



**AALBORG UNIVERSITY**  
DENMARK

**Aalborg Universitet**

### **Third Workshop on New Trends in Content-based Recommender Systems (CBRecSys 2016)**

Bogers, Antonius Marinus; Koolen, Marijn; Musto, Cataldo; Lops, Pasquale; Semeraro, Giovanni

*Published in:*

RecSys '16: Proceedings of the 2015 ACM Conference on Recommender Systems

*DOI (link to publication from Publisher):*

[10.1145/2959100.2959200](https://doi.org/10.1145/2959100.2959200)

*Creative Commons License*

Unspecified

*Publication date:*

2016

*Document Version*

Publisher's PDF, also known as Version of record

[Link to publication from Aalborg University](#)

*Citation for published version (APA):*

Bogers, T., Koolen, M., Musto, C., Lops, P., & Semeraro, G. (2016). Third Workshop on New Trends in Content-based Recommender Systems (CBRecSys 2016). In RecSys '16: Proceedings of the 2015 ACM Conference on Recommender Systems (pp. 419-420). Association for Computing Machinery. DOI: 10.1145/2959100.2959200

#### **General rights**

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- ? Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- ? You may not further distribute the material or use it for any profit-making activity or commercial gain
- ? You may freely distribute the URL identifying the publication in the public portal ?

#### **Take down policy**

If you believe that this document breaches copyright please contact us at [vbn@aub.aau.dk](mailto:vbn@aub.aau.dk) providing details, and we will remove access to the work immediately and investigate your claim.

# Third Workshop on New Trends in Content-based Recommender Systems (CBRecSys 2016)

Toine Bogers  
Department of Communication  
and Psychology  
Aalborg University  
Copenhagen  
toine@hum.aau.dk

Marijn Koolen  
Dutch Institute of Sound and  
Vision  
Hilversum, The Netherlands  
mkoolen@beeldengeluid.nl

Cataldo Musto  
cataldo.musto@uniba.it

Pasquale Lops  
pasquale.lops@uniba.it

Giovanni Semeraro  
giovanni.semeraro@uniba.it

University of Bari "Aldo Moro"  
Bari, Italy

## ABSTRACT

While content-based recommendation has been applied successfully in many different domains, it has not seen the same level of attention as collaborative filtering techniques have. However, there are many recommendation domains and applications where content and metadata play a key role, either *in addition to* or *instead of* ratings and implicit usage data. For some domains, such as movies, the relationship between content and usage data has seen thorough investigation already, but for many other domains, such as books, news, scientific articles, and Web pages we still do not know *if and how* these data sources should be combined to provided the best recommendation performance. The *CBRecSys 2016* workshop provides a dedicated venue for papers dedicated to all aspects of content-based recommendation.

## 1. INTRODUCTION

Content-based recommendation has been applied successfully in many different domains [9, 7], yet it has not seen the same level of attention as collaborative filtering techniques have. In the past decade, competitions like the Netflix Prize<sup>1</sup>, CAMRA<sup>2</sup>, and the Yahoo! Music KDD Cup 2011 [8] have spurred on advances in collaborative filtering and how to utilize ratings and usage data. However, there are many recommendation domains and applications where content and metadata play a key role, either *in addition to* or *instead of* ratings and implicit usage data. For some domains, such as movies, the relationship between content and usage data has seen thorough investigation already (e.g. [10]), but for many other domains, such as books, news, scientific articles, and Web pages we still do not know *if and how* these data sources should be

<sup>1</sup><http://www.netflixprize.com/>

<sup>2</sup><http://www.dai-labor.de/camra2010/>

Permission to make digital or hard copies of part or all of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for third-party components of this work must be honored. For all other uses, contact the Owner/Author. Copyright is held by the owner/author(s).

*RecSys '16 September 15-19, 2016, Boston, MA, USA*

© 2016 Copyright held by the owner/author(s).

ACM ISBN 978-1-4503-4035-9/16/09.

DOI: <http://dx.doi.org/10.1145/2959100.2959200>

combined to provided the best recommendation performance. Only recently have we seen the introduction of competitions that include content-based information in the recommendation process, such as CLEF NewsReel<sup>3</sup>

## 2. FORMAT, AUDIENCE AND TOPICS

The *CBRecSys 2016* workshop is the follow-up to the successful first two editions of the workshop in Silicon Valley in 2014 [4, 5] and Vienna in 2015 [1, 3], which featured interesting and high-quality programs.

CBRecSys 2016 will be organized as a full-day workshop. After the opening keynote, the late morning session is reserved for general submissions dedicated to content-based recommendation, organized by theme with the accepted papers presented as 15-minute talks with 5 minutes for discussion. The afternoon program continues the accepted paper talks and concludes the afternoon session with a panel on the future challenges and trends of content-based recommendation with speakers from both academia and industry to make for a lively and applied discussion.

The CBRecSys 2016 workshop aims to address this by providing a venue for papers dedicated to all aspects and new trends of content-based recommendation. This would include both recommendation in domains where textual content is abundant (e.g. books, news, scientific articles, jobs, educational resources, and Web pages) as well as dedicated comparisons and combinations of content-based techniques with collaborative filtering approaches.

### 2.1 Topics of Interest

Relevant topics of the workshop include:

- Processing and Representing Content
  - Estimating (implicit) ratings associated with text reviews
  - Opinion mining and sentiment analysis of text reviews to support content-based recommendation
  - Multilingual Content representation
  - Exploiting Deep Learning approaches for content representation

<sup>3</sup><http://www.clef-newsreel.org/>

- Exploiting semantic technologies for processing and representing content
- Extracting user personality traits and factors from text reviews for recommendation
- Exploiting user generated contents
  - Social tag-based recommender systems
  - Mining microblogging data in content-based recommender systems
  - Exploiting Semantic Web and Linked Open Data in content-based recommender systems
  - User Profiling based on Big, Social and Linked Data
- Mining contextual data from content
  - Extraction of contextual signals from text contents for recommendation
  - Considering the time dimension in content-based recommendation
  - Mood-based recommender systems
- Addressing limitations of recommender system
  - Addressing the cold-start problem with content-based recommendation approaches
  - Increasing diversity in content-based recommendations
  - Providing novelty in content-based recommendations
- Developing novel recommendation approaches
  - Hybrid strategies combining content-based and collaborative filtering recommendations
  - Content-based approaches to cross-system and cross-domain recommendation
  - Latent factor models for content-based and hybrid recommendation

### 3. SUBMISSIONS

A total of 14 papers were submitted to the workshop, which were all reviewed by a program committee of international experts in the field.

Nine of these papers were accepted for presentation at the workshop for an acceptance rate of 64%. Several papers focus on using machine learning approaches for content-based recommendation, such as deep learning and learning-to-rank. Other papers present hybrid systems combining collaborative filtering and content-based recommendation, as well as a variety of different features, such as sentiment, temporal, and visual features. Like in previous years, some of the accepted papers focus on using semantic resources such as Linked Open Data to improve the effectiveness of content-based recommender algorithms. The nine accepted papers span a breadth of different domains, such as movies, Linked Open Data, news articles, research papers, e-commerce.

### 4. WEBSITE AND PROCEEDINGS

The workshop material (list of accepted papers, invited talk, and the workshop schedule) can be found on the CBRecSys 2016 workshop website at <http://cbrecsys2016.aau.dk>. The proceedings are published as a CEUR Workshop Proceedings volume, a link to which can be found on the workshop website. Similar to last years' workshops [2, 6], we will also look into publishing a summary of the workshop in venues like the SIGIR Forum, to increase cross-disciplinary awareness of recommender systems research.

### 5. REFERENCES

- [1] T. Bogers and M. Koolen, editors. *Proceedings of the 2nd Workshop on New Trends in Content-based Recommender Systems, co-located with the 9th ACM Conference on Recommender Systems, CBRecSys@RecSys 2015, Vienna, Austria, September 20, 2015*, volume 1448 of *CEUR Workshop Proceedings*. CEUR-WS.org, 2015.
- [2] T. Bogers and M. Koolen. Report on RecSys 2015 Workshop on New Trends in Content-Based Recommender Systems. *ACM SIGIR Forum*, 49(2):141–146, December 2015.
- [3] T. Bogers and M. Koolen. Second Workshop on New Trends in Content-based Recommender Systems: (CBRecSys 2015). In *Ninth ACM Conference on Recommender Systems, RecSys '15, Vienna, Austria - September 16 - 20, 2015*, pages 339–340, 2015.
- [4] T. Bogers, M. Koolen, and I. Cantador, editors. *Proceedings of the 1st Workshop on New Trends in Content-based Recommender Systems, co-located with the 8th ACM Conference on Recommender Systems, CBRecSys@RecSys 2014, Foster City, Silicon Valley, California, USA, October 6, 2014*, volume 1245 of *CEUR Workshop Proceedings*. CEUR-WS.org, 2014.
- [5] T. Bogers, M. Koolen, and I. Cantador. Workshop on New Trends in Content-based Recommender Systems: (CBRecSys 2014). In *Eighth ACM Conference on Recommender Systems, RecSys '14, Foster City, Silicon Valley, CA, USA - October 06 - 10, 2014*, pages 379–380, 2014.
- [6] T. Bogers, M. Koolen, and I. Cantador. Report on RecSys 2014 Workshop on New Trends in Content-Based Recommender Systems. *ACM SIGIR Forum*, 49(1):20–26, June 2015.
- [7] M. de Gemmis, P. Lops, C. Musto, F. Narducci, and G. Semeraro. Semantics-aware Content-based Recommender Systems. In *Recommender Systems Handbook*, pages 119–159. Springer, 2015.
- [8] G. Dror, N. Koenigstein, Y. Koren, and M. Weimer. The Yahoo! Music Dataset and KDD-Cup '11. In *JMLR Workshop and Conference Proceedings*, volume 18 of *Proceedings of KDD Cup 2011*, pages 3–18. Springer, 2012.
- [9] P. Lops, M. de Gemmis, and G. Semeraro. Content-based Recommender Systems: State of the Art and Trends. In *Recommender Systems Handbook*, pages 73–105. Springer, 2011.
- [10] I. Pilászy and D. Tikk. Recommending New Movies: Even a Few Ratings Are More Valuable Than Metadata. In *RecSys '09: Proceedings of the Third ACM Conference on Recommender Systems*, pages 93–100. ACM, 2009.