PCML CS-433: Recommender System

Gael Lederrey, SCIPER ???, gael.lederrey@epfl.ch
Stefano Savarè, SCIPER ???, stefano.savare@epfl.ch
Joachim Muth, SCIPER 214757, joachim.muth@epfl.ch

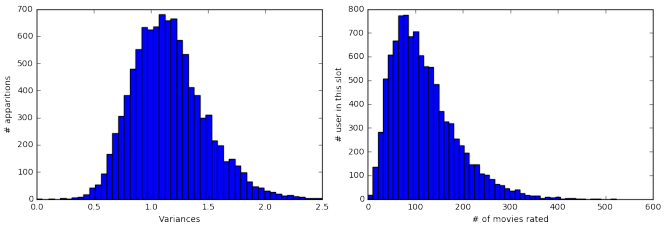
School of Computer and Communication Sciences, EPF Lausanne, Switzerland

***Abstract*—**

I. Data description

The data represent ratings from $10'000$ users on $1'000$ movies in an integer scale from 1 to 5. This scale represent the number of *stars* given by the users, 1 being the lowest grade and 5 the best.

The training set used to train our algorithm contains $1'176'952$ ratings which represent around 12% of possible filled ratings. An other $1'176'952$ ratings are hidden from us and must be predicted by our recommender algorithm.



(a) Distribution of variances of ratings per user.

(b) Number of movies rated per user.

Figure 1: Statistical description of data

II. Data preprocessing

A. Search for spammers

B. Search for inactiv users

C. Normalization of user behaviour

[To do: normalization of user mean and variance]

III. Model selection

A. Models

1) Global mean:

2) User/Movie mean:

3) Matrix Factorization using Stochastic Gradient Descent:

4) Alternativ Least Square:

5) kNN item-based:

6) Pareto Dominance and Collaborative Filtering Nearest Neighbors:

B. Models benchmark

[insert here a benchmark table for each method]

C. Blending

IV. Result

V. Discussion