

# Recommender System

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**Abstract—**

## I. INTRODUCTION

## II. METHODOLOGY

### A. Brief description of data

### B. Baseline methods

- 1) Global Mean:
- 2) User Mean:
- 3) Item Mean:

### C. Pre-processing

- 1) Pre processing method 1:
- 2) Pre processing method 2:

### D. Models and Methods

- 1) Matrix factorisation with SGD:
- 2) Matrix factorisation with ALS:
- 3) Some other method:

### E. Results

- 1) Baseline performance:
- 2) Matrix factorisation with SGD: (Plot cross validation results)

- Number of features: K

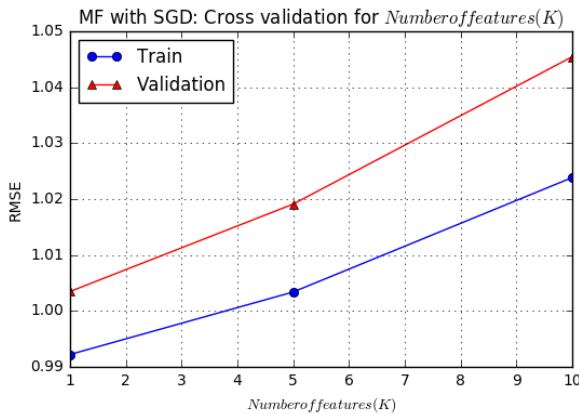


Figure 1. Cross validation: Number of features in Matrix factorisation with SGD.

- Regularisation parameter:  $\lambda_{user}$
- Regularisation parameter:  $\lambda_{item}$
- Learning rate  $\gamma$

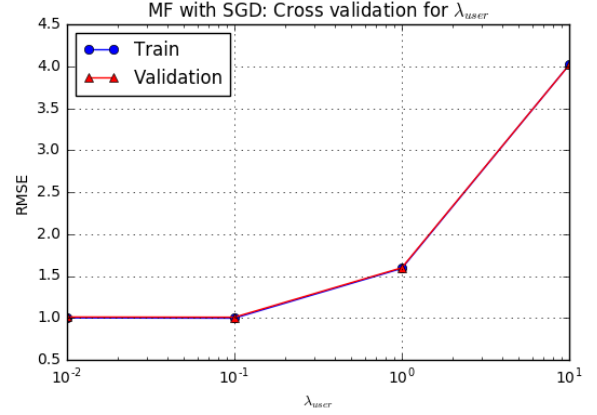


Figure 2. Cross validation:  $\lambda_{user}$  in Matrix factorisation with SGD.

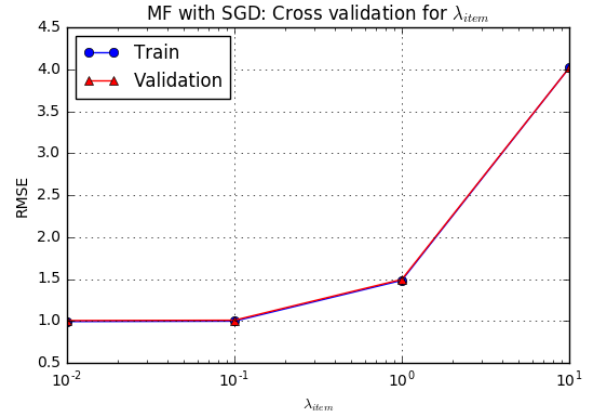


Figure 3. Cross validation:  $\lambda_{item}$  in Matrix factorisation with SGD.

- 3) Matrix factorisation with ALS: (Plot cross validation results)

- Number of features: K
- Regularisation parameter:  $\lambda_{user}$
- Regularisation parameter:  $\lambda_{item}$

- 4) Results with other method:

- 5) Compare results for SGD, ALS, other method:

## III. DISCUSSION

## IV. SUMMARY