

AI + Informetrics: Multi-disciplinary Interactions in the Era of Big Data

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Abstract

Inspired by the increasing interactions between informetrics and artificial intelligence (AI) for handling challenges raised from multiple disciplines – e.g., bibliometric-enhanced information retrieval, intelligent bibliometrics, digital library applications, and decision support for science, technology & innovation (ST&I), this workshop is to engage broad audiences to exchange their ideas, concepts, models, and applications in this cutting-edge area, identify research frontiers and emerging topics by incorporating advantages of cross-disciplines, and prompt multi-disciplinary collaboration. This workshop consists of keynotes, oral presentations, and panel discussion, and would attract interests from not only academic researchers and librarians but also decision makers from governments and practical sectors.

Description

Purpose

Driven by the big data boom, *informetrics*, known as the study of quantitative aspects of information, has gained great benefits from *artificial intelligence* (Nilsson 1998) – including a wide range of intelligent agents through techniques such as neural networks, genetic programming, computer vision, heuristic search, knowledge representation and reasoning, Bayes network, planning and language understanding. With its capacities in analyzing unstructured scalable data and streams, understanding uncertain semantics, and developing robust and repeatable models, “*Artificial Intelligence + Informetrics*” has demonstrated enormous success in turning big data into big value and impact by handling diverse challenges raised from multiple disciplines and research areas. For example, bibliometric-enhanced information retrieval (Mayr et al., 2014), science mapping with topic models (Suominen and Toivanen, 2016), streaming data analytics for tracking technological change (Zhang et al., 2017), and entity extraction with unsupervised machine learning techniques (Zhang et al., 2019). Such endeavours with broadened perspectives from machine intelligence would portend far-reaching implications for science (Fortunato et al., 2018), but 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 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. We highlight “**AI + Informetrics**” as endeavors in constructing fundamental theories, developing novel methodologies, bridging conceptual knowledge with practical uses, and creating real-word solutions.

Proposed Format

This one-day workshop consists of keynotes, oral presentations, and panel discussion. Two keynotes will deliver topics, covering broad interests in the methodological development and practical applications of “AI + Informetrics”. This workshop will release Open Calls to attract worldwide submissions on related topics (see Engagement) and a panel of reviewers will be formed to select high-quality papers for oral presentations. This workshop will also organize a panel discussion to identify research frontiers and emerging topics in this venue and create an interactive forum to engage panel members and audiences. The general format of this workshop is given in Table 1 below.

Table 1. Format of the Workshop (7 Hours)

Time	Content
<i>Open Session</i>	
15 min	Introduction
<i>Opening Keynote</i>	
45 mins	<i>Title</i> Keynote A: Chaomei Chen (TBD)
<i>Session 1 – Oral Presentations</i>	
60 mins	Three 20-min presentations including Q&A
<i>Coffee Break (30 mins)</i>	
<i>Session 2 – Oral Presentations</i>	
60 mins	Three 20-min presentations including Q&A
<i>Panel Discussion</i>	
60 mins	<i>AI + Informetrics: Frontiers, Emerging Topics, and Future</i> Panel Members (TBD)
<i>Coffee Break (30 mins)</i>	
<i>Session 3 – Oral Presentations</i>	
60 mins	Three 20-min presentations including Q&A
<i>Closing Keynote</i>	
45 mins	<i>Title</i> Keynote B: Nees Jan van Eck (TBD)
<i>Close Session</i>	
15 mins	Conclusion

Engagement

Strategies to engage workshop attendees before the workshop include:

- A submission system through *EasyChair* to manage submissions, including paper submission, review, and communications with authors.
- A webpage through *GitHub* to advertise this workshop, realize important announcements, and share outcomes of this workshop to the community and general public.
- Emails to directly contact keynotes, presenters, and workshop attendees in certain specific cases.

Strategies to engage workshop attendees during and after the workshop include:

- Sharing the workshop agenda and related materials to all registered attendees via emails.
- Summarizing key agreements and conclusions after the workshop and reporting on the website (*GitHub*), which would be extended to a forum for the community in the future.

*Interests to this workshop include, but not limited to the following topics:

- 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
- Applications of AI-enhanced informetrics

Goals or Outcomes

Outcomes of this workshop could include:

- Publishing the *Proceedings of AI + Informetrics 2020* through CEUR (<http://ceur-ws.org/>).
- Special issue in *Scientometrics* or *Journal of Informetrics*.
- The second special issue in *Journal of Data and Information Science*, if we receive a large amount of submissions.

Relevance to the iConference

“AI + Informetrics” is a cutting-edge and cross-disciplinary direction observed in venues of information science, which covers not only researchers from broad external disciplines, such as computer science, information systems & management, public policy & administration, and innovation management & entrepreneurships, but also practitioners from governments and industry sectors. Such a novel arena embraces diverse research areas, encourage multi-disciplinary dialogues, and would create divergent research topics and future directions, which exactly coincides with the main themes of the iConference 2021.

Attendance

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

In a virtual setting, we expect to involve 100 attendees (maybe more).

References

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