Special issue on selected papers from ICADL 2021

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This special issue of the International Journal on Digital Libraries (IJDL) brings together a selection of high-quality papers that were presented at the 23rd International Conference on Asia-Pacific Digital Libraries (ICADL 2021) also including the best paper award winner and the runner-up paper. ICADL is an annual international interdisciplinary conference that, together with the Joint Conference on Digital Libraries (JCDL)and the International Conference on Theory and Practice of Digital Libraries (TPDL) conferences, is one of the three top venues for connecting digital libraries, computer science and library as well as information science communities.

The 23rd International Conference on Asia-Pacific Digital Libraries was held online from December 1 to 3, 2021. ICADL 2021 was planned as a forum for researchers and practitioners from diverse disciplines to exchange ideas and discuss issues related to the present and future roles of digital libraries as we advance toward digital societies. The theme of the conference was: Towards Open and Trustworthy Digital Societies.

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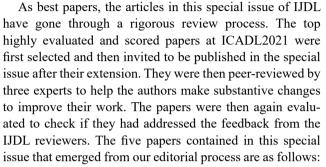ishita.emi.982@m.kyushu-u.ac.jp

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As best papers, the articles in this special issue of IJDL have gone through a rigorous review process. The top highly evaluated and scored papers at ICADL2021 were first selected and then invited to be published in the special issue after their extension. They were then peer-reviewed by three experts to help the authors make substantive changes to improve their work. The papers were then again evaluated to check if they had addressed the feedback from the IJDL reviewers. The five papers contained in this special issue that emerged from our editorial process are as follows:

Our first paper, "**A Discovery System for Narrative Query Graphs: Entity-Interaction-Aware Document Retrieval**" by Hermann Kroll, Jan Pirklbauer, Jan-Christoph Kalo, Morris Kunz, Johannes Ruthmann & Wolf-Tilo Balke address the challenge of improving the efficiency of scientific publication retrieval, surpassing the limitations of conventional keyword-based searches. Introducing a novel approach employing entity-interaction graph patterns, the paper allows users to explicitly articulate their information needs through entity-interaction queries. The developed discovery system can boost query expressiveness and process arbitrary narrative query graphs over the biomedical literature. The proposed method is evaluated on the PubMed collection, demonstrating improved retrieval precision over keyword-based search. Furthermore, expert interviews and a questionnaire further validate the system's practical usefulness.

The second paper, "**Self-Training Involving Semantic-Space Finetuning for Semi-Supervised Multi-Label Document Classification**" by Zhewei Xu and Mizuho Iwaihara proposes dynamic self-training integrating semantic space for multi-label document classification. Self-training is an effective solution for semi-supervised learning, in which both labeled and unlabeled data are leveraged for training. However, the application scenarios of existing self-training frameworks are mostly applied to single-label classification. There exist difficulties in applying self-training under multi-label scenarios. The paper tackles improve these difficulties. The paper also designed two weighted loss functions to fine-tune the multi-label classifier ML-BERT to reduce the

impact of low-confidence predictions. According to their experiment results of the proposed methods, the performance of their approach steadily exceeds the representative baselines under different label rates, proving the superiority of their proposed approach.

In "**ORKG-Leaderboards: A Systematic Workflow for Mining Leaderboards as a Knowledge Graph**", by Salomon Kabongo, Jennifer D'Souza, and Sören Auer propose a method for extracting Leaderboards, which is defined as Task-Dataset-Metric tuples, from large collection of empirical research papers using four recent transformer-based models (BERT, SciBERT, XLNet, BigBird). Their method is integrated with the Open Research Knowledge Graph (ORKG) platform and significantly outperforms previous works in terms of micro and macro F1 scores. The Digital Library community could benefit from their work to create a comprehensive knowledge graph tracking scientific progress in various scientific domains.

The paper, "**PEERRec: An AI-based approach to Automatically Generate Recommendations and Predict Decisions in Peer Review**," by Prabhat Kumar Bharti, Tirthankar Ghosal, Mayank Agrawal, and Asif Ekbal explored what an AI-powered review system would look like for the peer review process. The main goal of the study is to examine the possibility of a human-AI collaboration in the decision-making process. The authors use a deep attention network between the review text and paper and sentiment information within peer-review texts to assist the editors' decision-making. From the experiments, it was found that the proposed model outperforms the recent state-of-the-art competitive baselines. While the authors recognize that the study is not arguing for AI taking the editor's role, the findings still provide great evidence of the possibility of human-AI collaboration to reduce the peer review workload with an AI-enabled peer review recommendation score prediction system.

The four articles that have gone through the editorial process for this special issue of IJDL represent a diverse array of high-quality work within our communities. We hope that the readers will find these papers as interesting and insightful as we did.