Bernoullis Tafelrunde

Math Students and PhD Seminar

Thursday, 03 April 2025, 12:15 - 13:00
Seminar Room 05.001, Spiegelgasse 5

Valentin Comment

Universität Basel

Bernoulli introduces Low Rank Approximation for matrices

Abstract

Low rank approximation of matrices play a central role in today's data analysis and scientific computing. Large dense matrices M of size $m \times n$ are common in applications since the data often consists of m objects described by n features. In many cases, an important step in data analysis is to build a compressed representation of M that may be easier to manipulate and analyze while accurately characterizing the potential error made.

In this talk, we will discuss the main approaches for efficiently constructing compressed approximate representations of matrices, such as random orthogonal projection-based methods and column/row sampling methods. The intuition behind those techniques gave rise to the current most known efficient algorithms that yield low rank approximation of matrices.