

RecSys in HR: Workshop on Recommender Systems for Human Resources

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1 DESCRIPTION

1.1 Motivation

The field of Human Resources (HR) is at the forefront of adopting AI technologies. According to PWC over 40% of HR-functions of international companies use AI-applications [4]. This so-called HR Technology (HR Tech) aims to replace or support Human Resource functions such as talent acquisition and management, employee compensation, workforce analytics, and performance management.

Recommender Systems, broadly defined as systems that aim to support users in decision making by suggesting and offering relevant content, play an integral role in the rapid rise of HR Tech. Their applications range from assisting the talent acquisition process through matching [8], analyzing resumes or other user representations for candidate screening [20] and automated assessment [12, 14], to broader tasks such as recommendations for upskilling [19].

The use of AI applications in the recruitment process, such as recommender systems, is considered high-risk by the European Commission [21], as automation here can directly impact the (working) lives of people. In this light, the rise of AI-assisted hiring and screening is met with caution, and is a widely-used example application area in AI ethics and fairness literature [5, 10, 13, 16, 18]. At the same time, there is a rising commercial interest around these technologies from companies and startups alike [16]. We feel the prevalence and rise of recommender system technology in HR calls for a central forum where researchers and practitioners alike can study and discuss the domain-specific aspects, challenges, and opportunities of RecSys and other HR Tech.

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1.2 Relevance for RecSys

Past editions of the RecSys conference have seen a steady number of research contributions on automating and (more commonly) supporting job recommendation [3, 6, 7, 9, 11, 15, 17], all of which have focused on the core HR task of recruitment through the development of automatic job recommendation algorithms. In addition to this research, the RecSys Challenges of 2016 [1] and 2017 [2] both focused on the task of job recommendation, with Xing, a social network for business operating mostly in German-speaking countries, providing the training data. The task proved popular with 119 and 103 participating teams in 2016 and 2017 respectively, which shows that there is a large potential audience at RecSys for research on recommender systems in an HR setting.

However, despite a handful of industry-focused events focused on HR tech^{1,2,3}, to the best of our knowledge there have not been academic workshops on job recommendation or HR tech in general at RecSys or other related conferences. Another issue is that job recommendation is but one of the key areas in the field of HR, and other areas, such as retention, training & development, and performance & career management have not been addressed before at RecSys.

Through the **RecSys in HR** workshop, we hope to address both issues. One of the workshop's goals is to solicit and discuss relevant research initiatives on all areas of HR; not just on recruitment and job recommendation. Furthermore, in addition to soliciting research contributions from academia, we also wish to involve practitioners and representatives from industry and relevant government institutions in the workshop through an invited industry/government talks in addition to the standard invited academic talk. We also organize a panel on current challenges in HR tech where we aim to recruit both academic researchers and industry practitioners with HR and technical backgrounds to provide for a richer variety of perspectives. Some of these panel members would be unlikely to normally attend RecSys, which would allow the workshop to provide a complementary experience to the main conference. By gathering experts, interested researchers and practitioners from academia and industry at a single event, we hope that we can provide the research area of recommender systems in HR—and HR tech in general—with a more concentrated push forward.

1.3 Contributions

The focus of the **RecSys in HR** workshop is on all areas of HR: recruitment (or job recommendation), retention, training & development, performance & career management, and talent pool management, and compensation & benefits. We invite submissions of original research on all aspects of recommender systems and other HR Tech—such as search, descriptive and predictive analytics, and interactive visualizations and dashboards—applied to any of these key HR areas. In addition, we welcome position papers that discuss and present novel ideas or insights concerning approaches, key challenges, or theoretical or methodological issues that have the potential to inspire substantive discussion and lead to significant advances in the field. We published a Call for Papers that listed the following example relevant topics:

- Theoretical and practical contributions on the application of recommender systems and HR Tech
- Interfaces for HR technology tools that employ recommender systems & HR tech and their role in decision making
- Bias, fairness, ethics of the use of recommender systems & HR Tech in HR
- Multi-stakeholder analyses of recommender systems in HR
- Explainability of recommender systems for HR tasks
- HR metrics and analytics relevant to the evaluation of recommender systems in HR processes

¹<https://events.cipd.co.uk/events/people-analytics/>

²<https://hrfutureconference.com/programme>

³<https://www.mihranalyticsconference.com/>

- Economic & societal consequences of recommender systems & HR Tech in HR
- Novel approaches to recommendation in HR
- User studies in recommender systems for HR and HR Tech
- Data sets for recommendation and HR Tech
- Cold-start scenarios in recommendation for HR
- Case studies of real-world implementations
- People analytics
- Expert recommendation & profiling
- User representation and modeling
- Human-augmented decision-making in HR
- Automatic classification of job functions and skills

2 WORKSHOP FORMAT & ACTIVITIES

We aim to make the **RecSys in HR** workshop an inclusive, interactive, and inspiring event. Given the fact this is the first workshop on the topic, we made an effort to attract and invite participants from academia, industry and government with an interest in HR tasks and the technology to support them, hoping as such to gather a diverse range of perspectives at the workshop, which should make for more stimulating and engaged discussion. We hope to attract at least 30-50 participants to the workshop, although this is difficult to estimate given the hybrid format of the RecSys 2021 conference. All organizers aim to be physically present in Amsterdam, depending on the Covid-19 restrictions at the time.

In order to make the workshop as interactive as possible, we plan ample time for Q&A sessions after each presentation and after the panel to allow for more discussion. In addition, we hope to increase interactivity by closing the workshop with a break-out session where the attendees discuss some of the most relevant issues and challenges that have come up during the day. To help us organize and seed these break-out sessions, we plan on sending a short survey to confirmed workshop attendees in the weeks leading up to RecSys. We plan to use this survey to collect information not only about what the attendees see as the most pressing challenges and interesting topics in HR Tech, but also to help us profile our audience through questions about their affiliation (industry, academia, government), their specialization (HR, computer science).

Below are the different workshop activities for the full-day workshop:

Introduction. This includes both an introduction to the purpose and schedule of the workshop as well as a round of introductions of all participants in order to make everyone feel welcome and part of the workshop.

Invited keynote from industry. Our industry keynote will be given by Kaare Danielsen, CEO of JobIndex, Scandinavia's largest job portal. The invited talk would be 30 minutes in duration followed by 20 minutes for discussion and Q&A.

Invited keynote from government. For our second keynote, we invite someone from a government institution with close ties to the labor market and automatic solutions to support this. One tentative speaker is Quirine Eijkman, Deputy President at the National Human Rights Institute of the Netherlands, and co-author of their recently published report "research into algorithms and discrimination in recruitment and selection."⁴ This invited talk would also be 30 minutes in duration followed by 20 minutes for discussion and Q&A.

⁴<https://mensenrechten.nl/en/netherlands-institute-human-rights>

Paper presentation sessions. We will solicit research papers and position papers, for these paper sessions. All accepted contributions will have short 10-minute presentations with 10 minutes for discussion and Q&A. In addition to the perceived fit with the workshop themes listed above, evaluation criteria for acceptance include novelty, diversity, significance for theory/practice, quality of presentation, perspective of the authors (academia, industry, government) and the potential for sparking interesting discussion at the workshop. All submitted papers are reviewed by the Program Committee (shown further below). We will have at most three paper sessions, but the actual number is dependent on the number and quality of submissions.

Panel discussion. We will host a panel discussion to bring together practitioners and researchers from different backgrounds to discuss the benefits and the challenges of automatic job recommendation and related tasks. Such challenges include how to deal with biases and fairness, transparency, ethics and societal impact of such (semi-)automated systems. The tentative panel members backgrounds include academic HR, industry HR background, academic technological, and with general expertise on fairness, bias and transparency of recommender systems, to bring in a variety of perspectives. We plan to invite our invited speakers to take place on the panel. The planned duration for the panel is 45 minutes.

Break-out session. After a brief introduction to the different available discussion topics for the break-out session and its format, we will divide the workshop attendees over the different break-out groups by their self-selected interest. To seed these workshops, we will use the results of the short survey sent out before the workshop. The planned duration for the break-out sessions, including introduction and reporting back at the end is 45 minutes.

3 WORKSHOP ORGANIZERS

- Toine Bogers (Aalborg University Copenhagen, Denmark)
- David Graus (Randstad Groep Nederland, the Netherlands)
- Mesut Kaya (Aalborg University Copenhagen, Denmark)
- Francisco Gutiérrez (KU Leuven, Belgium)
- Katrien Verbert (KU Leuven, Belgium)

4 PROGRAM COMMITTEE

- Himan Abdollahpouri (Northwestern University)
- Emma Beauxis-Aussalet (Vrije Universiteit Amsterdam)
- Asia J. Biega (Max Planck Institute for Security and Privacy)
- Ludovico Boratto (University of Cagliari)
- David Brazier (Edinburgh Napier University)
- Robin Burke (University of Colorado, Boulder)
- Carlos Castillo (Universitat Pompeu Fabra)
- Robin De Croon (Katholieke Universiteit Leuven)
- Michael Ekstrand (Boise State University)
- Snorre Frid-Nielsen (University of Copenhagen)
- Sahin Geyik (Facebook)
- Nyi Nyi Htun (Katholieke Universiteit Leuven)
- Bo Kang (Ghent University)
- Sepideh Mesbah (Delft University of Technology)

- Bamshad Mobasher (DePaul University)
- Manish Raghavan (Cornell University)
- Nava Tintarev (University of Maastricht)
- Christo Wilson (Northeastern University)

5 TIMELINE

Our workshop followed the deadlines as proposed by the RecSys 2021 workshop chairs:

- First call for participation: April 2, 2021
- Paper submission deadline: July 29, 2021
- Reviewer deadline: August 14, 2021
- Notification of paper acceptance: August 21, 2021
- Camera-ready version deadline: September 4, 2021
- Workshop (at RecSys 2021): October 1, 2021

6 PROMOTION & DISSEMINATION

In addition to a dedicated workshop website: <https://recsysshr2021.aau.dk/>, we have announced the workshop on the appropriate mailing lists, e.g., SIGIR, AH&H, JISC, User Modeling, KDNuggets, IUI, CHI-Announcement, etc. We have also established a social media presence for the workshop using Twitter at <https://twitter.com/RecSysHR>.

We plan on publishing the proceedings in the CEUR workshop proceedings. We also aim to publish a summary of the workshop in venues such as the SIGIR Forum, to increase cross-disciplinary awareness of recommender systems research. In addition, we aim to explore the possibility of publishing a special journal issue on HR Tech.

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