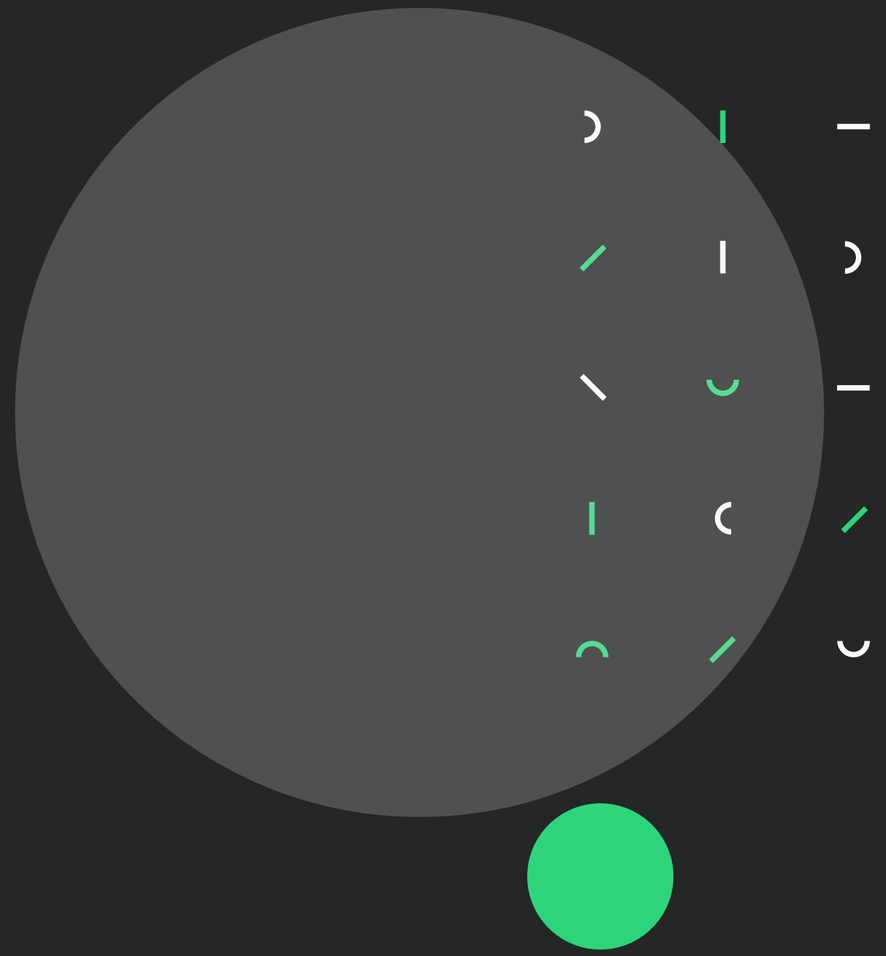
POLITECNICO DI MILANO - A.Y. 2020/2021

RECOMMENDER SYSTEM CHALLENGE



Federica Bucchieri - 10601322

Experimented Techniques

MAP

NOVEMBER

1 **STAND-ALONE MODELS**

First approach to Recommender System. Dealing with **Hyperparameter Tuning**

0.07291

2 **SIMILARITY HYBRID RECOMMENDER**

Usually combining **Item based CF** and **Content based filtering**

0.08754

3 **SCORE HYBRID RECOMMENDER**

Linear combination of scores

0.09443

DECEMBER

4 **GROUP HYBRID RECOMMENDER**

Dividing users in groups by **profile length**

0.08993

5 **LIST COMBINATION**

Using **Round Robin** technique

0.09424

JANUARY

6 **NORMALIZED LINEAR COMBINATION**

Usually used for ML recommenders like **SLIM** and **IALS**

0.09701

BACK TO LINEAR COMBINATION

0.09750

BEST ALGORITHM

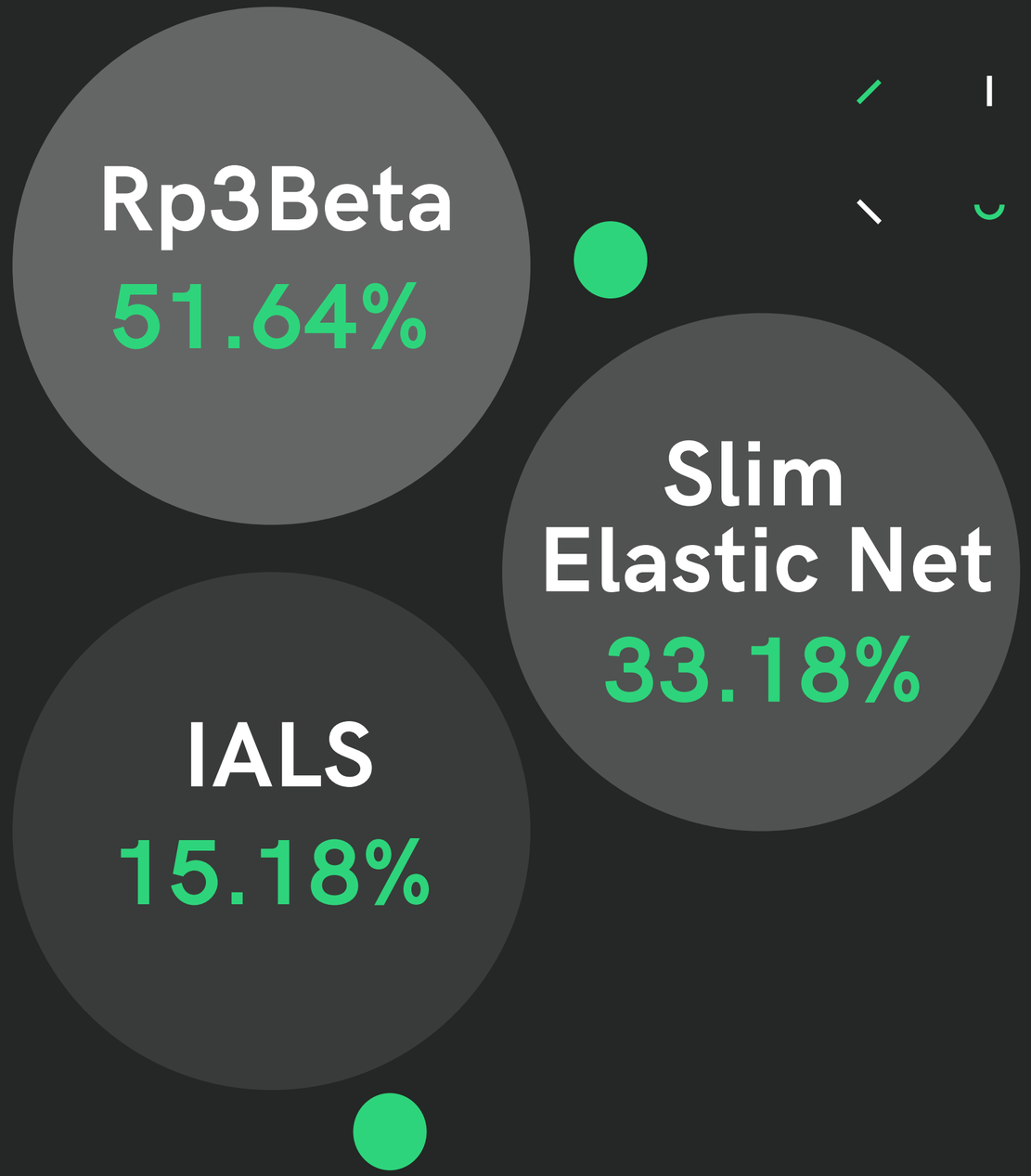
Score Hybrid Recommender
Linear combination of scores

INPUT: URM + ICM
TUNING: 5-fold cross validation

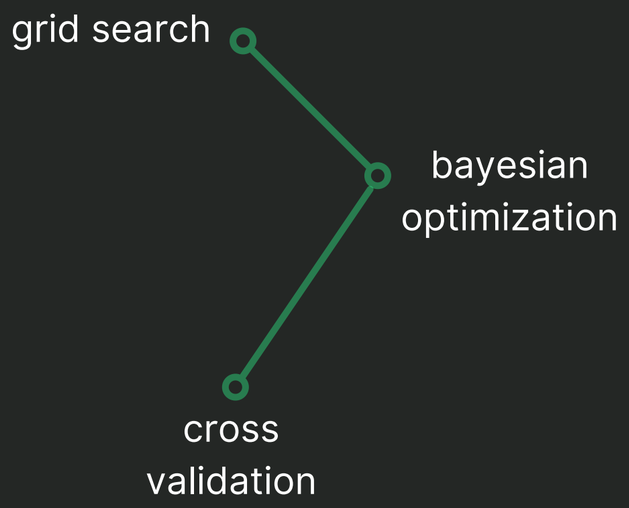
MAP@10 $_{private}$ = 0.107946

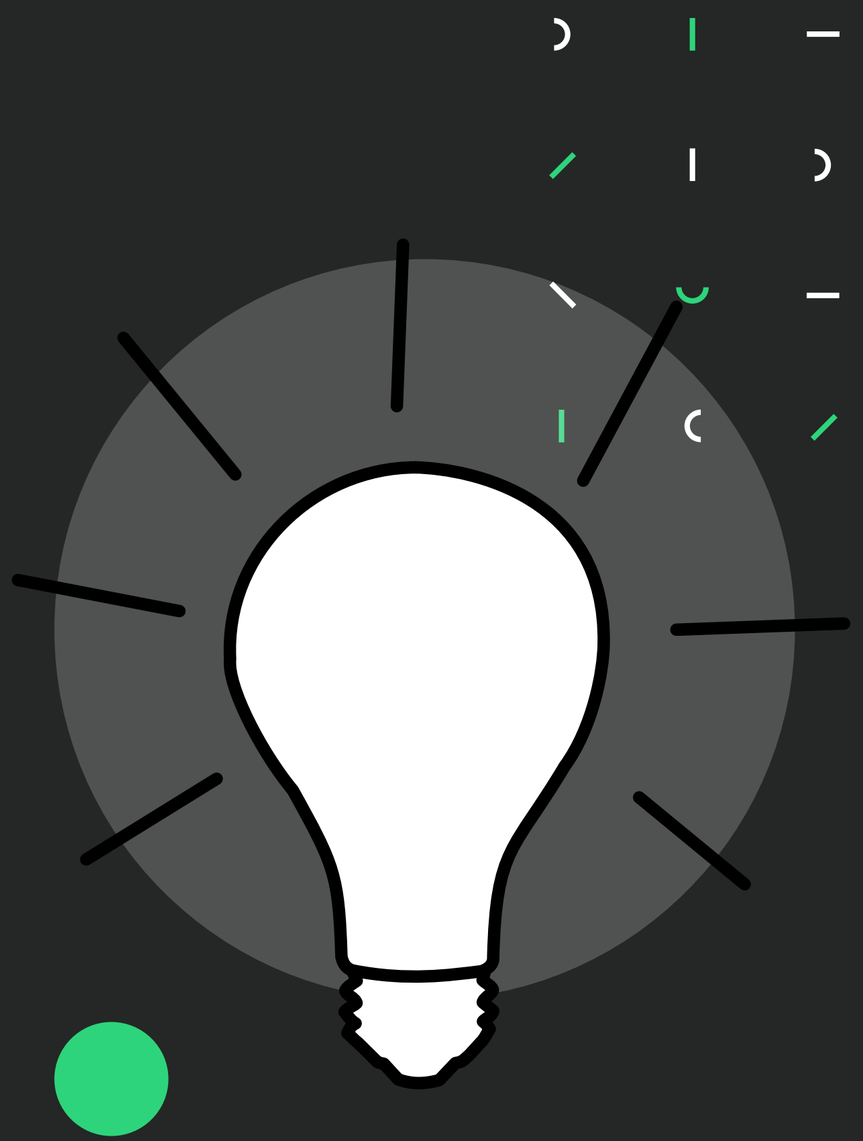
MAP@10 $_{public}$ = 0.09750

MAP@10 $_{local}$ = 0.07977



HYPERPARAMETER TUNING





URM + ICM

Merging with vertical stack the two matrices made a huge difference in recommendation quality

using scipy.sparse

```
sps.vstack([URM_train, ICM_all.T])
```

What made the difference

TEAM

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