation techniques from the computer vision domain are converted and applied to the time series domain and evaluated on a subset of the UCR Time Series Classification Archive. These include static methods like Cutout, Cutmix, Mixup, Pixel Shuffle and Sample Pairing as well as neural network based conditional generative adversarial networks. The evaluation shows differing results for each method on different datasets. Improvements in classification accuracy are especially high for small datasets.

Betreuer der Arbeit: Prof. Dr. Rüdiger Ehlers, Prof. Dr. Andreas Rausch

Datum: Freitag, 04. Juni 2021, 14:00 Uhr

Ort: Online-Meeting über BBB

Link: <https://webconf.tu-clausthal.de/b/sim-uc9-rvy>