University of Stuttgart

Stuttgart Research Center Systems Biology

Systems Biology Seminar Talk

Advancing and Assessing Modelling- and Analysis Methods in the Context of Systems Biomedicine

Dr. rer. Nat. Clemens Kreutz

Universitätsklinikum Freiburg

Inst. of Medical Biometry and Statistics Methods of Systems Biomedicine (MSB)

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Host:

Prof. Stefan Legewie

Lecture Hall 0.106

Allmandring 31

Stuttgart

Abstract:

Due to the rapid progress in developing experimental techniques, establishing and improving analysis methods is one of the major challenges in computational life sciences. For many analysis tasks, however, the limitations and performance of competing methods remain unknown, and there are no clear rules or guidelines for selecting the optimal analysis method. Benchmark studies have proven to be valuable tools for evaluating the performance and applicability of analysis approaches. However, they are often subject to methodological limitations and deficiencies, leading to potential bias in the results.

In my presentation, I will give an overview of novel approaches developed in my group in the context of mathematical modeling and omics analyses. In particular, I will summarize our ongoing efforts to improve the methodology of benchmark studies. By generally incorporating rigorous planning, design, and analysis principles in benchmark studies, we aim to promote the development of novel analysis approaches and the identification of decision rules for optimal method selection in practice. Especially in view of the enormous efforts to apply deep learning methods in all areas of research, reliable performance comparisons are of great importance.

CV:

2018 – today Permanent Group Leader; Institute of Medical Biometry and Statistics, University of Freiburg, Germany

2016 – 2018 Junior Group Leader; Center for Systems Biology, University of Freiburg, Germany

2013 – 2016 Assistant Scientist at the Physics Institute, University of Freiburg, Germany