

BERNOULLIS TAFELRUNDE

GRADUATE STUDENT SEMINAR

Thursday, 6 April 2017, 12:05-12:50
Seminarraum 00.003, Spiegelgasse 1

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ETH

Recent approaches to significant pattern mining in genetics

ABSTRACT

Since the completion of the Human Genome Project in 2003, scientists have sought to establish the exact role of each of the three billion base pairs in the genome. This talk will describe recent approaches to discovering combinations of genetic mutations in these base pairs that cause complex diseases. The combinatorial problem is far too great to be solved by a brute force approach (i.e. more than the number of atoms in the universe!), and so we present a class of methods that exploit Tarone's concept of testability, which allows one to discard certain combinations, resulting in a pruning of a search space and increased power for the significance tests. Identifying such mutations are a central goal in precision medicine and could lead to more directed screening and earlier diagnoses.