A U S H A N G

FREIE UNIVERSITÄT BERLIN

Fachbereich Mathematik und Informatik

Promotionsbüro, Arnimallee 14, 14195 Berlin

D I S P U T A T I O N

Mittwoch, 29. Juli 2020, 12:00 Uhr

Ort: WebEx

Disputation über die Doktorarbeit von

Frau Rukeia El-Athman

Thema der Dissertation:

Computational analysis of circadian splicing events in human cancer cell lines and mammalian tissues

Thema der Disputation:

Predicting the Internal Circadian Time based on a Supervised Learning Approach

Die Arbeit wurde unter der Betreuung von **PD Dr. A. Relógio und Prof. Dr. H. Siebert** durchgeführt.

Abstract: An internal time-keeping system known as the circadian clock regulates the physiology and behavior of various organisms in synchrony with daily environmental rhythms. Circadian rhythmicity of biological processes is driven by the interplay of clock genes and proteins that cause 24-h oscillations in the abundance of target gene products. The concept of chronotherapy aims at adjusting the dosing-time of drugs to the internal time of patients in order to enhance treatment efficacy and minimize toxic side effects. In recent years, a number of methods have been developed to estimate the internal time of day based on the expression of circadian genes from a small number of samples. In this talk, the ZeitZeiger (German for “time revealer”) algorithm by Hughey et al. (2016) is presented, a supervised-learning approach that first learns a sparse representation of variation associated with the periodic variable in the training observations and then uses maximum-likelihood to predict the value of the periodic variable for a test observation. An application example from Wittenbrink et al. (2018) shows how ZeitZeiger can be used in a diagnostic tool to determine the internal circadian time of humans from a single blood sample.

Die Disputation besteht aus dem o. g. Vortrag, danach der Vorstellung der Dissertation einschließlich jeweils anschließenden Aussprachen.

Interessierte werden hiermit herzlich eingeladen

Die Vorsitzende der Promotionskommission
PD Dr. A. Relógio