

A Novel Fuzzy-PID-Refined Latent Factor Analysis Model for Highly-Efficient Representation Learning to High-Dimensional and Incomplete Matrices: Supplementary File

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I. INTRODUCTION

THIS is the supplementary file for paper entitled “A Novel Fuzzy-PID-Refined Latent Factor Analysis Model for Highly-Efficient Representation Learning to High-Dimensional and Incomplete Matrices”. It provides Table S1 for hyperparameter settings of each competitor.

II. HYPERPARAMETER SETTINGS

TABLE S1
HYPERPARAMETER SETTINGS FOR COMPETITORS

Abbr.	M2	M3	M4	M5	M6	M7	M8	M9	M10
D1	$\eta=2e-2, \lambda=7e-1, K_p=5e-1, K_I=5e-4, K_D=5e-4$	$\eta=2e-2, \lambda=7e-1, K_p=5e-5, K_D=5e-5$	$\eta=2e-2, \lambda=7e-1$	$\eta=9e-4, \lambda=9e-1, \beta=9e-1$	$\eta=9e-4, \lambda=9e-1, \beta=9e-1$	$\eta=9e-1, \lambda=8e-1, \epsilon=1e-8$	$\eta=8e-3, \lambda=7e-1, \beta=9e-1, \epsilon=1e-8$	$\eta=3e-2, \lambda=9e-1, \beta_1=9e-1, \beta_2=9.99e-1, \epsilon=1e-8$	$\eta=5e-2, \lambda=8e-1, \beta_1=9e-1, \beta_2=9.99e-1, \epsilon=1e-8$
D2	$\eta=3e-2, \lambda=4e-2, K_p=5e-1, K_I=5e-4, K_D=5e-2$	$\eta=3e-2, \lambda=4e-2, K_p=5e-5, K_D=5e-3$	$\eta=3e-2, \lambda=4e-2$	$\eta=3e-3, \lambda=4e-2, \beta=9e-1$	$\eta=3e-3, \lambda=4e-2, \beta=9e-1$	$\eta=8e-2, \lambda=4e-2, \epsilon=1e-8$	$\eta=1e-3, \lambda=4e-2, \beta=9e-1, \epsilon=1e-8$	$\eta=9e-3, \lambda=7e-2, \beta_1=9e-1, \beta_2=9.99e-1, \epsilon=1e-8$	$\eta=6e-3, \lambda=4e-2, \beta_1=9e-1, \beta_2=9.99e-1, \epsilon=1e-8$
D3	$\eta=8e-3, \lambda=3e-1, K_p=5e-1, K_I=5e-4, K_D=5e-4$	$\eta=8e-3, \lambda=3e-1, K_p=5e-4, K_D=5e-4$	$\eta=8e-3, \lambda=3e-1$	$\eta=9e-4, \lambda=3e-1, \beta=9e-1$	$\eta=9e-4, \lambda=3e-1, \beta=9e-1$	$\eta=1e-1, \lambda=3e-1, \epsilon=1e-8$	$\eta=4e-3, \lambda=4e-2, \beta=9e-1, \epsilon=1e-8$	$\eta=7e-3, \lambda=3e-1, \beta_1=9e-1, \beta_2=9.99e-1, \epsilon=1e-8$	$\eta=9e-3, \lambda=3e-1, \beta_1=9e-1, \beta_2=9.99e-1, \epsilon=1e-8$
D4	$\eta=2e-2, \lambda=9e-2, K_p=5e-1, K_I=5e-4, K_D=5e-1$	$\eta=2e-2, \lambda=9e-2, K_p=5e-4, K_D=5e-4$	$\eta=2e-2, \lambda=9e-2$	$\eta=2e-3, \lambda=9e-2, \beta=9e-1$	$\eta=2e-3, \lambda=9e-2, \beta=9e-1$	$\eta=5e-2, \lambda=3e-1, \epsilon=1e-8$	$\eta=5e-3, \lambda=2e-1, \beta=9e-1, \epsilon=1e-8$	$\eta=8e-3, \lambda=3e-1, \beta_1=9e-1, \beta_2=9.99e-1, \epsilon=1e-8$	$\eta=8e-3, \lambda=3e-1, \beta_1=9e-1, \beta_2=9.99e-1, \epsilon=1e-8$
D5	$\eta=2e-2, \lambda=8e-1, K_p=5e-1, K_I=5e-4, K_D=5e-1$	$\eta=2e-2, \lambda=8e-1, K_p=5e-4, K_D=5e-4$	$\eta=2e-2, \lambda=8e-1$	$\eta=9e-4, \lambda=9e-1, \beta=9e-1$	$\eta=9e-4, \lambda=9e-1, \beta=9e-1$	$\eta=4e-1, \lambda=6e-1, \epsilon=1e-8$	$\eta=9e-3, \lambda=8e-1, \beta=9e-1, \epsilon=1e-8$	$\eta=2e-2, \lambda=9e-1, \beta_1=9e-1, \beta_2=9.99e-1, \epsilon=1e-8$	$\eta=4e-2, \lambda=9e-1, \beta_1=9e-1, \beta_2=9.99e-1, \epsilon=1e-8$
D6	$\eta=8e-3, \lambda=5e-2, K_p=5e-1, K_I=5e-3, K_D=5e-5$	$\eta=8e-3, \lambda=5e-2, K_p=5e-5, K_D=5e-4$	$\eta=8e-3, \lambda=5e-2$	$\eta=5e-4, \lambda=9e-2, \beta=9e-1$	$\eta=9e-4, \lambda=6e-2, \beta=9e-1$	$\eta=3e-2, \lambda=1e-2, \epsilon=1e-8$	$\eta=9e-4, \lambda=6e-2, \beta=9e-1, \epsilon=1e-8$	$\eta=8e-3, \lambda=5e-2, \beta_1=9e-1, \beta_2=9.99e-1, \epsilon=1e-8$	$\eta=9e-3, \lambda=6e-2, \beta_1=9e-1, \beta_2=9.99e-1, \epsilon=1e-8$