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

Freitag, 22. November 2024, 14:00 Uhr

Ort: Seminarraum 115
(Fachbereich Mathematik und Informatik, Arnimallee 3, 14195 Berlin)

Disputation über die Doktorarbeit von

Raphael Hablesreiter

Thema der Dissertation:
Combined modeling of bulk and single-cell genome sequencing data to dissect clonal heterogeneity in acute myeloid leukemia

Thema der Disputation:
Computational methods for inferring tumor phylogenies from single-cell DNA sequencing

Die Arbeit wurde unter der Betreuung von **Prof. Dr. K. Reinert** durchgeführt.

Abstract: Intra-tumor heterogeneity describes the coexistence of multiple genetically distinct subclones within the tumor of a patient, resulting from somatic evolution, clonal diversification, and selection. It is a main causal driver for treatment failure in the clinic. Therefore, understanding its underlying mechanisms can help to improve patient treatment and patient outcome. Single-cell DNA sequencing allows the construction of evolutionary trees, which helps to reveal the acquisition of somatic variants and somatic copy-number alterations during tumor development and, if longitudinal samples are available, throughout the disease. The latest developments in amplicon based single-cell DNA sequencing allow targeted sequencing of disease-relevant regions of the genome in thousands of cells. In this talk, we will explore the different computational methods optimized for inferring tumor phylogenies consisting of somatic variants and somatic copy-number alterations from targeted single-cell DNA sequencing data. We will address the advantages and limitations of using an amplicon based approach, in which amplification efficiency differs between amplicons. Following this, there will be an in-depth discussion on the methodology and its implementation, using COMPASS as an example.

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

Interessierte werden hiermit herzlich eingeladen

Der Vorsitzende der Promotionskommission
Prof. Dr. K. Reinert