RecSys
COMO, 2017

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SIGCHI

11th ACM Conference
on Recommender Systems

August 27-31, 2017

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It is our great pleasure to welcome you to the 11th ACM Conference on Recommender Systems (RecSys 2017), held in Como (Italy), from August 27th through 31st. RecSys has grown to become the leading conference for the presentation and discussion of recommender systems research, bringing together the world's top recommender systems researchers and e-commerce companies.

The scope of RecSys 2017 reflects the growth of the Recommender Systems community. For the third time in the history of RecSys we will offer two parallel tracks during the three days of the main conference with 46 technical papers, 12 industry papers, 5 tutorials, 4 keynotes, and 30 demos and posters. We again offer an extensive pre-conference program with 12 workshops and the RecSys Challenge.

The technical program for RecSys 2017 drew upon 247 total submissions. The review process for all tracks was highly selective. In the main program, 26 long papers were accepted out of 125 submissions (20.8% acceptance rate), and 20 out of 122 short papers (16.4% acceptance rate). Prominent topics covered by these papers include human factors, ranking, session-based recommendations, diversity, and core algorithmic research (including matrix factorization and deep learning).

Building on the tradition established by previous years, RecSys 2017 features a strong focus on significant real-world challenges facing industrial practitioners and practical solutions to those challenges.

WELCOME

The three industry sessions feature a rich set of talks from Microsoft, Electronic Arts, Dressipi, Farfetch, Netflix, AirBnB, Skyscanner, CloudAcademy, Linkedin, Blendle, Apptus and Cheetah Mobile.

This year's conference has truly been a product of the vibrant, supportive RecSys community and the vast cohort of amazing volunteers we drew upon within it. We would like to thank the members of the organizing committee for their generosity, initiative and brilliant execution. We are tremendously grateful to the 25 senior and 144 regular Program Committee members and the reviewers who volunteered their time and generated detailed and insightful reviews and discussions. We also extend our deepest gratitude to the many sponsors in 2017 who generously provided crucial funds and services allowing us to support many of the social events at the conference. We thank the organizers and sponsors of the RecSys Challenge, who devoted themselves to organizing this annual competitive event.

Finally, we thank all the authors for their contributions in shaping the high quality content of the conference, as well as the conference attendees, who literally give meaning to this event.

We hope you will find RecSys 2017 to be an engaging opportunity to share ideas and interact with leading researchers and practitioners from around the world.

Paolo Cremonesi & Francesco Ricci
RecSys 2017 General Chairs

Shlomo Berkovsky & Alexander Tuzhilin
RecSys 2017 Program Chairs

Linas Baltrunas & Alan Said
RecSys 2017 Industry Chairs

VENUE

RecSys 2017 will be hosted at Villa Erba, at Cernobbio. Cernobbio is 5 km far from Como, and for the participants staying in Como a shuttle bus service will be provided by the conference. Villa Erba can be easily reached from Como also by using public transportation (public ferry or bus).

The main conference will take place from Monday, August 28, to Wednesday, August 30, while the workshops will take place on Sunday, August 27 and Thursday, August 31.

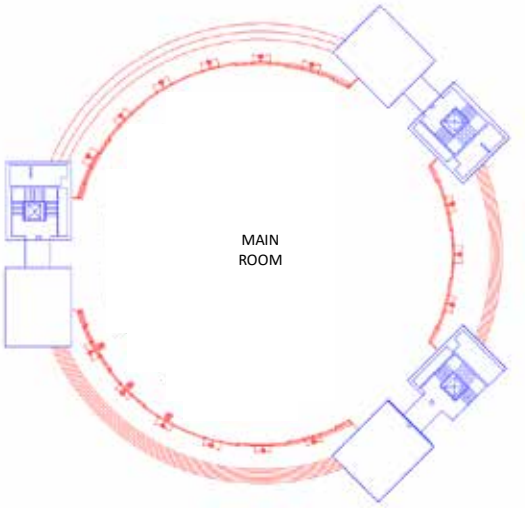
Poster Reception and Conference Banquet will take place at Villa Erba as well, the former on Monday, August 28, and the latter on Tuesday, August 29.

The map above provides an overview of the conference location.

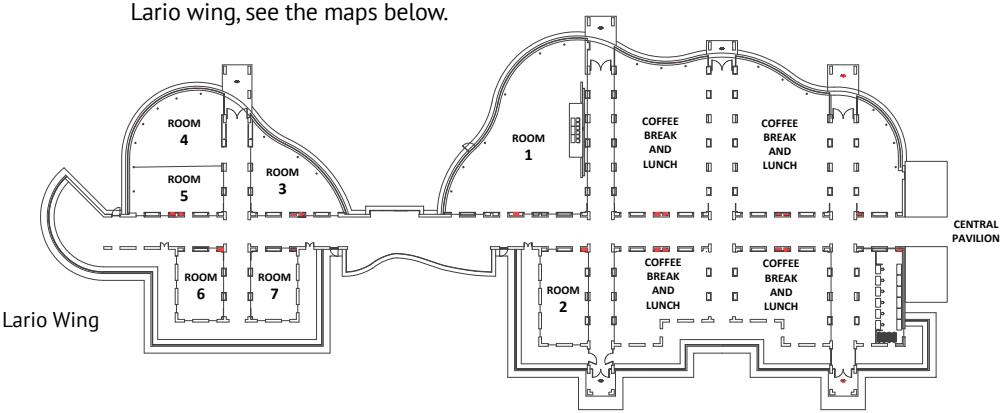
For further information about the shuttle bus service and the public transportation see http://recsys.acm.org/recsys17/location

VILLA ERBA

Central Pavilion



Conference and workshops will be held on August 27–31 at Villa Erba, a 19th-century villa in Cernobbio, on the shores of Lake Como. The available spaces for the conference consist in a central pavilion and the adjacent Lario wing, see the maps below.



The plenary sessions of the main conference will be hosted in the central pavilion (Main Room), while the parallel sessions will take place in the central pavilion and in Room 1 in the Lario wing. The workshops will take place in the Lario wing. Villa Erba will host also the poster reception and the conference banquet. The former will be held in the lunch area of the Lario wing, while the latter will take place in the central pavilion.

SUNDAY, AUGUST 27

08:00 – 17:30	REGISTRATION						
09:00 – 10:30	RecSys KTL (Room 1)	IntRS (Room 2)	RecTour (Room 3)		RecSys Challenge (Room 5)		Hands-on Tutorial (Room 7)
10:30 – 11:00	Coffee break						
11:00 – 12:30	RecSys KTL (Room 1)	IntRS (Room 2)	RecTour (Room 3)		RecSys Challenge (Room 5)		Hands-on Tutorial (Room 7)
12:30 – 14:00	Lunch break						
14:00 – 15:30	DLRS (Room 1)	IntRS (Room 2)	RecTour (Room 3)	VAMS (Room 4)	RecSys Challenge (Room 5)	KidRec (Room 6)	Hands-on Tutorial (Room 7)
15:30 – 16:00	Coffee break						
16:00 – 17:30	DLRS (Room 1)	IntRS (Room 2)	RecTour (Room 3)	VAMS (Room 4)	RecSys Challenge (Room 5)	KidRec (Room 6)	Hands-on Tutorial (Room 7)

SCHEDULE | SUN
(WORKSHOPS)

MONDAY, AUGUST 28

08:00 – 18:00	**REGISTRATION**	
08:30 – 09:00	Opening remarks (Main Room)	
09:00 – 10:00	Keynote (George Loewenstein) (Main Room)	
10:00 – 10:30	**Coffee break**	
10:30 – 12:30	Paper session 1 Human interaction (Main Room)	Paper session 2 Ranking (Room 1)
12:30 – 14:00	**Lunch break**	
14:00 – 15:45	Industry session 1 Games and travel (Main Room)	Paper session 3 Unbiased and private (Room 1)
15:45 – 16:15	**Coffee break**	
16:15 – 18:00	Tutorial 1 Privacy for recommender systems (Main Room)	Tutorial 2 New paths in music recommender systems research (Room 1)
18:30 – 22:00	Madness session (Main Room) Poster reception (Lunch area)	

SCHEDULE | MON
(CONFERENCE)

TUESDAY, AUGUST 29

08:00 – 18:00	**REGISTRATION**	
08:30 – 09:30	Keynote (George Karypis) (Main Room)	
09:30 – 10:30	Plenary panel (Main Room)	
10:30 – 11:00	**Coffee break**	
11:00 – 12:30	Paper session 4 Session-based recommender systems (Main Room)	Paper session 5 Algorithms 1 (Room 1)
12:30 – 14:00	**Lunch break**	
14:00 – 15:45	Industry session 2 Interesting domains (Main Room)	Paper session 6 Algorithms 2 (Room 1)
15:45 – 16:15	**Coffee break**	
16:15 – 18:00	Tutorial 3 Deep Learning for Recommender Systems (Main Room)	Tutorial 4 Product recommendations enhanced with reviews (Room 1)
21:00	Conference banquet (Villa Erba)	

SCHEDULE | TUE
(CONFERENCE)

WEDNESDAY, AUGUST 30

08:00 – 17:00	**REGISTRATION**	
08:30 – 09:30	Keynote (Ronny Lempel) (Main Room)	
09:30 – 10:15	Paper session 7 Diversity (Main Room)	Paper session 8 Conversations (Room 1)
10:15 – 10:45	**Coffee break**	
10:45 – 12:30	Paper session 9 Deep learning (Main Room)	Paper session 10 Novel and practical (Room 1)
12:30 – 14:00	**Lunch break**	
14:00 – 15:00	Industry session 3 Algorithms@Industry (Main Room)	Paper session 11 Semantics and sentiment (Room 1)
15:00 – 16:00	Keynote (Jason Weston) (Main Room)	
16:00 – 16:30	Concluding remarks (Main Room)	
16:30 – 17:00	**Coffee break**	

SCHEDULE | WED
(CONFERENCE)

THURSDAY, AUGUST 31

08:00 – 17:30	REGISTRATION				
09:00 – 10:30	LSRS (Room 1)	RecTemp (Room 2)	ComplexRec (Room 3)	HealthRecSys (Room 4)	FATREC (Room 5)
10:30 – 11:00	Coffee break				
11:00 – 12:30	LSRS (Room 1)	RecTemp (Room 2)	ComplexRec (Room 3)	HealthRecSys (Room 4)	FATREC (Room 5)
12:30 – 14:00	Lunch break				
14:00 – 15:30	LSRS (Room 1)	RecTemp (Room 2)	CitiRec (Room 3)	HealthRecSys (Room 4)	FATREC (Room 5)
15:30 – 16:00	Coffee break				
16:00 – 17:30	LSRS (Room 1)	RecTemp (Room 2)	CitiRec (Room 3)	HealthRecSys (Room 4)	FATREC (Room 5)

SCHEDULE | THU
(WORKSHOPS)

SUN | Workshops Tutorial

27

09:00 – 12:30
ROOM 1

RecSysKTL: Workshop on Intelligent Recommender Systems by Knowledge Transfer & Learning

Yong Zheng
Illinois Institute of Technology, USA

Weike Pan
Shenzhen University, China

Shaghayegh (Sherry) Sahebi
University of Albany, USA

Ignacio Fernández
NTENT, Spain

Recommender systems, as one of well-known Web intelligence applications, aim to alleviate the information overload problem and produce item suggestions tailored to user preferences. Typically, user preferences or tastes are collected through users' implicit or explicit feedback in various formats, such as user ratings, online behaviors, text reviews, etc. Also, user feedback on different items can be collected from several systems or domains. The diversity of feedback formats and domains provides multiple views to users' preferences, and thus, can be helpful in recommending more related items to users. Cross-domain recommender systems and transfer learning approaches propose to take advantage of such diversity of viewpoints to provide better-quality recommendations and resolve issues such as the cold-start problem. The emerging research on cross-domain, context-aware and multi-criteria recommender systems has proved to be successful. Given the recent availability of cross-domain datasets and the novelty of the topic, we organize the 1st workshop on intelligent recommender systems by knowledge transfer and learning (RecSysKTL) held in conjunction with the 11th ACM Conference on Recommender Systems. This workshop intends to create a medium to generate more practical and efficient predictive models or recommendation approaches by leveraging user feedbacks or preferences from multiple domains. This workshop will be beneficial for both researchers in academia and data scientists in industry to explore and discuss different definition of domains, interesting applications, novel predictive models or recommendation approaches to serve the knowledge transfer and learning from one domain to another

14:00 – 17:30
ROOM 1

DLRS: Workshop on Deep Learning for Recommender Systems

Balázs Hidasi
Gravity, Hungary

Alexandros Karatzoglou,
Telefonica, Spain

Oren Sar-Shalom
IBM, Israel

Sander Dieleman
DeepMind, UK

Domonokos Tikk
Gravity, Hungary

Bracha Shapira
Ben Gurion University, Israel

The workshop centers around the use of Deep Learning technology in Recommender Systems and algorithms. DLRS 2017 builds upon the positively received traits of DLRS 2016. DLRS 2017 is a fast paced half-day workshop with a focus on high quality paper presentations and keynote. We welcome original research using deep learning technology for solving recommender systems related problems. Deep Learning is one of the next big things in Recommendation Systems technology. The past few years have seen the tremendous success of deep neural networks in a number of complex tasks such as computer vision, natural language processing and speech recognition. After its relatively slow uptake by the recommender systems community, deep learning for recommender systems became widely popular in 2016. We believe that the previous edition of this workshop – DLRS 2016 – also took its share to popularize the topic. Notable recent application areas are music recommendation, news recommendation, and session-based recommendation. The aim of the workshop is to encourage the application of Deep Learning techniques in Recommender Systems, to further promote research in deep learning methods for Recommender Systems, and to bring together researchers from the Recommender Systems and Deep Learning communities.

09:00 – 17:30
ROOM 2

IntRS: Joint Workshop on Interfaces and Human Decision Making for Recommender Systems

Peter Brusilovsky
University of Pittsburgh, USA

Marco de Gemmis
University of Bari, Italy

Alexander Felfernig
Graz University of Technology, Austria

Pasquale Lops
University of Bari, Italy

John O'Donovan
University of California, Santa Barbara, USA

Nava Tintarev
TU Delft, Netherlands

Martijn C. Willemsen
Eindhoven University of Technology, Netherlands

As an interactive intelligent system, recommender systems are developed to give recommendations that match users' preferences. Since the emergence of recommender systems, a large majority of research focuses on objective accuracy criteria and less attention has been paid to how users interact with the system and the efficacy of interface designs from users' perspectives. The field has reached a point where it is ready to look beyond algorithms, into users' interactions, decision-making processes, and overall experience. This workshop will focus on the aspect of integrating different theories of human decision making into the construction of recommender systems. It will focus particularly on the impact of interfaces on decision support and overall satisfaction.
The aim of the workshop is to bring together researchers and practitioners around the topics of designing and evaluating novel intelligent interfaces for recommender systems in order to: (1) share research and techniques, including new design technologies and evaluation methodologies, (2) identify next key challenges in the area, and (3) identify emerging topics. This workshop aims at establishing an interdisciplinary community with a focus on the interface design issues for recommender systems and promoting the collaboration opportunities between researchers and practitioners. We particularly encourage demos and mock-ups of systems to be used as a basis of a lively and interactive discussion in the workshop.

09:00 – 17:30
ROOM 3

RecTour: Workshop on Recommenders in Tourism

Julia Neidhardt
TU Wien, Austria

Daniel Fesenmaier
University of Florida, USA

Tsvi Kuflik
The University of Haifa, Israel

Wolfgang Wörndl
TU München, Germany

This one-day workshop held in conjunction with RecSys 2017 addresses specific challenges for recommender systems in the tourism domain. Planning a vacation usually involves searching for a set of products that are interconnected (e.g., transportation, lodging, attractions) with limited availability, and where contextual aspects may have a major impact (e.g., spatiotemporal context). RecTour 2017 aims at attracting presentations of novel ideas in order to advance the current state of the art in the field of tourism recommenders; topics include specific applications and case studies (evaluation), specific methods and techniques, context and mobility, the cold-start problem, preference elicitation, and emotions and recommenders. Researchers and practitioners from different fields are invited to submit research and position papers as well as demonstration systems.

14:00 – 17:30
ROOM 4

VAMS: Value-Aware and Multi-Stakeholder Recommendation

Robin Burke
DePaul University, USA

Gediminas Adomavicius
University of Minnesota, USA

Ido Guy
Yahoo Inc., Israel

Jan Kransodebski
Expedia, USA

Luiz Pizzato
Commonwealth Bank of Australia, Australia

Yi Zhang
University of California, Santa Cruz, USA

Himan Abdollahpouri
DePaul University, USA

Personalization is an essential characteristic of recommender systems; they are designed to find items that meet user needs and tastes. However, the receiver of the recommendation may not always be the only party whose goals are relevant in recommendation computation. Also, in many contexts, such as digital advertising, the value associated with recommendation delivery may need to be included in the recommendation calculation. The purpose of this workshop is to bring together researchers to formulate a common vision for research progress in this new area.

09:00 – 17:30
ROOM 5

RecSys Challenge 2017 Workshop

Fabian Abel
XING AG, Germany

Yashar Deldjoo
Politecnico di Milano, Italy

Mehdi Elahi
Free University of Bozen-Bolzano, Italy

Daniel Kohlsdorf
XING AG, Germany

The RecSys Challenge 2017 is organized by XING, Politecnico di Milano and Free University of Bozen-Bolzano. XING is a social network for business. People use XING, for example, to find a job and recruiters use XING to find the right candidate for a job. At the moment, XING has more than 18 million users and typically around 1 million active job postings on the platform.

This year's edition of the RecSys Challenge aims to better connect job seekers and recruiters via job recommendations. The challenge is focusing on the problem of job recommendations on XING in a cold-start scenario. The challenge will consists of two phases:

- Offline evaluation: fixed historic dataset and fixed targets for which recommendations/solutions need to be computed/submitted.
- Online evaluation: dynamically changing targets (recommendations submitted by the teams are actually rolled out in XING's live system).

Both phases aim at the following task: given a new job posting, identify those users that (a) may be interested in receiving the job posting as a push recommendation, and (b) are also appropriate candidates for the given job. For both offline and online evaluation, the same evaluation metrics and the same types of data sets are used. The offline evaluation is essentially used as an entry gate to the online evaluation:

- The top teams (which also pass a XING baseline) will be allowed to participate in the online evaluation.
- The winner of the RecSys Challenge 2017 is the winner of the online challenge.

14:00 – 17:30
ROOM 6

KidRec: International Workshop on Children & Recommender Systems

Jerry Alan Fails
Boise State University, USA

Maria Soledad Pera
Boise State University, USA

Franca Garzotto
Politecnico di Milano, Italy

Mirko Gelsomini
Politecnico di Milano, Italy

Recommender systems for children are only recently beginning to be studied and are primarily limited to recommenders in education-related environments. When focused on this particular audience, the role of a recommendation system needs to be reformulated, as it is not sufficient for recommenders to identify items that match users' preferences and interests. Instead, it is imperative that they also explicitly consider children's needs from multiple perspectives: educational, developmental, and engagement, to name a few.

09:00 – 17:30
ROOM 7

Open Source Tools for Online Learning Recommenders

Róbert Pálovics
Hungarian Academy of Sciences, Hungary

Domokos Kelen
Hungarian Academy of Sciences, Hungary

András A. Benczúr
Hungarian Academy of Sciences, Hungary

Recommender systems have to serve in online environments that can be non-stationary.
Traditional recommender algorithms may periodically rebuild their models, but they cannot adjust to quick changes in trends caused by timely information. In contrast, online learning models can adapt to temporal effects, hence they may overcome the effect of concept drift.
As a new experiment at RecSys, we provide a hands-on tutorial to present open source systems capable of updating their models on the fly after each event: Apache Spark, Apache Flink and Alpenglow, our new release C++ recommender system with Python API.
Participants of the tutorial will be able to experiment with all the three systems by using interactive Zeppelin and Jupyter Notebooks on their own laptops.
The final objective of the tutorial is to compare and then blend batch and online methods to build models providing high quality top-k recommendation in non-stationary environments. Participants should bring their own laptops and prepare for a hands-on tutorial.
This is a hands-on tutorial running parallel to the workshops at Sunday, Aug 27, 2017. Participants must be present at one of the two "installation opportunities": 09:00 or 14:00 (coordinated with the start of the workshop sessions).
During the installation opportunities (see above), the presentation team will introduce the tutorial and help the participants with the necessary installation. After installation is complete, participants work independently through the material provided by the tutorial team, who will be present to answer questions. Participants can stay as long as they feel that they need to in order to grasp the tutorial material, and have their questions answered.

MON | Keynote Sessions Tutorials Event

28

09:00 – 10:00
MAIN ROOM
Moderator: *Alexander Tuzhilin*

Recommender Systems and the New New Economics of Information

George Loewenstein
Carnegie Mellon University, USA

George Stigler pioneered the economics of information in the 1960s with his observation that information is a scarce and valuable commodity. Stigler assumed people value information to the extent, and only to the extent, that it helps them to make better decisions, and that people update their beliefs rationally, in response to new information. Stigler won the Nobel prize for his contribution, as did three economists, George Akerlof, Michael Spence and Joseph Stiglitz ten years later. This second wave of research, that came to be called the "new economics of information" adhered to Stigler's assumptions, but examined consequences of asymmetric information – i.e., the fact that interacting individuals often possess different information sets. In this talk I will discuss my research on four phenomena that are key to the information age that don't fit neatly into either wave of economic research on information: curiosity (the desire for information for its own sake), privacy (the desire to withhold information), information avoidance, and the desire to share information. The last of these topics is most relevant to recommender systems, so I will devote special attention to it.

ABOUT THE SPEAKER

George Loewenstein is the Herbert A. Simon University Professor of Economics and Psychology at Carnegie Mellon University. He received his PhD in economics from Yale University in 1985 and since then has held academic positions at The University of Chicago and Carnegie Mellon University, and fellowships at Center for Advanced Study in the Behavioral Sciences, The Institute for Advanced Study in Princeton, The Russell Sage Foundation, The Institute for Advanced Study (Wissenschaftskolleg) in Berlin, and the London School of Economics. His research focuses on applications of psychology to economics, and his specific interests include decision making over time, bargaining and negotiations, psychology and health, privacy, curiosity, information avoidance, law and economics, the psychology of adaptation, the role of emotion in decision making, the psychology of curiosity, conflict of interest, and "out of control" behaviors such as impulsive violent crime and drug addiction. He is one of the founders of the fields of behavioral economics and neuroeconomics.

PAPER SESSION 1: HUMAN INTERACTION	
10:30 – 12:30 MAIN ROOM	
Chair: Peter Brusilovsky	
Educational Question Routing in Online Student Communities (LP)	*Jakub Macina, Ivan Srba, Joseph Jay Williams and Maria Bielikova*
The Magic Barrier Revisited: Accessing Natural Limitations of Recommender Assessment (LP)	*Kevin Jasberg and Sergej Sizov*
Effective user interface designs to increase energy-efficient behavior in a Rasch-based energy recommender system (LP)	*Alain Starke, Martijn Willemsen and Chris Snijders*
Evaluating Decision-Aware Recommender Systems (SP)	*Rus Mesas and Alejandro Bellogin*
Using Explainability for Constrained Matrix Factorization (SP)	*Behnoush Abdollahi and Olfa Nasraoui*
User Preferences for Hybrid Explanations (SP)	*Pigi Kouki, James Schaffer, Jay Pujara, John O'Donovan and Lise Getoor*

PAPER SESSION 2: RANKING	
10:30 – 12:30 ROOM 1	
Chair: Harald Steck	
Learning to Rank with Trust and Distrust in Recommender Systems (LP)	*Dimitrios Rafailidis and Fabio Crestani*
Metalearning for Context-aware Filtering: Selection of Tensor Factorization Algorithms (LP)	*Tiago Cunha, Carlos Soares and André C.P.L.F. de Carvalho*
A Gradient-based Adaptive Learning Framework for Efficient Personal Recommendation (LP)	*Yue Ning, Yue Shi, Liangjie Hong, Huzefa Rangwala and Naren Ramakrishnan*
Learning user-item relatedness from Knowledge Graphs for Top-N Item Recommendation (SP)	*Enrico Palumbo, Giuseppe Rizzo and Raphaël Troncy*
On parallelizing SGD for pairwise learning to rank in collaborative filtering recommender systems (SP)	*Murat Yagci, Tevfik Aytekin and Fikret Gurgen*
Controlling Popularity Bias in Learning-to-Rank Recommendation (SP)	*Himan Abdollahpouri, Robin Burke and Bamshad Mobasher*

LP: Long Paper, SP: Short Paper

INDUSTRY SESSION 1: GAMES AND TRAVEL	
14:00 – 15:45 MAIN ROOM	
Chair: Linas Baltrunas	
Rethinking Collaborative Filtering: A Practical Perspective on State-Of-The-Art Research Based on Real-World Insights and Challenges	*Noam Koenigstein (Microsoft)*
Recommendation Applications and Systems at Electronic Arts	*John Kolen (Electronic Arts)*
Search Ranking And Personalization at AirBnB	*Mihailo Grbovic (AirBnB)*
Bootstrapping a Destination Recommender System	*Neal Lathia (Skyscanner)*

PAPER SESSION 3: UNBIASED AND PRIVATE	
14:00 – 15:45 ROOM 1	
Chair: Markus Zanker	
Secure Multi-Party Protocols for Item-Based Collaborative Filtering (LP)	*Erez Shmueli and Tamir Tassa*
Modeling the Assimilation-Contrast effects in Online Product Rating Systems: Debiasing and Recommendations (LP)	*Xiaoying Zhang, Junzhou Zhao and John C.S. Lui*
Fairness-Aware Group Recommendation with Pareto Efficiency (LP)	*Xiao Lin, Min Zhang, Yongfeng Zhang and Zhaoquan Gu*
A Recommender System for helping Marathoners to Achieve a new Personal-Best	*Barry Smyth and Padraig Cunningham*

16:15 – 18:00
MAIN ROOM

Privacy for Recommender Systems

Bart Knijnenburg
Clemson University, USA

Shlomo Berkovsky
CSIRO, Australia

Websites increasingly gather tremendous amounts of user data for recommendation purposes. This data may pose a severe threat to user privacy, e.g., if accessed by untrusted parties, or used inappropriately. Hence, it is important for recommender system designers and service providers to learn about ways to generate accurate recommendations while at the same time respecting the privacy of their users. In this tutorial, we will:

- Analyze common privacy risks imposed by recommender systems
- Survey architectural, algorithmic, policy-related, and UI-design solutions
- Discuss implications for users

This tutorial is of general interest and is relevant for both participants with longstanding experience in recommender systems, as well as to newcomers. No specific background or skills are required. The tutorial will conclude with a plenary discussion of the future of privacy in recommender systems.

16:15 – 18:00
ROOM 1

New Paths in Music Recommender Systems Research

Markus Schedl
Johannes Kepler University Linz, Austria

Peter Knees
Vienna University of Technology, Austria

Fabien Gouyon
Pandora Inc., USA

In the RecSys community, music is too often treated as "just another item". Yet, the particularities of music data and its multiple modalities open many opportunities, e.g., to leverage content-based audio features or to build comprehensive listener models that go beyond simple user-item interactions. Furthermore, since it is now increasingly more common for a music listener to simply stream music rather than to purchase and own it, today's music recommenders need to focus on recommending a listening experience. Algorithms that produce a one-shot recommendation for the purpose of a track or album purchase are no longer of central importance. As a consequence, Music Recommender System (MRS) research has to face a wide range of challenges, such as sequential recommendation, or conversational and contextual recommendation. This introductory tutorial incorporates both academic and industrial points of view on latest developments in music recommendation research, presenting challenges and solutions. The content will be organized with respect to three use cases: playlist generation, context-aware music recommendation, and recommendation in the creative process of music making. In addition, we will discuss the implications of recent MRS technologies on actors, other than the listener, in the rich and complex music industry ecosystem (e.g., labels, music makers and producers, concert halls, advertisers). No particular prerequisite knowledge or skills are required from the audience, other than a very basic understanding of the main concepts in recommender systems. Accompanying the tutorial, we will publish a comprehensive set of slides, including references to state-of-the-art work and open implementations of several of the presented techniques.

18:30 – 22:00
LUNCH AREA

Poster Reception

DEMOS

1. Data-Driven Repricing Strategies in Competitive Markets:
   An Interactive Simulation Platform
   Martin Boissier, Rainer Schlosser, Sebastian Serth, Nikolai Podlesny, Marvin Bornstein, Johanna Latt, Jan Lindemann, Jan Selke and Matthias Uflacker
2. Acquisition of Music Pairwise Scores and Facial Expressions
   Marko Tkalcic, Nima Maleki, Matevž Pesek, Mehdi Elahi, Francesco Ricci and Matija Marolt
3. PathRec: Visual Analysis of Travel Route Recommendations
   Dawei Chen, Dongwoo Kim, Lexing Xie, Minjeong Shin, Aditya Menon and Cheng Soon Ong
4. Pokedem: an Automatic Social Media Management Application
   Francesco Corcoglioniti, Claudio Giuliano, Yaroslav Nechaev and Roberto Zanoli
5. CheckInShop.eu:
   A Sensor-based Recommender System for micro-location Marketing
   Panagiotis Symeonidis and Stergios Xairistanidis
6. Citolytics - A Wikipedia Recommender System
   Malte Schwarzer, Corinna Breitinger, Moritz Schubotz, Norman Meuschke and Bela Gipp
7. Visual Analysis of Recommendation Performance
   Ludovik Çoba, Panagiotis Symeonidis and Markus Zanker

POSTERS

1. Intent-Aware Diversification using Item-Based SubProfiles
   Mesut Kaya and Derek Bridge
2. Explainable Entity-based Recommendations with Knowledge Graphs
   Rose Catherine, Kathryn Mazaitis and William Cohen
3. WMRB: Learning to Rank in a Scalable Batch Training Approach
   Kuan Liu and Prem Natarajan
4. Explanation Chains: Recommendations by Explanation
   Arpit Rana and Derek Bridge
5. Multi Cross Domain Recommendation Using Item Embedding and Canonical Correlation Analysis
   Masahiro Kazama and Istvan Varga
6. The Importance of Song Context in Music Playlists
   Andreu Vall, Massimo Quadrana, Markus Schedl, Gerhard Widmer and Paolo Cremonesi
7. PyRecSys: Open Source Recommender Framework with Time-aware Learning and Evaluation
   Domokos Kelen, Erzsebet Frigo, Robert Palovics and Andras A. Benczur
8. Towards a Recommender System for Undergraduate Research
   Felipe Del Rio, Denis Parra, Jovan Kuzmicic and Erick Svec
9. A Conversational Recommender System based on Linked Open Data
   Fedelucio Narducci, Pasquale Lops, Marco De Gemmis and Giovanni Semeraro
10. SemRevRec: A Recommender System based on User Reviews and Linked Data
    Iacopo Vagliano, Diego Monti and Maurizio Morisio
11. How Diverse Is Your Audience? Exploring Consumer Diversity in Recommender Systems
    Jacek Wasilewski and Neil Hurley
12. A Recommender System for Personalized Exploration of Majors, Minors, and Concentrations
    Young Park
13. Recommender Systems for Financial Investments
    Danele Regoli, Fabrizio Lillo and Andrea Gigli

14. Can Readability Enhance Recommendations on Community Question Answering Sites?
Oghenemaro Anuyah, Ion Madrazo, David McNeill and Maria Soledad Pera
15. Putting Users in Control of Popularity in a Recommender System
Max Harper
16. Users Matter: The Contribution of User-Driven Feature Weights to Open Dataset Recommendations
Anusuriya Devaraju and Shlomo Berkovsky
17. Towards Effective Exploration/Exploitation in Sequential Music Recommendation
Himan Abdollahpouri and Steve Essinger
18. Music Emotion Recognition via End-to-End Multimodal Neural Networks
Byungsoo Jeon, Adrian Kim, Chanju Kim, Dongwon Kim, Jangyeon Park and Jungwoo Ha
19. An Explanatory Matrix Factorization with User Comments Data
Donghyun Kim and Hayong Shin
20. The Demographics of Cool: Popularity and Recommender Performance for Different Groups of Users
Michael D. Ekstrand and Maria Soledad Pera
21. Kernalized Collaborative Contextual Bandits
Leonardo Cella, Romaric Gaudel and Paolo Cremonesi
22. Users' Choices About Hotel Booking: Cues for Personalizing the Presentation of Recommendations
Catalin-Mihai Barbu and Jürgen Ziegler
23. pyRecLab: A Software Library for Quick Prototyping of Recommender Systems
Gabriel Sepulveda and Denis Parra

TUE

Keynote
Sessions
Tutorials
Plenary panel
Event

08:30 –09:30
MAIN ROOM
Moderator: *Paolo Cremonesi*

Improving Higher Education—Learning Analytics & Recommender Systems Research

George Karypis
University of Minnesota, USA

ABOUT THE SPEAKER

George Karypis is a Distinguished McKnight University Professor and an ADC Chair of Digital Technology at the Department of Computer Science & Engineering at the University of Minnesota, Twin Cities. His research interests span the areas of high performance computing, data mining, recommender systems, information retrieval, bio-informatics, cheminformatics, and scientific computing. His research has resulted in the development of software libraries for serial and parallel graph partitioning (METIS and ParMETIS), hypergraph partitioning (hMETIS), for parallel Cholesky factorization (PSPASES), for collaborative filtering-based recommendation algorithms (SUGGEST), clustering high dimensional datasets (CLUTO), finding frequent patterns in diverse datasets (PAFI), and for protein secondary structure prediction (YASSPP). He has coauthored over 270 papers on these topics and two books ("Introduction to Protein Structure Prediction: Methods and Algorithms" (Wiley, 2010) and "Introduction to Parallel Computing" (Addison Wesley, 2003, 2nd edition)). He is on the editorial boards of many journals and in the program committees of many conferences and workshops on these topics.

An enduring issue in higher education is student retention to successful graduation. Studies in the U.S. report that average six-year graduation rates across higher-education institutions is 59% and have remained relatively stable over the last 15 years. For those that do complete a college degree, less than half complete within four-years. Requiring additional terms or leaving college without receiving a bachelor's degree has high human and monetary costs and deprives students from the economic benefits of a college credential (over $1 million in a lifetime and even higher in STEM fields). Moreover, when students do not succeed in graduating, local and national communities struggle to create an educated workforce. Estimates indicate that by 2020 over 64% of the jobs in the U.S. will require at least some post-secondary education. These challenges have been recognized by the U.S. National Research Council, which identified that there is a critical need to develop innovative approaches to enable higher-education institutions retain students, ensure their timely graduation, and are well-trained and workforce ready in their field of study. Failure to do so represents a significant problem as it deprives the U.S. of the highly skilled workforce that it needs to successfully compete in the modern world.

This talk describes various efforts under way to develop "Big Data" methods to analyze in a comprehensive manner, the large and diverse types of education and learning-related data in order to improve undergraduate education. These methods are motivated by and are designed to address various interrelated issues that have a significant impact on college student success and include: (i) academic pathways towards successful and timely graduation from the student perspective; (ii) effective pedagogy by instructors; and (iii) retention and persistence of students from the institutional and advisor perspective. In addition, the talk will discuss areas in which research methods and approaches originally developed by the recommender systems community can be applied to this domain.

PAPER SESSION 4: SESSION-BASED RECOMMENDER SYSTEMS	
11:00 – 12:30 MAIN ROOM	
Chair: Bracha Shapira	
Recommending Personalised News in Short User Sessions (LP)	*Elena Viorica Epure and Benjamin Kille*
Personalizing Session-based Recommendations with Hierarchical Recurrent Neural Networks (LP)	*Massimo Quadrana, Alexandros Karatzoglou, Balázs Hidasi and Paolo Cremonesi*
3D Convolutional Networks for Session-based Recommendation with Content Features (LP)	*Trinh Xuan Tuan and Tu Minh Phuong*
Modeling User Session and Intent with an Attention-based Encoder-Decoder Architecture (SP)	*Pablo Loyola, Liu Chen and Yu Hirate*

PAPER SESSION 5: ALGORITHMS 1	
11:00 – 12:30 ROOM 1	
Chair: Marco de Gemmis	
Sequential User-based Recurrent Neural Network Recommendations (LP)	*Tim Donkers, Benedikt Loepp and Jürgen Ziegler*
Translation-based Recommendation (LP)	*Ruining He, Wang-Cheng Kang and Julian Mcauley*
MPR: Multi-objective Pairwise Ranking (LP)	*Rasaq Otunba*
An Elementary View on Factorization Machines (SP)	*Sebastian Prillo*

LP: Long Paper, SP: Short Paper

INDUSTRY SESSION 2: INTERESTING DOMAINS	
14:00 – 15:45 MAIN ROOM	
Chair: Alan Said	
Déjà Vu: The Importance of Time and Causality in Recommender Systems	*Justin Basilico and Yves Raimond (Netflix)*
Building Recommender Systems for Fashion	*Nick Landia (Dressipi)*
Boosting Recommender Systems with Deep Learning	*João Gomes (Farfetch)*
Personalization Challenges in E-Learning	*Roberto Turrin (CloudAcademy)*
Personalized Job Recommendation System at LinkedIn: Practical Challenges and Lessons Learned	*Krishnaram Kenthapadi (LinkedIn)*

PAPER SESSION 6: ALGORITHMS II	
14:00 – 15:45 ROOM 1	
Chair: George Karypis	
Expediting Exploration by Attribute-to-Feature Mapping for Cold-Start Recommendations (LP)	*Deborah Cohen, Michal Aharon, Yair Koren, Raz Nissim and Oren Somekh*
Integrating Social Influence to Additive Co-Clustering for Recommendation (LP)	*Xixi Du, Huafeng Liu and Liping Jing*
Folding: Why Good Models Sometimes Make Spurious Recommendations (LP)	*Doris Xin, Nicolas Mayoraz, Hubert Pham, John Anderson and Karthik Lakshmanan*
Chemical Reactant Recommendation using a Network of Organic Chemistry (SP)	*John Savage, Akihiro Kishimoto, Beat Buesser, Ernesto Diaz-Aviles and Carlos Alzate*

LP: Long Paper, SP: Short Paper

16:15 – 18:00
MAIN ROOM

Deep Learning for Recommender Systems

Alexandros Karatzoglou
Telefonica Research, Spain

Balázs Hidasi
Gravity R&D, Hungary

The past few years have seen the tremendous success of deep neural networks in a number of complex machine learning tasks such as computer vision, natural language processing and speech recognition. For these reasons, Deep Learning has been hailed as the "next big thing" in recommender systems, and we have started to see deep neural networks deliver on their potential for dramatic improvement in Recommendation Systems technology.
The aim of the tutorial is dual: 1) to introduce deep learning techniques that have been and are used in recommender systems such as Recurrent Neural Networks and Convolutional Networks, 2) to present the current state-of-the-art collaborative filtering and content-based methods that use deep learning techniques to provide recommendations. The tutorial does not require any prior knowledge in Deep Learning since there will be detailed introductions to the relevant techniques, e.g., Recurrent Neural Networks, Convolutional Networks, word2vec embeddings.

16:15 – 18:00
ROOM 1

Product Recommendations Enhanced with Reviews

Muthusamy Chelliah
Flipkart, India

Sudeshna Sarkar
IIT Kharagpur, India

E-commerce websites commonly deploy recommender systems that make use of user activity (e.g., ratings, views, and purchases) or content (product descriptions). These recommender systems can benefit enormously by also exploiting the information contained in customer reviews. Reviews capture the experience of multiple customers with diverse preferences, often on the fine-grained level of specific features of products. Reviews can also identify consumers' preferences for product features and provide helpful explanations. The usefulness of reviews is evidenced by the prevalence of their use by customers to support shopping decisions online. With the appropriate techniques, recommender systems can benefit directly from user reviews. This tutorial will present a range of techniques that allow recommender systems in e-commerce websites to take full advantage of reviews. Topics covered include text mining methods for feature-specific sentiment analysis of products, topic models and distributed representations that bridge the vocabulary gap between user reviews and product descriptions, and recommender algorithms that use review information to address the cold-start problem. The tutorial sessions will be interspersed with examples from an online marketplace (i.e., Flipkart) and experience with using data mining and Natural Language Processing techniques (e.g., matrix factorization, LDA, word embeddings) from Web-scale systems.

WED | Keynotes Sessions

08:30 –09:30
MAIN ROOM
Moderator: *Shlomo Berkovsky*

Personalization is a Two-Way Street

Ronny Lempel
Outbrain, Israel

ABOUT THE SPEAKER

Ronny Lempel joined Outbrain in May 2014 as VP of Outbrain's Recommendations Group, where he oversees the computation, delivery and auction mechanisms of the company's recommendations. Prior to joining Outbrain, Ronny spent 6.5 years as a Senior Director at Yahoo Labs. Ronny joined Yahoo in October 2007 to open and establish its Research Lab in Haifa, Israel. During his tenure at Yahoo, Ronny led R&D activities in diverse areas, including Web Search, Web Page Optimization, Recommender Systems and Ad Targeting. In January 2013 Ronny was appointed Yahoo Labs' Chief Data Scientist in addition to his managerial duties. Prior to joining Yahoo, Ronny spent 4.5 years at IBM Research, where his duties included research and development in the area of enterprise search systems. During his tenure at IBM, Ronny managed the Information Retrieval Group at IBM's Haifa Research Lab for two years. Ronny received his PhD, which focused on search engine technology, from the Faculty of Computer Science at Technion, Israel Institute of Technology in early 2003. Ronny has authored over 40 research papers in leading conferences and journals, and holds 18 granted US patents. He regularly serves on program and organization committees of Web-focused conferences, and has taught advanced courses on Search Engine Technologies and Big Data Technologies at Technion.

Recommender systems are first and foremost about matching users with items the systems believe will delight them. The "main street" of personalization is thus about modeling users and items, and matching per user the items predicted to best satisfy the user. This holds for both collaborative filtering and content-based methods. In content discovery engines, difficulties arise from the fact that the content users natively consume on publisher sites does not necessarily match the sponsored content that drives the monetization and sustains those engines. The first part of this talk addresses this gap by sharing lessons learned and by discussing how the gap may be bridged at scale with proper techniques.

The second part of the talk focuses on personalization of audiences on behalf of content marketing campaigns. From the marketers' side, optimizing audiences was traditionally done by refining targeting criteria, basically limiting the set of users to be exposed to their campaigns. Marketers then began sharing conversion data with systems, and the systems began optimizing campaign conversions by serving the campaign to users likely to transact with the marketer. Today, a hybrid approach of lookalike modeling combines marketers' targeting criteria with recommendation systems' models to personalize audiences for campaigns, with marketer ROI as the target.

PAPER SESSION 7: DIVERSITY	
09:30 – 10:15 MAIN ROOM	
Chair: Dietmar Jannach	
I Want to Watch Non-Popcorn Movies Sometimes: Accuracy, Diversity, and Regularization in Probabilistic Latent Factor Models (LP)	*Bibek Paudel, Thilo Haas and Abraham Bernstein*
Geographical Diversification in POI Recommendation: Toward Improved Coverage on Interested Areas (SP)	*Jungkyu Han and Hayato Yamana*

PAPER SESSION 8: CONVERSATIONS	
09:30 – 10:15 ROOM 1	
Chair: Nava Tintarev	
Understanding How People Use Natural Language to Ask for Recommendations (LP)	*Jie Kang, Kyle Condiff, Shuo Chang, Loren Terveen, Joseph Konstan and Max Harper*
Defining and Supporting Narrative-driven Recommendation (SP)	*Toine Bogers and Marijn Koolen*

LP: Long Paper, SP: Short Paper

PAPER SESSION 9: DEEP LEARNING	
10:45 – 12:30 MAIN ROOM	
Chair: Domonkos Tikk	
Getting Deep Recommenders Fit: Bloom Embeddings for Sparse Binary Input/ Output Networks (LP)	*Joan Serrà and Alexandros Karatzoglou*
TransNets: Learning to Transform for Recommendation (LP)	*Rose Catherine and William Cohen*
Interpretable Convolutional Neural Networks with Dual Local and Global Attention for Review Rating Prediction (LP)	*Sungyong Seo, Jing Huang, Hao Yang and Yan Liu*
When Recurrent Neural Networks meet the Neighborhood for Session-Based Recommendation (SP)	*Dietmar Jannach and Malte Ludewig*
Recommendation of High Quality Representative Reviews in E-Commerce (SP)	*Debanjan Paul, Sudeshna Sarkar, Muthusamy Chelliah, Chetan Kalyan and Prajit Prashant Nadkarni*

PAPER SESSION 10: NOVEL AND PRACTICAL	
10:45 – 12:30 ROOM 1	
Chair: Robin Burke	
Recommending Product Sizes to Customers (LP)	*Vivek Sembium, Rajeev Rastogi, Atul Saroop and Srujana Merugu*
Practical Lessons from Developing a Large-Scale Recommender System at Zalando (LP)	*Antonino Freno*
Exploiting Socio-Economic Models for Lodging Recommendation in the Sharing Economy (LP)	*Raul Sanchez-Vazquez, Jordan Silva and Rodrygo Santos*
Surveying User Reactions to Recommendations Based on Inferences Made by Face Detection Technology (SP)	*Jennifer Marlow and Jason Wiese*
An Insurance Recommendation System Using Bayesian Networks (SP)	*Maleeha Qazi, Glenn Fung, Katie Meissner and Eduardo Fontes*

LP: Long Paper, SP: Short Paper

INDUSTRY SESSION 3: ALGORITHMS@INDUSTRY	
10:45 – 12:30 MAIN ROOM	
Chair: Alexandros Karatzoglou	
Online Learning to Rank for Recommender Systems	*Daan Odijk (Blendle)*
Bandit Algorithms for e-Commerce Recommender Systems	*Björn Brodén (Apptus), Mikael Hammar (Apptus), Bengt J. Nilsson (Malmö University) and Dimitris Paraschakis (Malmö University)*
Transfer Learning for Personalized Content and Ad Recommendation	*Zhixian Yan (Cheetah Mobile)*

PAPER SESSION 11: SEMANTICS AND SENTIMENT	
14:00 – 15:00 ROOM 1	
Chair: Boi Faltings	
A Semantic-Aware Profile Updating Model for Text Recommendation (SP)	*Hossein Rahmatizadeh Zagheli, Hamed Zamani and Azadeh Shakery*
A Multi-criteria Recommender System Exploiting Aspect-Based Sentiment Analysis of Users' Reviews (SP)	*Cataldo Musto, Marco De Gemmis, Giovanni Semeraro and Pasquale Lops*
Exploring The Semantic Gap for Movie Recommendations (SP)	*Yashar Deldjoo, Mehdi Elahi, Farshad Bakhshandegan Moghaddam, Leonardo Cella and Stefano Cereda*
Dynamic Scholarly Collaborator Recommendation via Competitive Multi-Agent Reinforcement Learning (SP)	*Yang Zhang, Chenwei Zhang and Xiaozhong Liu*

LP: Long Paper, SP: Short Paper

15:00 – 16:00
MAIN ROOM
Moderator: *Linas Baltrunas*

Memory Networks for Recommendation

Jason Weston
Facebook, USA

Memory networks are a recently introduced model that combines reasoning, attention and memory for solving tasks in the areas of language understanding and dialog – where one exciting direction is the use of these models for dialog-based recommendation. In this talk we describe these models and how they can learn to discuss, answer questions about, and recommend sets of items to a user. The ultimate goal of this research is to produce a full dialog-based recommendation assistant. We will discuss recent datasets and evaluation tasks that have been built to assess these models abilities to see how far we have come.

ABOUT THE SPEAKER

Jason Weston is a research scientist at Facebook, NY, since Feb 2014. He earned his PhD in machine learning at Royal Holloway, University of London and at AT&T Research in Red Bank, NJ (advisors: Alex Gammerman, Volodya Vovk and Vladimir Vapnik) in 2000. From 2000 to 2001, he was a researcher at Biowulf technologies. From 2002 to 2003 he was a research scientist at the Max Planck Institute for Biological Cybernetics, Tuebingen, Germany. From 2003 to 2009 he was a research staff member at NEC Labs America, Princeton. From 2009 to 2014 he was a research scientist at Google, NY. His interests lie in statistical machine learning and its application to text, audio and images. Jason has published over 100 papers, including best paper awards at ICML and ECML. He was part of the YouTube team that won a National Academy of Television Arts & Sciences Emmy Award for Technology and Engineering for Personalized Recommendation Engines for Video Discovery. He was listed as the 16th most influential machine learning scholar at AMiner and one of the top 50 authors in Computer Science in Science.

THU | Workshops

31

09:00 – 17:30
ROOM 1

LSRS: Large Scale Recommendation Systems Workshop

Tao Ye
Pandora Inc., USA

Denis Parra
PUC Chile, Chile

Vito Ostuni
Pandora Inc., USA

Tao Wang
Apple Inc., USA

This will be the 5th installment of a mini-conference style workshop that focuses on practical and scaling issues for recommender systems. Modern recommender systems face greatly increased data volume and complexities. Computational models and experience on small data may not hold for millions of users, thus, how to build an efficient and robust system has become an important issue for many practitioners. Even well-known models might have different performance on different domains' data. Meanwhile, there is an increasing gap between academia research of recommendation systems focusing on complex models, and industry practice focusing on solving problems at large scale using relatively simple techniques. Evaluation of models have diverged as well. While most publications focus on fixed datasets and offline ranking measures, industry practitioners tend to use long term engagement metrics to make final judgments.
The motivation of this workshop is to bring together researchers and practitioners working on large-scale recommender systems in order to: (1) share experience, techniques and methodologies used to develop effective large-scale recommenders, from architecture, algorithms, programming model, to evaluation (2) challenge conventional wisdom (3) identify key challenges and promising trends in the area, and (4) identify collaboration opportunities among participants.

09:00 – 17:30
ROOM 2

RecTemp: Workshop on Temporal Reasoning in Recommender Systems

Maria Bielikova
Slovak University of Technology in Bratislava, Slovakia

Veronika Bogina
The University of Haifa, Israel

Tsvi Kuflik
The University of Haifa, Israel

Roy Sasson
Google, Israel

Hitherto, temporal aspects of user activity in Recommender Systems were used in two different scenarios: explicit feedback and implicit feedback. The first one is related to explicitly expressing ratings for movies, for example: Netflix prize data set contains time stamps associated with the ratings. As it was shown, using them improved rating prediction. On the other hand, there is an implicit feedback data (e.g., e-commerce logs that describe user shopping behavior), which contain timestamps that also can be used in identifying user patterns (when the user tends to purchase more in the morning and towards the evening; on Mondays rather than the middle of the week, before the holidays on August rather than other months and so on), building user profiles, identifying similar users (for CF) and use all this useful information for items to purchase recommendations. Not only e-commerce, but other domains with web click streams, can be analyzed considering temporal components. In recent years' Markovian models and sequential pattern-mining methods were frequently used for such tasks. Recently temporal graphs and Recurrent Neural Networks are also considered for sequential data analyses and providing recommendations for people, communities, locations, etc.
The workshop aims at bringing together researchers and practitioners working on temporal aspects in Recommender Systems domain in order to look at the challenges from the point of view of the temporal aspects in Recommender Systems and user modeling in order to provide relevant (often personalized) recommendations regarding the representation and reasoning about temporal aspects. All in all, the workshop aims at attracting presentations of novel ideas for addressing these challenges and how to advance the current state of the art in this field.

09:00 – 12:30
ROOM 3

ComplexRec: Workshop on Recommendation in Complex Scenarios

Toine Bogers
Aalborg University Copenhagen, Denmark

Bamshad Mobasher
DePaul University, USA

Alan Said
University of Skövde, Sweden

Alexander Tuzhilin
NYU Stern School of Business, USA

Marijn Koolen
Huygens Institute, Netherlands

Over the past decade, recommendation algorithms for ratings prediction and item ranking have steadily matured. However, these state-of-the-art algorithms are typically applied in relatively straightforward scenarios.
In reality, recommendation is often a more complex problem: it is usually just a single step in the user's more complex background need. These background needs can often place a variety of constraints on which recommendations are interesting to the user and when they are appropriate.
However, relatively little research has been done on these complex recommendation scenarios. The ComplexRec 2017 workshop aims to address this by providing an interactive venue for discussing approaches to recommendation in complex scenarios that have no simple one-size-fits-all solution.

14:00 - 17:30
ROOM 3

CitRec: Recommender Systems for Citizens

Jie Yang
Delft University of Technology, Netherlands

Zhu Sun
Nanyang Technological University, Singapore

Alessandro Bozzon
Delft University of Technology, Netherlands

Jie Zhang
Nanyang Technological University, Singapore

Martha Larson
Radboud University Nijmegen, Netherlands

With the growing amount of people living in ever denser areas, there is an increasing demand for novel Information and Communication Technology (ICT) to support the complex social and environmental interactions of citizens, and to improve their quality of life. A typical example is the concept and construct of the "smart city", which has been introduced to highlight the importance of ICT for enhancing the competitive profile of a city.
This workshop focuses on citizens' recommender systems. This particular type of recommender systems, while still belonging to the broad area of recommendation, differs from conventional recommender systems both in terms of ownership and purpose. Unlike conventional recommender systems driven by a per-click business model, citizens' recommender systems are run by citizen themselves and serve the society as a whole. By soliciting behavioral data from citizens, the systems can make recommendations to optimally improve the living experiences of citizens in a society. Such behavioral data used to be scarce, hindering the development of citizens' recommender systems. The emergence of social data, i.e., data generated by people during their activities in a social environment, available through new sources (e.g., social media, mobile phones, sensor networks), brings great opportunities for studying the usefulness of

aggregated citizen behaviors. Social data contain important signals on citizen-environment and citizen-citizen interactions. By exploiting such data, recommender systems have the potential to play an important role in improving citizen satisfaction in multiple societal contexts, and to mitigate the information overload problem in societal decision making processes.

At the same time, while comprehensively describing people's lives, social data are characterized by an intrinsic diversity, manifested through multiple dimensions. These include the targeted citizen population (e.g., residents, commuters), types of activities (e.g., transportation, working, entertainment), and the context (e.g., when and where). Despite the large body of literature on investigating social and geographical factors in recommender systems, it remains an open question how to leverage the intrinsic diversity of social data for optimally enhancing the living experiences of citizens.

This workshop on "Recommender Systems for Citizens" aims at bringing together researchers and practitioners from different disciplines to explore the challenges and opportunities of novel approaches to recommender systems that address the intrinsic diversity of social data as a core element of their scientific study, design principles, or implementations for improving citizen living experiences.

As the research and applications of recommender systems quickly grow, there is an increasing awareness and interest for recommender systems to expand their societal impact. Based on the recent success of related workshops, this workshop will enable an interdisciplinary consideration of the topic, combining perspectives from computer science, social science, citizen science, and urban science.

09:00 – 17:30
ROOM 4

HealthRecSys: International Workshop on Health Recommender Systems

David Elsweiler
University of Regensburg, Germany

Santiago Hors-Fraile
University of Seville, Spain / Maastricht University, Netherlands

Bernd Ludwig
University of Regensburg, Germany

Alan Said
University of Skövde, Sweden

Hanna Schaefer
TU München, Germany

Christoph Trattner
MODUL University Vienna, Austria

Helma Torkamaan
University of Duisburg-Essen, Germany

André Calero Valdez
RWTH Aachen University, Germany

Health is at the center of our everyday lives. During the 1st Health Recommender Systems workshop we elaborated a great variety of fields in which recommender systems can improve our awareness, understanding and behavior regarding our own health. At the same time these application areas bring new challenges into the recommender community. Recommendations that influence the health status of a patient, need to be either liable or accompanied by domain experts. To make the recommender liable, complex domain specific user models need to be created, which on the other hand creates privacy issues. While trust into a recommendation needs to be explicitly earned by transparency, explanations and empowerment, other systems might want to persuade users into beneficial actions that would not be willingly chosen otherwise. The variety of those challenges also results from the number and diversity of stakeholders involved in health systems. Taking the patient perspective, simple interaction and safety against harmful recommendations might be the prior concern. For clinicians and experts, on the other hand, what matters is precise and accurate content. Finally, health care providers, insurance companies, and clinics are interested in success rates, study results, and financial benefits of the new systems. In this workshop, we want to go deeper into the discussions started last year and establish a roadmap of possible research topics in Health Recommender Systems

09:00 – 17:30
ROOM 5

FATREC: Workshop on Responsible Recommendation

Michael D. Ekstrand
Boise State University, USA

Amit Sharma
Microsoft Research, USA

The FATREC Workshop on Responsible Recommendation at RecSys 2017 is a venue for discussing questions of social responsibility in building, maintaining, evaluating, and studying recommender systems. This will be an interactive workshop with position papers, research papers, and discussion about how ethical, social, and legal concerns impact recommender systems research and development, resulting in an agenda for research on socially responsible recommendation.

Presenters, Session Chairs & Participants

All accepted papers in this program are denoted as short papers (SP) or long papers (LP). Each accepted long paper has a time allocation of 25 minutes (20 presentation + 5 questions), while each short paper has a time allocation of 15 minutes (10 presentation + 5 questions).

If you are chairing a session, please be sure to arrive at your room 20 minutes before the session begins.

If you are presenting in a session, please be sure to arrive at your room 20 minutes before the session begins and introduce yourself to the session chair. If you are using your own laptop for the presentation, then please arrive at least 20 minutes before the session begins. If you are using the provided laptop, please transfer your presentation to the laptop prior the start of the session. Workshop presenters, unless otherwise indicated by the respective workshop organizers, should use their own laptop.

The Student Volunteers will be around the rooms before and during the session to assist if there are any problems, or to communicate any concerns to the organizing committee.

Wireless network

Conference attendees are welcome to access the Internet via a wireless network provided by Villa Erba. The network name is RecSys2017 and the password is RecSys_17. We ask conference attendees to be considerate of other network users, and limit heavy use of the network during peak times and avoid video streaming and downloading / uploading big files.

Catering

We provide morning and afternoon coffee and lunches throughout the event, in the designated area indicated in the maps.

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