© 2023 IEEE. Personal use of this material is permitted. Permission from IEEE must be obtained for all other uses, in any current or future media, including reprinting/republishing this material for advertising or promotional purposes, creating new collective works, for resale or redistribution to servers or lists, or reuse of any copyrighted component of this work in other works.

JCDL2023 Workshop: Jonit Workshop of the 4th Extraction and Evaluation of Knowledge Entities from Scientific Documents (EEKE2023) and the 3rd AI + Informetrics (AII2023)

Chengzhi Zhang
Department of Information Management, Nanjing University of Science and Technology, China,
zhangcz@njust.edu.cn

Yi Zhang
Australian Artificial Intelligence Institute, University of Technology Sydney, Australia
Yi.Zhang@uts.edu.au

Philipp Mayr
GESIS -- Leibniz-Institute for the Social Sciences, Germany,
philipp.mayr@gesis.org

Wei Lu
School of Information Management, Wuhan University, China
weilu@whu.edu.cn

Arho Suominen
Faculty of Management and Business, Tampere University, Finland,
arho.suominen@tuni.fi

Haihua Chen
Department of Information Science, University of North Texas, USA,
Haihua.Chen@unt.edu

Ying Ding
School of Information, University of Texas at Austin. USA,
ying.ding@austin.utexas.edu

ABSTRACT

The 4th Workshop on Extraction and Evaluation of Knowledge Entities from Scientific Documents (EEKE 2023) and the 3rd AI + Informetrics (AII2023) will be held in New Mexico, USA and online at the ACM/IEEE Joint Conference on Digital Libraries (JCDL) 2023. The goal of these two workshop series (https://eeke-workshop.github.io/ and https://ai-informetrics.github.io/) are to engage the related communities in open problems in the extraction and evaluation of knowledge entities from scientific documents and the modeling and applications of AI + Informetrics for broad interests in science of science, science, technology, & innovation (ST&I), etc. This joint workshop consists of keynotes, oral presentations, and posters, and will attract not only academic researchers and librarians but also decision makers from governments and practical sectors.

CCS CONCEPTS

• Information systems • Information retrieval • Retrieval tasks and goals • Information extraction

KEYWORDS

Knowledge entity extraction, Knowledge entity evaluation, Informetrics, Artifical intelligence

INTRODUCTION

In the era of big data, massive amounts of information and data have dramatically changed human civilization. The broad availability of information provides more opportunities for people, but a new challenge is rising: how can we obtain useful knowledge from numerous information sources. A knowledge entity is a relatively independent and integral knowledge module in a special discipline or a research domain [1]. As a crucial medium for knowledge transmission, scientific documents that contain a large number of knowledge entities attract the attention of scholars [2]. Complementarily, informetrics, known as the study of quantitative aspects of information, has gained great benefits from artificial intelligence (AI), with its capacities in analyzing unstructured scalable data and streams, understanding uncertain semantics, and developing robust and repeatable models. Incorporating informetrics with AI techniques has demonstrated enormous success in turning big data into big value and impact. For example, deep learning approaches enlighten studies of pattern recognition and further leverage time series to track technological change. However, how to effectively cohere the power of AI and informetrics to create cross-disciplinary solutions is still elusive from neither theoretical nor practical perspectives.

This workshop aims to engage related communities in open problems in the extraction and evaluation of knowledge entities from scientific documents and AI + Informetrics. Specifically, knowledge entities in scientific documents may include method entities, tasks, dataset and metrics, software and tools, etc [3]. Knowledge entity application includes the construction of a knowledge entity graph and roadmap, modeling functions of knowledge entity citations, etc. There are some online platforms based on knowledge entities, e.g., SAGE Research Methods and 'SOTA' project. In parallel, this workshop also targets certain unsolved issues in AI + Informetrics and a wide range of its

Permission to make digital or hard copies of part or all of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for components of this work owned by others than ACM must be honored. Abstracting with credit is permitted. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee. Request permissions from permissions@acm.org.
JCDL ' 23, June 26 - 30, 2023, Santa Fe, New Mexico, USA
© 2023 Association for Computing Machinery. 978-1-4503-9345-4/22/06
https://doi.org/10.1145/3529372.3530917

practical scenarios including: Cohering AI and informetrics to fulfill cross-disciplinary gaps from either theoretical or practical perspectives; elaborating AI-empowered informetric models with enhanced capabilities in robustness, adaptability, and effectiveness, and leveraging knowledge, concepts, and models in information management to strengthen the interpretability of AI + Informetrics to adapt to empirical needs in real-world cases [4].

This joint workshop entitles these two cutting-edge and cross-disciplinary directions as:

- Extraction and Evaluation of Knowledge Entity (EEKE), highlighting the development of intelligent methods for identifying knowledge entities from scientific documents, and promoting their application in broad information studies.
- AI + Informetrics, emphasizing endeavors in interacting AI and informetrics by constructing fundamental theories, developing novel methodologies, bridging conceptual knowledge with practical uses, and creating real-word solutions.

This workshop is to gather researchers and practical users to open a collaborative platform for exchanging ideas, sharing pilot studies, and scoping future directions on this cutting-edge venue.

WORKSHOP TOPICS

This workshop is primarily designed for academic researchers in broad information and library sciences, science of science, artificial intelligence, and will also be of interest to librarians, ST&I administrators and policymakers, and practitioners in any related sectors.

We invite stimulating research on topics including, but not limited to, methods of knowledge entity extraction and applications of knowledge entity. Specific examples of fields of interest include:

- Task and methodology from scientific documents
- Model and algorithmize entity extraction from scientific documents
- Dataset and metrics mention extraction from scientific documents
- Software and tool extraction from scientific documents
- Knowledge entity summarization
- Relation extraction of knowledge entity
- Modeling function of knowledge entity citation
- Informetrics with machine learning (including deep learning)
- Informetrics with natural language processing or computational linguistics
- Informetrics with computer vision
- Informetrics with other related AI techniques (e.g., information retrieval)
- AI for science of science
- AI for science, technology, & innovation
- AI for research policy and strategic management
- Application of knowledge entity extraction
- Applications of AI-empowered informetrics

PREVIOUS WORKSHOPS

All the previous three EEKE workshops were held at JCDL and all proceedings can be accessed at http://ceur-ws.org/. We have organized three special issues on the topic of extraction and evaluation of knowledge entities in the *Journal of Data and Information Science*[1] and *Data and Information Management*[2], *Scientometrics*[3] respectively. The first AII workshop was held at iConference2021 and the second was held at IP&MC 2022 Annual Conference[4]. We have organized two special issues on the topic of AI + Informetrics in the *Scientometrcis* [5] and *Information Managerment and Processing* respectively.

Workshop proceedings of EEKE-AII2023 will be deposited online in the CEUR workshop proceedings publication service. We will invite two keynote speakers for EEKE-AII2023. A special issue in *Technological Forecasting & Social Change* (https://www.sciencedirect.com/journal/technological-forecasting-and-social-change) after the workshop will be organized.

REFERENCES

[1] Chang, X., Zheng, Q. (2008). Knowledge Element Extraction for Knowledge-Based Learning Resources Organization. In: Leung, H., Li, F., Lau, R., Li, Q. (eds) Advances in Web Based Learning – ICWL 2007. ICWL 2007. Lecture Notes in Computer Science, vol 4823. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-540-78139-4_10

[2] Ying, D., Min, S., Jia, H., Qi, Y., Erjia, Y., Lili, L., Tamy, C. entitymetrics: measuring the impact of entities. Plos One, 2013, 8(8), e71416. https://doi.org/10.1371/journal.pone.0071416

[3] Zhang, C., Mayr, P., Lu, W., & Zhang, Y. (2022). JCDL2022 workshop: extraction and evaluation of knowledge entities from scientific documents (EEKE2022). In Proceedings of the 22nd ACM/IEEE Joint Conference on Digital Libraries (JCDL '22). Association for Computing Machinery, New York, NY, USA, Article 54, 1–2. https://doi.org/10.1145/3529372.3530917

[4] Zhang, Y., Zhang, C., Mayr, P., & Suominen, A. An editorial of "AI + informetrics": multi-disciplinary interactions in the era of big data. Scientometrics 127, 6503–6507 (2022). https://doi.org/10.1007/s11192-022-04561-w

[1] https://www.sciendo.com/issue/JDIS/6/3
[2] https://www.sciendo.com/issue/DIM/5/3
[3] https://link.springer.com/collections/hbffbdggdj
[4] https://www.elsevier.com/events/conferences/information-processing-and-management-conference/author-submission/ai-informetrics-robust-models-for-large-scale-analytics
[5] https://link.springer.com/collections/ebfiegeiie