

# Bootstrapping Recommender Systems with the Crowdsourcing

Semester project

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## 1 Description

Recommender systems are information filtering techniques that, based on users' preferences, present items to the users most likely to interest them. Initial stages of recommender systems are often affected by the lack of the information needed to produce high quality recommendations. This is known as the cold start problem [1], and is inherited property of many automated data modeling techniques.

This project aims to explore a possibility of using crowdsourcing techniques in order to deal with the missing information [2]. In particular, we are interested in employing crowdworkers to predict users' preferences over novel items, i.e. crowdworkers' task would be to accurately fill out the missing ratings. The modeling of such scenario includes:

1. filtering inadequate workers: designing an online learning algorithm to detect uninformed or malicious workers;
2. rewarding accurate information: constructing a payment scheme that incentivizes workers to invest effort and reveal accurate predictions;
3. incorporating the elicited information into a recommendation system: applying well known techniques over the obtained data to produce quality recommendations.

## 2 Tasks

- Collect data from crowdworkers
- Incorporate the data into recommender systems techniques
- Evaluate the performance of the approach

## 3 Benefits

- Get acquainted with the state of the art recommender systems
- Understand the challenges of the crowdsourcing environment

## References

- [1] A. Schein et al., *Methods and Metrics for Cold-Start Recommendations*. Proceedings of the 25th Annual International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR 2002).
- [2] J. Lee et al., *Alleviating the Sparsity in Collaborative Filtering using Crowdsourcing*. CrowdRec 2013: Workshop on Crowdsourcing and Human Computation for Recommender Systems.