

Proceedings of the  
**RecSys 2011**  
**Workshop on**  
**Human Decision Making in Recommender**  
**Systems (Decisions@RecSys'11)**

and

**User-Centric Evaluation of Recommender**  
**Systems and Their Interfaces - 2**  
**(UCERSTI 2)**

affiliated with the  
**5<sup>th</sup> ACM Conference on Recommender**  
**Systems**

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## Preface (Decisions@RecSys'11)

Interacting with a recommender system means to take different decisions such as selecting a song/movie from a recommendation list, selecting specific feature values (e.g., camera's size, zoom) as criteria, selecting feedback features to be critiqued in a critiquing based recommendation session, or selecting a repair proposal for inconsistent user preferences when interacting with a knowledge-based recommender. In all these scenarios, users have to solve a decision task. The major focus of this workshop (Decisions@RecSys'11) are approaches for efficient human decision making in different recommendation scenarios.

The complexity of decision tasks, limited cognitive resources of users, and the tendency to keep the overall decision effort as low as possible leads to the phenomenon of bounded rationality, i.e., users are exploiting decision heuristics rather than trying to take an optimal decision. Furthermore, preferences of users will likely change throughout a recommendation session, i.e., preferences are constructed in a specific decision environment and users do not know their preferences beforehand.

Decision making under bounded rationality is a door opener for different types of non-conscious influences on the decision behavior of a user. Theories from decision psychology and cognitive psychology are trying to explain these influences, for example, decoy effects and defaults can trigger significant shifts in item selection probabilities; in group decision scenarios, the visibility of the preferences of other group members can have a significant impact on the final group decision.

The major goal of this workshop is (was) to establish a platform for industry and academia to present and discuss new ideas and research results that are related to human decision making in recommender systems. The workshop consists (consisted) of technical sessions in which results of ongoing research are (were) presented, informal group discussions on focused topics, and a keynote talk given by Anthony Jameson from DFKI, Germany.

The topics of papers submitted to the workshop can be summarized as follows:

- Decision heuristics: the role of decision heuristics/phenomena (e.g., decoys and anchoring) in the construction of recommender applications.
- Recommender user interfaces: impact of recommender interfaces on human decision-making behavior.
- Group decision making: group recommendation algorithms and group decision strategies.
- Emotion-based recommendation: emotion detection and emotion-aware recommender applications.
- New application domains: smart homes and intelligent data management.

The workshop material (list of accepted papers, invited talk, and the workshop schedule) can be found at the Decisions@RecSys 2011 workshop webpage: [recex.ist.tugraz.at/RecSysWorkshop](http://recex.ist.tugraz.at/RecSysWorkshop).

*Alexander Felfernig, Li Chen, and Monika Mandl*  
*October 2011*

# Preface (UCERSTI 2)

Research on "Human-Recommender Interaction" is scarce. Algorithm optimization and off-line testing using measures like RMSE are dominant topics in the RecSys community, but theorizing about consumer decision processes and measuring user satisfaction in online tests is less common. Researchers in Marketing and Decision-Making have been investigating consumer choice processes in great detail, but only sparingly put this knowledge to use in technological applications. Human-Computer Interaction has been focusing on the usability of interfaces for ages, but does not seem to link research on consumer choice and recommender system interfaces.

During RecSys 2010, we organized the first UCERSTI workshop to bridge these gaps. Two keynote speeches, 7 accepted papers and a lively panel discussion introduced the visitors of RecSys 2010 to the field of Human-Recommender Interaction. By means of UCERSTI 2 we hope to further strengthen the bonds between these researchers, to exchange new experiences, and meet other new researchers working on user-centric research in Recommender Systems.

The papers cover the following topics:

- Preference elicitation methods and Decision Making research
- Applications of psychological theory and models in Recommender systems
- User-adaptive recommender interfaces
- Quantitative evaluation of recommender systems such as controlled experiments and field trials
- User-recommender interaction measurement techniques such as questionnaires and process data analysis
- User acceptance of recommender systems

UCERSTI 2 also includes a panel discussion, introduced by Joseph A. Konstan and Bart Knijnenburg, on "Recommender system evaluation: creating a unified, cumulative science".

## **Panel description:**

The evaluation of recommender systems is typified by a proliferation of claims, metrics and procedures. A review of research papers in Recommender Systems shows a number of typical claims:

- This is an innovative way of recommending
- This algorithm is more accurate than others
- This algorithm is faster for large data sets than others

- This algorithm is better than others along a particular dimension (e.g., diversity, novelty)
- This way of eliciting ratings leads to greater accuracy of recommendations
- This recommender system (algorithm, interface, etc.) is preferred by users
- This recommender system (algorithm, interface, etc.) leads to greater long-term user retention than other systems

For each of these claims recommender systems researchers and practitioners have developed several distinct metrics to evaluate them, as well as a diverse set of procedures to conduct the evaluation. This apparent heterogeneity stands in the way of scientific progress. Researchers face the impossible challenge of selecting a subset of claims/metrics/procedures that allows for comparability of their work with previous studies. To create a rigorous, cumulative science of recommender systems, we need to take a step back and reflect on our current practices.

This reflection is partly philosophical: Which of the possible investigative claims are worthy of our consideration? The answer to this question depends on the purpose or goal we ascribe to a recommender system, whom we feel should benefit from it, and where we believe the field of recommender systems blends into other fields. In other words, we need to decide on what a "good recommender system" really is.

It is also partly practical: As scientists, we need to understand best practices for providing the evidence to back up these claims, and for providing such evidence in a way that allows our field to move forward. Some claims (e.g., novelty) can simply be supported by a review of related work. Others (e.g., user satisfaction) require careful experimental designs that isolate and make salient as much as possible the factor being studied so that differences in results can be attributed to that factor. Still others (e.g., algorithmic performance) require standardization of metrics and evaluation procedures to ensure apples-to-apples comparisons against the best prior work.

This panel will address the general challenge of building a rigorous, cumulative science out of recommender systems with a specific focus on experiment design and standardization in support of better user-centered evaluation.

More information on UCERSTI2 at: <http://ucersti.ieis.tue.nl/>

Martijn Willemsen, Dirk Bollen and Michael Ekstrand

*October 2011*

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