

BDA group master project

Project title: Short Multivariate Time Series Analysis
Duration: 4-6 months
Number of ECs: 24-36
Start: negotiable
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Project description

Many bioinformatics studies have to deal with short time series of some 3 - 7 time points. Often after a perturbation subject are followed for a couple of hours to see the dynamic effect of the perturbation. An example is a metabolomics measurement of urine samples after the intake of a large amount of alcohol by healthy male individuals in South Africa. In such a case the data consist of short time series for many metabolites simultaneously for a group of individuals. Some data analysis approaches (e.g. ASCA) use time as a qualitative factor, while others (MASIGPRO) aim to make a time model for each metabolite.

In this project we will explore the properties of such method: How do these methods compare with respect to modeling the data, finding important biomarkers etc.

References:

<https://doi.org/10.1093/bioinformatics/btl056>

<https://doi.org/10.1093/bioinformatics/btm251>