

Preface

The CLEF 2021 conference is the twenty-second edition of the popular CLEF campaign and workshop series that has run since 2000 contributing to the systematic evaluation of multilingual and multimodal information access systems, primarily through experimentation on shared tasks. In 2010 CLEF was launched in a new format, as a conference with research presentations, panels, poster and demo sessions and laboratory evaluation workshops. These are proposed and operated by groups of organizers volunteering their time and effort to define, promote, administrate and run an evaluation activity.

CLEF 2021¹ was organized by the University “Politehnica” of Bucharest, Romania, from 21 to 24 September 2021.

The continued outbreak of the Covid-19 pandemic affected the organization of CLEF 2021. The CLEF steering committee along with the organizers of CLEF 2021, after detailed discussions, decided to run the conference fully virtually. The conference format remained the same as in past years, and consisted of keynotes, contributed papers, lab sessions, and poster sessions, including reports from other benchmarking initiatives from around the world. All sessions were organized and run online.

15 lab proposals were received and evaluated in peer review based on their innovation potential and the quality of the resources created. To identify the best proposals, besides the well-established criteria from the editions of previous years of CLEF such as topical relevance, novelty, potential impact on future world affairs, likely number of participants, and the quality of the organizing consortium, this year we further stressed the connection to real-life usage scenarios and we tried to avoid as much as possible overlaps among labs in order to promote synergies and integration.

The 12 selected 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.

We continued the mentorship program to support the preparation of lab proposals for newcomers to CLEF. The CLEF newcomers mentoring program offered help, guidance, and feedback on the writing of draft lab proposals by assigning a mentor to proponents, who helped them in preparing and maturing the lab proposal for submission. If the lab proposal fell into the scope of an already existing CLEF lab, the mentor helped proponents to get in touch with those lab organizers and team up forces.

Building on previous experience, the Labs at CLEF 2021 demonstrate the maturity of the CLEF evaluation environment by creating new tasks, new and

¹ <http://clef2021.clef-initiative.eu/>

larger data sets, new ways of evaluation or more languages. Details of the individual Labs are described by the Lab organizers in these proceedings. Below is a short summary of them.

ARQMath: Answer Retrieval for Mathematical Questions² considers the problem of finding answers to new mathematical questions among posted answers on the community question answering site *Math Stack Exchange*. The goals of the lab are to develop methods for mathematical information retrieval based on both text and formula analysis.

BioASQ³ challenges researchers with large-scale biomedical semantic indexing and question answering (QA). The challenges include tasks relevant to hierarchical text classification, machine learning, information retrieval, QA from texts and structured data, multi-document summarization and many other areas. The aim of the BioASQ workshop is to push the research frontier towards systems that use the diverse and voluminous information available online to respond directly to the information needs of biomedical scientists.

CheckThat!: Identification and Verification of Political Claims⁴ aims to foster the development of technology capable of both spotting and verifying check-worthy claims in political debates in English, Arabic and Italian. The concrete tasks were to assess the check worthiness of a claim in a tweet, check if a (similar) claim has been previously verified, retrieve evidence to fact-check a claim, and verify the factuality of a claim.

ChEMU: Cheminformatics Elsevier Melbourne University⁵ proposes two key information extraction tasks over chemical reactions from patents. Task 1 aims to identify chemical compounds and their specific types, i.e. to assign the label of a chemical compound according to the role which it plays within a chemical reaction. Task 2 requires identification of event trigger words (e.g. “added” and “stirred”) which all have the same type of “EVENT_TRIGGER”, and then determination of the chemical entity arguments of these events.

CLEF eHealth⁶ aims to support the development of techniques to aid laypeople, clinicians and policy-makers in easily retrieving and making sense of medical content to support their decision making. The goals of the lab are to develop processing methods and resources in a multilingual setting to enrich difficult-to-understand eHealth texts and provide valuable documentation.

eRisk: Early Risk Prediction on the Internet⁷ explores challenges 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. The 2020 edition of the

² <https://www.cs.rit.edu/~dpr1/ARQMath>

³ <http://www.bioasq.org/workshop2021>

⁴ <https://sites.google.com/view/clef2021-checkthat>

⁵ <http://chemu2021.eng.unimelb.edu.au/>

⁶ <https://clefehealth.imag.fr/>

⁷ <https://erisk.irlab.org/>

lab focused on texts written in social media for the early detection of signs of self-harm and depression.

ImageCLEF: Multimedia Retrieval⁸ provides an evaluation forum for visual media analysis, indexing, classification/learning, and retrieval in medical, nature, security and lifelogging applications with a focus on multimodal data, so data from a variety of sources and media.

LifeCLEF: Multimedia Life Species Identification⁹ aims at boosting research on the identification and prediction of living organisms in order to solve the taxonomic gap and improve our knowledge of biodiversity. 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.

Lilas: Living Labs for Academic Search¹⁰ aims to bring together researchers interested in the online evaluation of academic search systems. The long term goal is to foster knowledge on improving the search for academic resources like literature, research data, and the interlinking between these resources in fields from the Life Sciences and the Social Sciences. The immediate goal of this lab is to develop ideas, best practices, and guidelines for a full online evaluation campaign at CLEF 2021.

PAN: Digital Text Forensics and Stylometry¹¹ is a networking initiative for the digital text forensics, where researchers and practitioners study technologies that analyze texts with regard to originality, authorship, and trustworthiness. PAN provides 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.

SimpleText: (Re)Telling right scientific stories to non-specialists via text simplification¹² aims to create a community interested in generating a simplified summary of scientific documents and to contribute in making the science really open and accessible for everyone. The goal is to generate a simplified abstract of multiple scientific documents based on a given query.

Touché: Argument retrieval¹³ is the first shared task on the topic of argument retrieval. Decision making processes, be it at the societal or at the personal level, eventually come to a point where one side will challenge the other with a why-question, which is a prompt to justify one's stance. Thus, technologies for argument mining and argumentation processing are maturing at a rapid pace, giving rise for the first time to argument retrieval.

⁸ <https://www.imageclef.org/2021>

⁹ <https://www.imageclef.org/LifeCLEF2021>

¹⁰ <https://clef-lilas.github.io/>

¹¹ <http://pan.webis.de/>

¹² <https://www.irit.fr/simpleText/>

¹³ <https://touche.webis.de/>

As a group, the 152 lab organizers were based in 22 countries, with Germany, and France leading the distribution. Despite CLEF’s traditionally Europe-based audience, 44 (28.9%) organizers were affiliated with international institutions outside of Europe. The gender distribution was biased towards 75% male organizers.

CLEF has always been backed by European projects that complement the incredible amount of volunteering work performed by Lab Organizers and the CLEF community with the resources needed for its necessary central coordination, in a similar manner to the other major international evaluation initiatives such as TREC, NTCIR, FIRE and MediaEval. Since 2014, the organisation of CLEF no longer has direct support from European projects and are working to transform itself into a self-sustainable activity. This is being made possible thanks to the establishment of the CLEF Association¹⁴, a non-profit legal entity in late 2013, which, through the support of its members, ensures the resources needed to smoothly run and coordinate CLEF.

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Thank you all very much!

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

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