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# Experimental IR Meets Multilinguality, Multimodality, and Interaction


9th International Conference  
of the CLEF Association, CLEF 2018  
Avignon, France, September 10–14, 2018  
Proceedings

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# Preface

Since 2000, the Conference and Labs of the Evaluation Forum (CLEF) has played a leading role in stimulating research and innovation in the domain of multimodal and multilingual information access. Initially founded as the Cross-Language Evaluation Forum and running in conjunction with the European Conference on Digital Libraries (ECDL/TPDL), CLEF became a standalone event in 2010 combining a peer-reviewed conference with a multi-track evaluation forum. The combination of the scientific program and the track-based evaluations at the CLEF conference creates a unique platform to explore information access from different perspectives, in any modality and language.

The CLEF conference has a clear focus on experimental information retrieval (IR) as seen in evaluation forums (CLEF Labs, TREC, NTCIR, FIRE, MediaEval, RomIP, TAC, etc.) with special attention to the challenges of multimodality, multilinguality, and interactive search ranging from unstructured, to semi-structured and structured data. CLEF invites submissions on significant new insights demonstrated by the use of innovative IR evaluation tasks or in the analysis of IR test collections and evaluation measures, as well as on concrete proposals to push the boundaries of the Cranfield/TREC/CLEF paradigm.

CLEF 2018<sup>1</sup> was jointly organized by Avignon, Marseille and Toulon Universities and was hosted by the University of Avignon, France, during September 10–14, 2018. The conference format consisted of keynotes, contributed papers, lab sessions, and poster sessions, including reports from other benchmarking initiatives from around the world.

The following scholars were invited to give a keynote talk at CLEF 2018: Gabriella Pasi (University of Milano-Bicocca, Italia), Nicholas Belkin (Rutgers University, NJ, USA), and Julio Gonzalo (UNED, Spain).

CLEF 2018 received a total of 39 submissions, of which a total of 13 papers (nine long, four short) were accepted. Each submission was reviewed by three Program Committee (PC) members, and the program chairs oversaw the reviewing and follow-up discussions. In all, 13 different countries are represented in the accepted papers. Many contributions this year tackle the medical e-Health and e-Health multimedia retrieval challenges in different ways: from medical image analysis to query suggestion. However, there are many other topics of research in the accepted papers such as document clustering, social biases in IR, social book search, personality profiling, to cite a few. As in previous editions since 2015, CLEF 2018 continued inviting CLEF lab organizers to nominate a “best of the labs” paper that was reviewed as a full paper submission to the CLEF 2018 conference according to the same review criteria and PC. Among the nine invited papers, six were accepted as long and three as short. Finally, eight posters were also accepted. Although they are not included in the LNCS

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<sup>1</sup> <http://clef2018.clef-initiative.eu/>.

volume, posters give the opportunity to their authors to discuss their research during the conference and are accessible through the Web pages of the conference.

The conference integrated a series of workshops presenting the results of lab-based comparative evaluations. CLEF 2018 was the ninth year of the CLEF Conference and the 19th year of the CLEF initiative as a forum for IR Evaluation. The labs were selected in peer review based on their innovation potential and the quality of the resources created. The labs represented scientific challenges based on new data sets and real-world problems in multimodal and multilingual information access. These data sets provide unique opportunities for scientists to explore collections, to develop solutions for these problems, to receive feedback on the performance of their solutions, and to discuss the issues with peers at the workshops.

In addition to these workshops, the ten benchmarking labs reported results of their year-long activities in overview talks and lab sessions. Overview papers describing each of these labs are provided in this volume. The full details for each lab are contained in a separate publication, the *Working Notes*, which are available online<sup>2</sup>.

The ten labs running as part of CLEF 2018 were as follows:

CENTRE@CLEF 2018 -CLEF/NTCIR/TREC Reproducibility<sup>3</sup> aims to run a joint CLEF/NTCIR/TREC task on challenging participants: (1) to reproduce the best results of the best/most interesting systems in previous editions of CLEF/NTCIR/TREC by using standard open source IR systems; (2) to contribute back to the community the additional components and resources developed to reproduce the results in order to improve existing open source systems.

CheckThat!<sup>4</sup> aims to foster the development of technology capable of both spotting and verifying check-worthy claims in political debates in English and Arabic.

Dynamic Search for Complex Tasks<sup>5</sup>: The lab strives to answer one key question: How can we evaluate, and consequently build, dynamic search algorithms? The 2018 Lab focuses on the development of an evaluation framework, where participants submit “querying agents” that generate queries to be submitted to a static retrieval system. Effective “querying agents” can then simulate users toward developing dynamic search systems.

CLEFeHealth<sup>6</sup> provides scenarios that aim to ease patients, and nurses, understanding and accessing of e-Health information. The goals of the lab are to develop processing methods and resources in a multilingual setting to enrich difficult-to-understand e-Health texts, and provide valuable documentation. The tasks are: multilingual information extraction; technologically assisted reviews in empirical medicine; and patient-centered information retrieval.

ImageCLEF<sup>7</sup> organizes three main tasks and a pilot task: (1) a caption prediction task that aims at predicting the caption of a figure from the biomedical literature based

<sup>2</sup> <http://ceur-ws.org/Vol-2125/>.

<sup>3</sup> <http://www.centre-eval.org/clef2018/>.

<sup>4</sup> <http://alt.qcri.org/clef2018-factcheck/>.

<sup>5</sup> <https://ekanou.github.io/dynamicsearch/>.

<sup>6</sup> <https://sites.google.com/view/clef-ehealth-2018/>.

<sup>7</sup> <http://www.imageclef.org/2018>.

only on the figure image; (2) a tuberculosis task that aims at detecting the tuberculosis type, severity, and drug resistance from CT (computed tomography) volumes of the lung; (3) a lifelog task (videos, images, and other sources) about daily activities understanding and moment retrieval; and (4) a pilot task on visual question answering where systems are tasked with answering medical questions.

LifeCLEF<sup>8</sup> aims at boosting research on the identification of living organisms and on the production of biodiversity data in general. Through its biodiversity informatics-related challenges, LifeCLEF is intended to push the boundaries of the state of the art in several research directions at the frontier of multimedia information retrieval, machine learning, and knowledge engineering.

MC2<sup>9</sup> mainly focuses on developing processing methods and resources to mine the social media (SM) sphere surrounding cultural events such as festivals, music, books, movies, and museums. Following previous editions (CMC 2016 and MC2 2017), the 2018 edition focused on argumentative mining and multilingual cross SM search.

PAN<sup>10</sup> is a networking initiative for digital text forensics, where researchers and practitioners study technologies that analyze texts with regard to originality, authorship, and trustworthiness. PAN offered three tasks at CLEF 2018 with new evaluation resources consisting of large-scale corpora, performance measures, and Web services that allow for meaningful evaluations. The main goal is to provide for sustainable and reproducible evaluations, to get a clear view of the capabilities of state-of-the-art algorithms. The tasks are: author identification; author profiling; and, author obfuscation.

Early Risk Prediction on the Internet (eRisk)<sup>11</sup> explores issues of evaluation methodology, effectiveness metrics, and other processes related to early risk detection. Early detection technologies can be employed in different areas, particularly those related to health and safety. For instance, early alerts could be sent when a predator starts interacting with a child for sexual purposes, or when a potential offender starts publishing antisocial threats on a blog, forum, or social network. Our main goal is to pioneer a new interdisciplinary research area that would be potentially applicable to a wide variety of situations and to many different personal profiles. eRisk 2018 had two campaign-style tasks: early detection of signs of depression and early detection of signs of anorexia.

Personalized Information Retrieval at CLEF (PIR-CLEF)<sup>12</sup> provides a framework for the evaluation of personalized information retrieval (PIR). Current approaches to the evaluation of PIR are user-centric, mostly based on user studies, i.e., they rely on experiments that involve real users in a supervised environment. PIR-CLEF aims to develop and demonstrate a methodology for the evaluation of personalized search that enables repeatable experiments. The main aim is to enable research groups working on PIR to both experiment with and provide feedback on the proposed PIR evaluation methodology.

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<sup>8</sup> <http://www.lifeclef.org/>.

<sup>9</sup> <https://mc2.talne.eu/>.

<sup>10</sup> <http://pan.webis.de/>.

<sup>11</sup> <http://early.irlab.org/>.

<sup>12</sup> <http://www.ir.disco.unimib.it/pir-clef2018/>.

Avignon is famous for its medieval architecture and its international theater festival. The social program of CLEF 2018 set up a Science and Music Festival in medieval downtown at Théâtre des Halles<sup>13</sup> and surrounding gardens from Tuesday to Thursday. Music is a very popular hobby among members of the scientific community. Evenings were a mix of music and participatory science around PlantNet, OpenStreetMaps, and Wikipedia. Tuesday was especially devoted to welcoming students at CLEF. On Wednesday the focus was on IR scientific societies around the world mixing all CLEF languages in one evening. Finally, science outreach activities were carried out on Thursday; local musicians and students looking for a good time were invited to come and meet the participants of the CLEF conference.

The success of CLEF 2018 would not have been possible without the huge effort of several people and organizations, including the CLEF Association<sup>14</sup>, the PC, the Lab Organizing Committee, the local organization committee in Avignon, the reviewers, and the many students and volunteers who contributed.

July 2018

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<sup>13</sup> <http://www.theatredeshalles.com/>.

<sup>14</sup> <http://www.clef-initiative.eu/association>.



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CLEF 2018, Conference and Labs of the Evaluation Forum – Experimental IR meets Multilinguality, Multimodality, and Interaction, was hosted by the University of Avignon and jointly co-organized by Avignon, Marseille and Toulon Universities, France.

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