

ORC: The Open Research Converter

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Software

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Summary

The [Open Research Converter \(ORC\)](#) is a tool designed to allow researchers, developers and others using bibliographic data to convert their data in bulk to a shareable format utilising [OpenAlex](#).

Statement of need

Bibliometrics and in particular Scientometrics suffers from a lack of reproducibility, wherein the databases used to perform bibliometrics are often proprietary and therefore bound by copyright and access agreements which forbid sharing the underlying data used to create the scientific insights shared in papers.

OpenAlex ([Priem et al., 2022](#)), released in 2022, is an open-source bibliometric database compiled by [Our Research](#) which releases its data with a maximally permissive copyright (specifically under the [CC0 1.0 Universal](#) deed), allowing free sharing of all data. This has allowed bibliometric researchers to download and interrogate the data as they see fit, and enables sharing of data.

However, dealing with OpenAlex data can be cumbersome. The methods of access are currently via the [website](#), [API](#), or a [data dump](#), each of which have associated challenges for researchers. Namely, use of the website limits the amount of information available to be displayed and may require downloading and then processing the data further to achieve the desired insights, use of the API requires a level of technical knowledge and is rate limited by OpenAlex, and the data dumps are very large (approximately 330GB compressed and 1.6TB decompressed, at time of writing) and also require technical knowledge in the processing and interrogation of the data.

Easing the barrier of access to OpenAlex is a current theme of work in the bibliometrics community. For example, Massimo et al. ([2024](#)) have created a tool in the R programming language, [openalexR](#), capable of bulk collection of OpenAlex data and processing this data from OpenAlex's JSON-based data format to a tabular format. Similarly [OpenAlex Networks](#) ([Silva, 2023](#)) is a Python library for generation of OpenAlex datasets and processing of citation and coauthorship networks. [OpenAlexNet](#) is a C# wrapper for OpenAlex enabling searching of OpenAlex.

Currently OpenAlex has no easy method for researchers to convert their datasets from proprietary formats to OpenAlex. The only options are to manually convert smaller datasets using OpenAlex's website, or download the OpenAlex data dump and process this to enable matching.

We provide here in the Open Research Converter a tool utilising the OpenAlex API enabling simple bulk conversion of bibliometric data (DOIs) to a shareable format.

Functionality

The Open Research Converter is a containerised Python- and JavaScript-based tool which, when run, serves a webpage allowing a user to enter either a string of [DOIs](#) via copy and paste, or by uploading a correctly formatted CSV file. The user can then convert these to OpenAlex WorkIDs or retrieve the full bibliographic record from OpenAlex.

The tool has been tested on datasets of 100,000 DOIs and was stable. At time of writing, a running version of the ORC can be found at orc-demo.gesis.org, and the code is released [on GitHub](#) under a GPL-3.0+ license.

The tool requires an OpenAlex API key to function, details of which are found [in the Authentication & Pricing section](#) of the [OpenAlex Developers Guide](#).

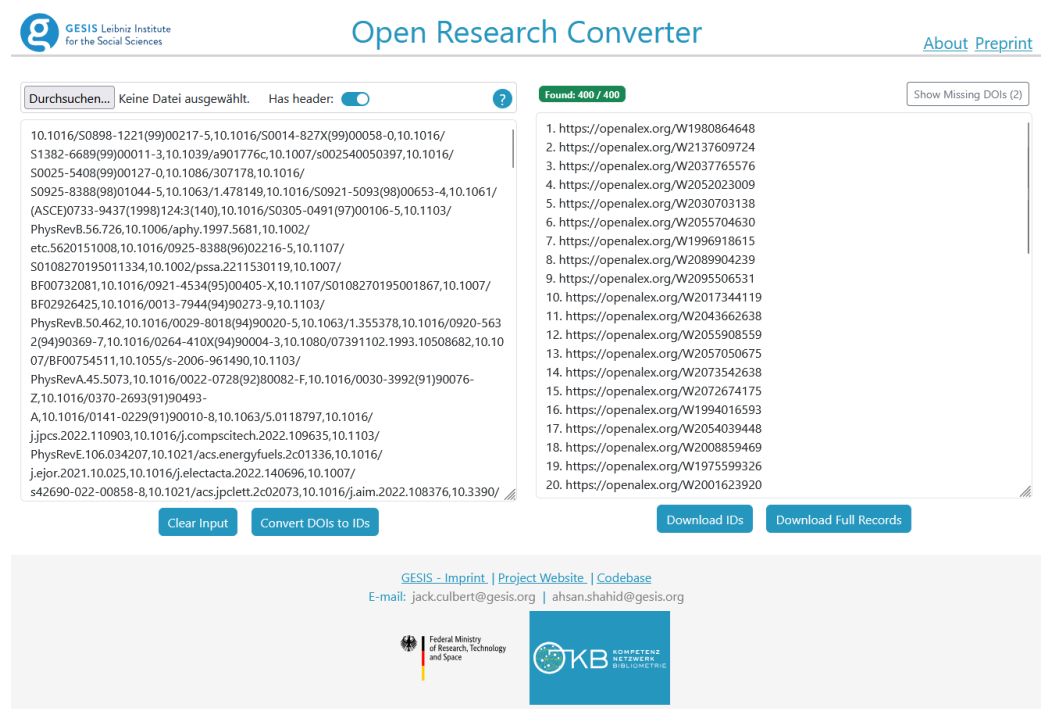


Figure 1: Homepage for the ORC.

Research projects

The Open Research Converter has been used in the release of two datasets: Culbert et al. (2024) which complements Gupta et al. (2024) and Smirnova et al. (2024) which complements Mir et al. (2026).

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Contributor Role Taxonomy (CRediT)

Jack H. Culbert: Conceptualization (lead); Investigation (lead); Methodology (lead); Software (equal); Visualization (supporting) Writing - Original Draft Preparation (lead); Writing - Review and Editing (equal). **Muhammad Ahsan Shahid:** Software (equal); Visualization (lead); Writing - Review and Editing (equal). **Philipp Mayr:** Project Administration (lead); Supervision (lead); Writing - Review and Editing (equal).

References

- Culbert, J. H., Gupta, S., Kanaujia, A., Lathabai, H. H., Kumar Singh, V., & Mayr, P. (2024). *Open AI literature 2010-2020 dataset* (Version 1.0.0) [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.10997451>
- Gupta, S., Kanaujia, A., Lathabai, H. H., Singh, V. K., & Mayr, P. (2024). Patterns in the growth and thematic evolution of artificial intelligence research: A study using Bradford distribution of productivity and path analysis. *International Journal of Intelligent Systems*, 2024(1), 5511224. <https://doi.org/10.1155/2024/5511224>
- Hołyst, J. A., Mayr, P., Thelwall, M., Frommholz, I., Havlin, S., Sela, A., Kenett, Y. N., Helic, D., Rehar, A., Maček, S. R., Kazienko, P., Kajdanowicz, T., Biecek, P., Szymanski, B. K., & Sienkiewicz, J. (2024). Protect our environment from information overload. *Nature Human Behaviour*, 8(3). <https://doi.org/10.1038/s41562-024-01833-8>
- Massimo, A., Le Trang, Corrado, C., Alessandra, B., & June, C. (2024). openalexR: An R-tool for collecting bibliometric data from OpenAlex. *The R Journal*, 15(4), 167–180. <https://doi.org/10.32614/RJ-2023-089>
- Mir, A. A., Smirnova, N., Jeyshankar, R., & Mayr, P. (2026). The rise of Indo-German collaborative research: 1990–2022. *Global Knowledge, Memory and Communication*, 75(1–2), 412–436. <https://doi.org/10.1108/GKMC-09-2023-0328>
- Priem, J., Piwowar, H., & Orr, R. (2022). *OpenAlex: A fully-open index of scholarly works, authors, venues, institutions, and concepts* (No. arXiv:2205.01833). arXiv. <https://doi.org/10.48550/arXiv.2205.01833>
- Schmidt, M., Rimmert, C., Stephen, D., Lenke, C., Donner, P., Gärtner, S., Taubert, N., Bausenwein, T., & Stahlschmidt, S. (2025). The data infrastructure of the German *Kompetenznetzwerk Bibliometrie*: An enabling intermediary between raw data and analysis. *Quantitative Science Studies*, 6, 1129–1146. <https://doi.org/10.1162/QSS.a.20>
- Silva, F. N. (2023). *OpenAlex networks (openalexnet)*. GitHub repository. <https://github.com/filipinascimento/openalexnet>
- Smirnova, N., Culbert, J. H., & Mayr, P. (2024). *Indo-German literature dataset* [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.10607235>