

MASTERS PROJECT MILESTONE REPORT

Name of the student: Zhining Wang

Name of the supervisor(s): Dr. Emi Tanaka and Dr. Qinian Jin (co-supervisor)

Title of the project (may be tentative): Model Selection in Factor Analysis

Summary:

{CURRENT WORK RESULTS}

I have completed the introduction to the factor analysis model and the EM algorithm, including a brief proof of the algorithm's correctness. Following this, I introduced the concept of the penalized EM algorithm and explained its application within the context of factor analysis. I dedicated an entire chapter to proposing the LASSO-penalized EM algorithm for factor analysis, detailing the procedures for both the E-step and the M-step. In the M-step, I employed a proximal gradient method.

{FUTURE EXPECTATIONS}

This semester, I will primarily focus on the simulation aspect, exploring various interesting points such as simulation settings, parameter tuning, and order selection. I plan to implement the entire algorithm using R and visualize the results in my thesis. I will leave at least a month to polish my notations, language and typesetting.

Student's signature

Supervisor's signature

Date: 2024-08-06