

Report on the 45th European Conference on Information Retrieval (ECIR 2023)

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Abstract

This paper reports on the 45th European Conference on Information Retrieval (ECIR 2023), held in Dublin, Ireland, during April 2–6, 2023. The conference was the largest ECIR ever, and brought together hundreds of researchers from Europe and abroad. For those who like numbers: First, we received 489 submissions in total (including 228 full and 153 short papers) excluding further workshop submissions. Second, the technical program committee consisted of 624 reviewers in total (including 27 chairs, 124 SPC, 473 reviewers) with many serving on multiple tracks. Third, the proceedings necessitated a third volume, and contains a total of 175 papers in 2,151 pages. The rest of this report details the conference program and events.

Date: 2–6 April 2023.

Website: <https://ecir2023.org/>.

1 Overview

The 45th European Conference on Information Retrieval (ECIR 2023) was held in Dublin, Ireland, during April 2–6, 2023, and brought together hundreds of researchers from Europe and abroad. The conference was organized by Dublin City University, in cooperation with the British Computer Society’s Information Retrieval Specialist Group (BCS IRSG). Organizing ECIR 2023 was a monumental effort by the very large team of organizers shown in Table 1, and countless other volunteers.

ECIR 2023 was held at the Radisson Blu Royal Hotel in Dublin city centre, a conference centre which could facilitate up to 500 people. The conference was organized over six days, with a first day hosting all virtual talks, which took place on Friday 31st March 2023. The virtual day consisted of 14 full-paper presentations, 11 short paper presentations, one demo, one virtual keynote from Tetsuya Sakai, two reproducibility talks and three CLEF talks.

The main three conference days (3–5 April 2023) contained 10 oral sessions and 2 double sessions, one for Reproducibility papers and one dedicated to CLEF talks. There were two days surrounding the main conference (2nd & 6th April) which were dedicated to workshops, tutorials, the doctoral consortium and Industry day. The ECIR program boasted a variety of novel work from contributors from all around the world. In total, 489 papers from authors in 52 countries

Table 1. ECIR 2023 Organization Team

Chairs	Name	Affiliation
General Chairs	Annalina Caputo	Dublin City University, Ireland
	Udo Kruschwitz	Universität Regensburg, Germany
	Cathal Gurrin	Dublin City University, Ireland
Program Committee Chairs	Jaap Kamps	University of Amsterdam, The Netherlands
	Lorraine Goeuriot	Université Grenoble Alpes, France
	Fabio Crestani	USI, Switzerland
Short Papers Chairs	Maria Maistro	University of Copenhagen, Denmark
	Hideo Joho	University of Tsukuba, Japan
Demos Chairs	Liting Zhou	Dublin City University, Ireland
	Frank Hopfgartner	University of Koblenz-Landau, Germany
Reproducibility Track Chair	Leif Azzopardi	University of Strathclyde, UK
Workshop Chairs	Ricardo Campos	IPT & INESC TEC, Portugal
	Gianmaria Silvello	University of Padua, Italy
Tutorials Chairs	Bhaskar Mitra	Microsoft, Canada
	Debasis Ganguly	University of Glasgow, UK
Industry Day Chairs	Nicolas Fiorini	Algolia, France
	Isabelle Moulinier	Thomson Reuters, US
Doctoral Consortium Chairs	Gareth Jones	Dublin City University, Ireland
	Liadh Kelly	Maynooth University, Ireland
Awards Chair	Suzan Verberne	Leiden University, The Netherlands
Publication Chairs	Brian Davis	Dublin City University, Ireland
	Joachim Wagner	Dublin City University, Ireland
Local Chairs	Brian Davis	Dublin City University, Ireland
	Ly Duyen Tran	Dublin City University, Ireland

were submitted to the different tracks. The final program included 65 full papers (29% acceptance rate), 41 short papers (27% acceptance rate), 19 demonstration papers (66% acceptance rate), 12 reproducibility papers (63% acceptance rate), 10 doctoral consortium papers (56% acceptance rate), and 13 invited CLEF papers.

All submissions were peer-reviewed by at least three international Program Committee members to ensure that only submissions of the highest relevance and quality were included in the final program. The acceptance decisions were further informed by discussions among the reviewers for each submitted paper, led by a senior Program Committee member. In a final PC meeting all the final recommendations were discussed, in an effort to reach a fair and equal outcome for all submissions.

The accepted papers covered the state of the art in information retrieval: user aspects, system & foundational aspects, machine learning, applications, evaluation, new social & technical challenges, and other topics of direct or indirect relevance to search. As in previous years, the ECIR 2023 program contained a high proportion of papers with students as first authors, as well as papers from a variety of universities, research institutes, and commercial organizations.



Figure 1. Scenes from the ECIR 2023 Opening Reception in the Teeling Whiskey Distillery.

In addition to the papers, the program also included 3 keynotes, 7 tutorials, 8 workshops, a doctoral consortium, the presentation of selected papers from the 2022 issues of the Information Retrieval Journal, and an industry day. Keynote talks were given by Mounia Lalmas (Spotify), Tetsuya Sakai (Waseda University), and the 2022 BCS IRSG Karen Spärck Jones Award winner, Yang Wang (UC Santa Barbara). See the section below for more details of the keynotes.

The tutorials covered a range of topics including conversational agents in health; crowdsourcing; gender bias; legal IR and NLP; neuro-symbolic representations; query auto completion; and text classification.

The workshops brought together participants to discuss algorithmic bias (BIAS); bibliometrics (BIR); e-discovery (ALTARS); geographic information extraction (GeoExT); legal IR (Legal IR); narrative extraction (Text2story); online misinformation (ROMCIR); and query performance prediction (QPP).

Industry Day, despite being run in parallel with the tutorials and one of the workshops, was particularly active this year with 14 talks during a full-day event which wound up with a large crowd heading to the bar to close out ECIR'23 on a high.

A short review of the conference through the eyes of a first-time attendee can be found in the Spring 2023 issues of the BCS IRSG Informer newsletter [Donabauer, 2023].

2 Social Events

The precise origins of whiskey (or whisky) are unclear, but most authorities agree that it originated in Ireland and it has been suggested that it was invented by monks as a means of preserving surplus grain. Therefore, it was fitting that the welcome reception of ECIR'23 took place at the Teeling Whiskey distillery, a short walk from the Radisson hotel. Over 220 attendees turned up for this very popular event, which included a guided tour of the distillery and offered visitors the chance

to experience the complete whiskey-making process. Every attendee had ample opportunities to sample various types of Teeling whiskey and food was provided (as is witnessed by Figure 1).

The ECIR’23 conference banquet was held in the Banking Hall of the Westin Hotel, in Dublin City centre, which is also a short walk from the conference venue. The Banking Hall was established in 1813 and proved to be a spectacular venue for the event. The banquet was also a very popular event with 245 attendees enjoying an evening of Irish food and European wines. Indeed the banquet was so popular that it ended up taking place in the main hall and two adjacent overflow rooms.

3 Keynote Talks

Keynote talks were given by Mounia Lalmas (Spotify), Tetsuya Sakai (Waseda University), and the 2022 BCS IRSG Karen Spärck Jones Award winner, Yang Wang (UC Santa Barbara).

3.1 On A Few Responsibilities of IR Researchers

Tetsuya Sakai (Waseda University, Tokyo, Japan) gave a keynote *On a Few Responsibilities of (IR) Researchers: Fairness, Awareness, and Sustainability*.

Tetsuya discussed three foundation pillars of modern research practices, namely, fairness, awareness, and sustainability. First, *Fairness* in terms of exposure for the items being ranked or recommended. For example, the NTCIR-17 Fair Web Task, which was about ensuring group fairness of web search results, uses Group Fairness and Relevance evaluation measure, which can handle ordinal groups (e.g., high h-index researchers vs. medium h-index researchers vs. others) as well as intersectional group fairness. Second, *Awareness* in that researchers should always try to see “both sides” and make informed decisions instead of just blindly accepting recommendations from a few particular researchers, even if they are great people. Conference PC chairs and journal editors should also be aware of both sides and provide appropriate guidance to authors and reviewers. Third, *Sustainability* in the sense of how IR researchers may want to minimise and/or compensate for the negative impact of our activities on earth and on society. Regional IR conferences [such as ECIR] and the new SIGIR-AP (Asia/Pacific) may help reduce the carbon footprint of conference travel, and may help the IR community to go greener and beyond.

3.2 Personalization at Spotify

Mounia Lalmas (Spotify, UK) gave a keynote on *Personalization at Spotify*.

One of Spotify’s missions is “to match fans and creators in a personal and relevant way.” This talk shared some of the research work aimed at achieving this, from using machine learning to metric validation, and was illustrated using examples within the context of Spotify’s home and search. An important aspect of the talk focused on illustrating that, when aiming to personalize for both recommendation and search, it is important to consider the heterogeneity of both listener and content. One way to do this is to consider the following three angles when developing machine learning solutions for personalization: i) Understanding the user journey; ii) Optimizing for the right metric; and iii) Thinking about diversity.

3.3 Large Language Models for Question Answering

William Yang Wang (University of California, Santa Barbara, USA) gave the *2022 Karen Spärck Jones Award Keynote on Large Language Models for Question Answering: Challenges and Opportunities*

A key goal for Artificial Intelligence is to design intelligent agents that can reason with heterogeneous representations and answer open-domain questions. The advances in large language models (LLMs) bring exciting opportunities to create disruptive technologies for question answering (QA). The keynote demonstrated that major challenges for open-domain QA with LLMs include the capability to reason seamlessly between textual and tabular data, to understand and reason with numerical data, and to adapt to specialized domains. To do this, it described recent work on teaching machines to reason in semi-structured tables and unstructured text data. More specifically, William introduced i) Open Question Answering over Tables and Text (OTT-QA), a new large-scale open-domain benchmark that combines information retrieval and language understanding for multihop reasoning over tabular and textual data; and ii) FinQA and ConFinQA, two challenging benchmarks for exploring the chain of numerical reasoning in conversational finance question answering.

4 Award Winners

The ECIR 2023 Best Paper Award Committee consisted of: Christin Seifert (University of Duisburg-Essen); Martin Halvey (University of Strathclyde), Carsten Eickhoff (University of Tübingen), and Suzan Verberne (University of Leiden, chair). To celebrate the outstanding quality of work, the committee decided to always hand out a student award. In cases where the main award winner had a student main author, the student award would be granted to the next ranked student paper. We thank and acknowledge Springer for sponsoring the best-paper awards.

4.1 Short Papers

The committee reviewed the final versions of 9 short-listed short papers. First, the *Best Student Short Paper Award* was presented to:

- Phillip Schneider, Anum Afzal, Juraj Vladika, Daniel Braun and Florian Matthes for their paper *Investigating Conversational Search Behavior For Domain Exploration* [Schneider et al., 2023].

The paper investigates conversational search, which has evolved as a new information retrieval paradigm marking a shift from traditional search systems towards interactive dialogues with intelligent search agents. It conducts a laboratory study to investigate open-ended search behavior for navigation through unknown information landscapes. The paper identifies core dialogue acts and their interrelations that enable users to discover domain knowledge, but also derives design suggestions for conversational search systems.

Second, a *Best Short Paper Award* was presented to:

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- Mitko Gospodinov, Sean MacAvaney and Craig Macdonald for their paper *Doc2Query–: When Less is More* [Gospodinov et al., 2023].

The paper investigates “Doc2Query,” the process of expanding the content of a document before indexing using a sequence-to-sequence model. However, these models are known to be prone to “hallucinating” content that is not present in the source text. This paper explores techniques for filtering out these harmful queries prior to indexing. The paper finds that using a relevance model to remove poor-quality queries can improve the retrieval effectiveness of Doc2Query.

4.2 Full Papers

The committee reviewed the final versions of 8 short-listed full papers. First, an *Honorable Mention for the Best Paper Award* was presented to:

- Zhiling Jin, Yu Hong, Rui Peng, Jianmin Yao and Guodong Zhou for their paper *Intention-aware Neural Networks for Question Paraphrase Identification* [Jin et al., 2023].

The paper investigates Question Paraphrasing Identification (QPI), a task of determining whether a pair of interrogative sentences (i.e., questions) are paraphrases of each other. The paper proposes an intention-aware neural model for QPI. Question words (e.g., “when”) and blocks (e.g., “what time”) are extracted as features for revealing intentions, used to regulate pairwise question encoding explicitly and implicitly, within Conditional Variational AutoEncoder (CVAE) and multi-task VAE frameworks. This model outperforms the state-of-the-art QPI models on benchmark corpora QQP, LCQMC and BQ for both English and Chinese QPI tasks.

Second, the *Best Student Paper Award* was presented to:

- Avinash Madasu, Estelle Aflalo, Gabriela Ben Melech Stan, Shao-Yen Tseng, Gedas Bertasius and Vasudev Lal for their paper *Improving video retrieval using multilingual knowledge transfer* [Madasu et al., 2023].

The paper investigates video retrieval, which has seen tremendous progress with the development of vision-language models, however requires labeled data which is a huge manual effort. This paper uses state-of-the-art machine translation models to construct pseudo ground-truth multilingual video-text pairs, and learns a multilingual video-text representation in a common embedding space based on pretrained multilingual models. Experimental results demonstrate that this approach achieves state-of-the-art results for English video retrieval datasets, and superior performance on a multilingual video retrieval benchmark.

Third, the *Best Paper Award* was presented to:

- Taishi Hosokawa, Adam Jatowt and Kazunari Sugiyama for their paper *Temporal Natural Language Inference: Evidence-based Evaluation of Temporal Text Validity* [Hosokawa et al., 2023].

The paper investigates Temporal Natural Language Inference, inspired by traditional natural language reasoning to determine the temporal validity of text content. The authors first construct

their own dataset for this task and train several machine learning models, and then propose an effective method for learning information from an external knowledge base that gives hints on temporal commonsense knowledge. Using the prepared dataset, it introduces a new machine learning model that incorporates the information from the knowledge base and demonstrate that this model outperforms state-of-the-art approaches in the proposed task.

5 Tutorials and Workshops

ECIR 2023 hosted 7 tutorials and 8 workshops.

5.1 Tutorials

- Bigdeli, Arabzadeh, Seyedsalehi, Zihayat, and Bagheri [2023] on *Understanding and Mitigating Gender Bias in Information Retrieval Systems*.
- Dietz, Bast, Chatterjee, Dalton, Meij, and de Vries [2023] on *Neuro-Symbolic Approaches for Information Retrieval*.
- Ganguly, Conrad, Ghosh, Ghosh, Goyal, Bhattacharya, Nigam, and Paul [2023] on *Legal IR and NLP: The History, Challenges, and State-of-the-Art*.
- Gupta, Joshi, and Agrawal [2023] on *Deep Learning Methods for Query Auto Completion*.
- Saha, Tiwari, and Saha [2023] on *Trends and Overview: The Potential of Conversational Agents in Digital Health*.
- Ustalov, Smirnova, Fedorova, and Pavlichenko [2023] on *Crowdsourcing for Information Retrieval*.
- Zhang, Sensoy, Makrehchi, and Taneva-Popova [2023] on *Uncertainty Quantification for Text Classification*.

5.2 Workshops

- Boratto, Faralli, Marras, and Stilo [2023] organized the *Fourth International Workshop on Algorithmic Bias in Search and Recommendation (Bias 2023)*.
- Campos, Jorge, Jatowt, Bhatia, and Litvak [2023a] organized *The 6th International Workshop on Narrative Extraction from Texts (Text2Story 2023)*.
- Nunzio, Kanoulas, and Majumder [2023] organized the *2nd Workshop on Augmented Intelligence in Technology-Assisted Review Systems (ALTARS)*.
- Faggioli, Ferro, Mothe, and Raiber [2023b] organized the workshop on *Query-Performance Prediction and Its Evaluation in New Tasks (QPP++ 2023)*.
- Frommholz, Mayr, Cabanac, and Verberne [2023] organized the *13th International BIR Workshop (BIR 2023) on Bibliometric-Enhanced Information Retrieval*.
- Hu, Hu, Resch, and Kersten [2023] organized the workshop on *Geographic Information Extraction from Texts (GeoExT)*.
- Petrocchi and Viviani [2023] organized the *3rd Workshop on Reducing Online Misinformation Through Credible Information Retrieval (ROMCIR 2023)*.

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- Verberne, Kanoulas, Wiggers, Piroi, and de Vries [2023] organized the workshop on *Legal Information Retrieval*.

6 Practical Issues

Although ECIR was primarily a physical conference, it did contain hybrid elements. We have already mentioned Virtual day, which provided non-travelling authors an opportunity to present their papers. We found that visa and travel issues resulted in some attendees switching from physical attendance to virtual attendance as little as 2 days before the conference began, so the final conference schedule was subject to change until the last moment.

In order to support online access, all workshops had an associated zoom meeting that facilitated both online and physically-present participants to both speak and interact. Tutorials were also facilitated to have zoom meetings, with one tutorial being presented online due to travel restrictions of the tutorial organizers. As a result of virtual day, the main conference had physical speakers only, so virtual attendees could join Perfogram¹ streams of all talks during the main conference. Perfogram was our chosen partner because it would not have any region blocking, was sympathetic to bandwidth variations and ran in a web browser, so that attendees did not need to install software just for ECIR'23. The Industry day sessions facilitated online speakers via zoom and the event was streamed on Perfogram.

Due to the late moving of speaker slots from the physical conference to virtual day, our main conference schedule was provided by ClearEvent², which was accessible by attendees across a variety of computing devices. Although printed schedules were provided daily, the main conference venue was ClearEvent.

This year at ECIR, we had 311 physical attendees at the conference, with another 32 physical workshop/tutorial-only attendees and 11 physical industry-day-only attendees. We also facilitated online-only attendees which gave a final number of 426 attendees at ECIR'23.

Finally the organizers of ECIR'23 are delighted to be able to report the provision of student supports to assist 30 students to attend the event. Supports ranged from online registrations to full travel supports.

7 Additional Authors

This report and the conference itself would never happen without the concerted effort of the following co-organizers: Leif Azzopardi (Reproducibility Track Chair), Ricardo Campos (Workshop Co-Chair), Annalina Caputo (General Co-Chair), Fabio Crestani (Program Committee Co-Chair), Brian Davis (Local Co-Chair, Publication Co-Chair), Nicolas Fiorini (Industry Day Co-Chair), Debasis Ganguly (Tutorials Co-Chair), Lorraine Goeuriot (Program Committee Co-Chair), Frank Hopfgartner (Demos Co-Chair), Hideo Joho (Short Papers Co-Chair), Gareth Jones (Doctoral Consortium Co-Chair), Liadh Kelly (Doctoral Consortium Co-Chair), Maria Maistro (Short Papers Co-Chair), Bhaskar Mitra (Tutorials Co-Chair), Isabelle Moulinier (Industry Day Co-Chair),

¹<https://www.perfogram.com>

²<https://clearevent.com>

Gianmaria Silvello (Workshop Co-Chair), Suzan Verberne (Awards Chair), Joachim Wagner (Publication Co-Chair), Ly Duyen Tran (Local Co-Chair), and Liting Zhou (Demos Co-Chair).

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For further information, we refer to the conference web pages³ and the proceedings. The ECIR'23 proceedings are published in three volumes [Kamps et al., 2023a,b,c]. Several workshops also published their own proceedings, e.g. QPP [Faggioli et al., 2023a], and Text2Story [Campos et al., 2023b].

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