Julius-Maximilians-
UNIVERSITÄT
WÜRZBURG

Lehrstuhl für Informatik II
Software Engineering
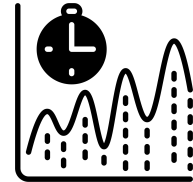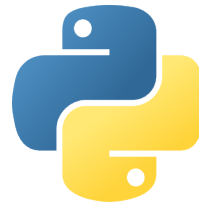**Universität Würzburg**
http://se.informatik.uni-wuerzburg.de

Date: May 28, 2024

Research Hiwi wanted

Creating and Analyzing Synthetic Time Series

Motivation

Time series data are widely used and provide a wealth of information for countless applications. However, some applications are faced with a limited amount of data, or the data cannot be used due to confidentiality concerns. To overcome these obstacles, time series can be generated synthetically. For example, electrocardiograms can be synthesized to make them available for building models to predict conditions such as cardiac arrhythmia without leaking patient information. While many generative methods have been proposed in recent years, the evaluation of synthetic time series with respect to criteria such as realism, diversity, or privacy has been an active area of research as well.

Task description

In this position as a hiwi, you assist me in my research on synthetic time series in general. Individual tasks depend on my focus at the time of application, but can be tailored to your skill profile. Potential assignments include

- Defining and analyzing time series complexity,

- Implementing and comparing time series generators,

- Investigating and developing evaluation measures for synthetic time series, and

- Collecting and implementing evaluation measures.

Prerequisites

- At least basic programming skills in Python, Numpy, and Tensorflow/PyTorch

- Basic understanding of statistics, machine learning and deep learning

- Being creative in finding solutions to research problems

- Ability to solve a given (sub)task without constant assistance

Work load

Up to 40h a month.

Contact

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