Faculty of Science
Department of Mathematics

NUS National University of Singapore

MA4198 PROJECT PROPOSAL (PROJECT CUM SEMINAR GROUP)

SUPERVISOR'S INFO

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PROJECT ID: PS2410-02

TITLE

Investigation of efficiency and functionally of tensor software packages

BRIEF DESCRIPTION OF PROJECT

Tensor approximation methods are a class of methods targeting the curse of dimensionality in data science and scientific computing problems. According to Wikipedia, currently there are more than 20 software packages designed for manipulation and calculation of tensors. This project aims to understand how the tensor approximation methods work and carry out a survey of these tensor software packages. We will focus on the efficiency and functionality of several packages and find out their advantages and limitations.

EXPECTATION/S

Compare the performance of 10 to 15 tensor software packages and generate a report to summarize their characteristics.

PREREQUISITE/S (at level 3000 or below, with at most one course at level 3000)

MA2213

READING REFERENCE/S

Hackbusch, Wolfgang. Tensor Spaces and Numerical Tensor Calculus. Germany, Springer Berlin Heidelberg, 2012.