Call for Papers

Call for Papers
Special Issue of Quantitative Science Studies

Scientific Knowledge Graphs and Research Impact Assessment

Editor-in-Chief
Ludo Waltman, Leiden University, the Netherlands

Guest Editors
Paolo Manghi, ISTI-CNR, Italy
Andrea Mannocci, ISTI-CNR, Italy
Francesco Osborne, The Open University, UK
Dimitris Sacharidis, TU Wien, Austria
Angelo Salatino, The Open University, UK
Thanasis Vergoulis, "Athena" RC, Greece

Important Dates
Full paper submission: 31 January 2021
Review reports and invitation to submit revised paper: 31 March 2021
Revised paper submission: 31 May 2021
Expected publication: September 2021

Aim and Scope
In the last decades, there has been a huge increase in the volume of published scientific articles and related research objects (e.g., data sets, software packages). This trend gives rise to important challenges.
The first set of challenges are related to organising such data. We urge for flexible, context-sensitive, fine-grained, and machine-actionable representations of scholarly knowledge that at the same time are structured, interlinked, and semantically rich. Scientific Knowledge Graphs (SKGs) are becoming increasingly popular as infrastructures for representing scholarly knowledge. They are large networks describing the actors (e.g., authors, organizations), the

documents (e.g., publications, patents), and the research knowledge (e.g., research topics, tasks, technologies) in this space as well as their reciprocal relationships. These resources provide substantial benefits to researchers, companies, and policymakers by powering several data-driven services for navigating, analysing, and making sense of research dynamics. Some examples include Microsoft Academic Graph (MAG), AMiner, Open Academic Graph, ScholarlyData.org, PID Graph, Open Research Knowledge Graph, OpenCitations, and the OpenAIRE research graph. Specifically, current challenges include: i) the design of ontologies able to conceptualise scholarly knowledge, model its representation, and enable its exchange across different SKGs, ii) extraction of entities and concepts, integration of information from heterogeneous sources, identification of duplicates, finding connections between entities, identifying conceptual inconsistencies, and iii) the development of services that exploit knowledge as provided by one or more SKGs to discover, monitor, measure, and consume research outcomes.

The second set of challenges are related to the assessment of research impact. Due to the aforementioned huge growth in the volume of research outputs, rigorous approaches to research assessment are now more valuable than ever. In this context, we urge for reliable and comprehensive metrics and indicators of the scientific impact and merit of publications, data sets, research institutions, individual researchers, and other relevant entities. Scientific impact refers to the attention a research work receives inside its respective and related disciplines, the social/mass media etc. Scientific merit, on the other hand, relates to quality aspects of a work, such as its novelty, reproducibility, FAIR-ness, and readability. Nowadays, due to the growing popularity of Open Science initiatives, a large number of useful science-related data sets have been made openly available, paving the way for the synthesis of more sophisticated indicators of scientific impact and merit and, consequently, more rigorous research assessment. For instance, in recent years, due to the systematic efforts of various teams, a variety of large SKGs have been made available, providing very rich and relatively clean sources of information about academics, their publications and relevant metadata. These SKGs can be used for the development of novel research assessment approaches.

This special issue on Scientific Knowledge Graphs and Research Impact Assessment aims to provide anyone interested in scholarly knowledge representation and research assessment with an overview of recent advances in this area. We seek high-quality submissions centred around the following topics:

- **Models:**
    - Data models for the description of scholarly data and their relationships
    - Description and use of provenance information of scientific data

- **Methods:**
    - Methods for extracting metadata, entities and relationships from scientific data
    - Methods for the (semi-)automatic annotation and enhancement of scientific data
    - Novel methods, indicators, and metrics for quality and impact assessment of scientific publications, datasets, software, and other relevant entities based on scholarly data
    - Methods and interfaces for the exploration, retrieval, and visualisation of scholarly data focussing on facilitating impact assessment

- Studies of scientific knowledge graphs and citation networks for scholarly articles, data and software

Submission and Review Process

Full papers must be submitted by January 31, 2021 to skgaiminscience@outlook.com. They will go through a peer-review process to make sure they meet the high standards of Quantitative Science Studies.

Papers must be prepared according to the submission guidelines of Quantitative Science Studies (see https://www.mitpressjournals.org/journals/qss/sub). Papers submitted must not have been published, accepted, or be under review for publication elsewhere.

Author Guidelines: Replicability and Reproducibility of Research (Open Science Practices)

Datasets and software that are used to motivate and justify the scientific quality and novelty must be shared together with the submitted article. The articles should clearly highlight the value of the dataset or software, describe its provenance and provide the information required to properly reuse it. The article must include in the bibliography a citation to the dataset or software, which should, in turn, be deposited under an Open Access licence in a repository capable of minting a DOI and assigning attribution/citation metadata to the dataset (e.g. Zenodo or similar). ***Recommendation***: software and dataset metadata should include a pointer (DOI or URL) to the documentation, schema, or other objects useful for their interpretation and re-use. If the software or dataset is deposited in Zenodo, refer to the metadata section "related identifier", add the pointers, and select the proper relation type (e.g. "documents this upload").

Further Information

For questions regarding this special issue, please contact skgaiminscience@outlook.com.