

Australian ORCID Research Graph

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ABSTRACT

Australian ORCID Research Graph is a joint venture between Australian ORCID Consortium and Research Graph Foundation, building an interoperable graph of research collaboration networks in Australia. The aim is to identify how researchers in Australia collaborate in different domains across universities nationally and internationally. The core component of this graph is Australian ORCID records, augmented via Research Graph API Online Services with information about datasets and grants beyond ORCID consortium records. In this presentation, we demonstrate the value and capability of such a graph, discuss opportunities and technical limitations, and provide a walkthrough on how to access/user/reuse this data.

BACKGROUND

Research evaluation is sometimes hampered by a lack of data that clearly connects a research program with its outcomes and also by ambiguity about who has participated and contributions they have made. Manually making these connections is labour-intensive while algorithmic matching introduces errors and assumptions that can distort results. Since its inception, ORCID has been uniquely identifying researchers and connecting them to their research contributions. ORCID also plays an important role in building and maintaining relationships of trust between researchers and their organisations in today's interconnected society. With over 2.7 million ORCID IDs connected to external identifiers like funding, publications and peer review, there is substantial big data within the ORCID registry to make connections between research programs and researchers. As big data becomes part of the research management paradigm that will influence future research management practice, there is an opportunity for research organisations to use it to predict trends, identify and support research policies and help increase research efficiencies.

The Australian ORCID Consortium was launched in 2016 after extensive consultation within the higher education and research sector. The consortium is a community of Australian organisations that takes a national approach to ORCID adoption. The consortium maximises the benefits for member organisations by providing premium membership, discounted fees, access to local support and a range of resources. The Australian Access Federation (AAF) is the consortium lead for the Australian ORCID Consortium and works with consortium members in advocating the implementation and adoption of ORCID within the higher education and research sector in Australia.

The Research Graph Foundation is a not for profit organisation formed to promote open access to information about research activities. Research is a collaborative enterprise, and open access to information about research activities fosters new collaboration opportunities and increases the impact of research investment. The foundation collaborates with national and international initiatives towards creating a global network of connected research ecosystems.

In early 2018, the Australian ORCID Consortium and Research Graph Foundation started a joint venture to animate the collaboration network of Australian universities at the national and international levels [1]. This work provided an insight into the strength of the linkages between institutions both domestic and international, are based on the geographical or socio-political or common area of research expertise.

BUILDING ORCID RESEARCH GRAPH FOR AUSTRALIA

Research objects can be linked across research infrastructures, for example, a publication in a data repository can be linked to the Metadata record from Crossref.org where Crossref record has additional information about citations, related datasets, and even funding information. Augmenting Scholarly Graphs is the process of discovering new linked research objects and connecting the metadata of these new objects to the repository level graphs [1]. In this work, we used the Research Graph Augment API to build a graph from Australian ORCID records -- research profiles connected to Australian Universities -- and connect these records to other sources beyond the ORCID cluster. As presented in Figure1, the augment process includes three main steps: (1) Building the graph from ORCID records, (2) Augmenting the graph with information received from external sources such as SCHOLIX and DataCite. (3) Exporting the Augmented Graph into interoperable formats (VIVO RDF, JSON and GraphML).

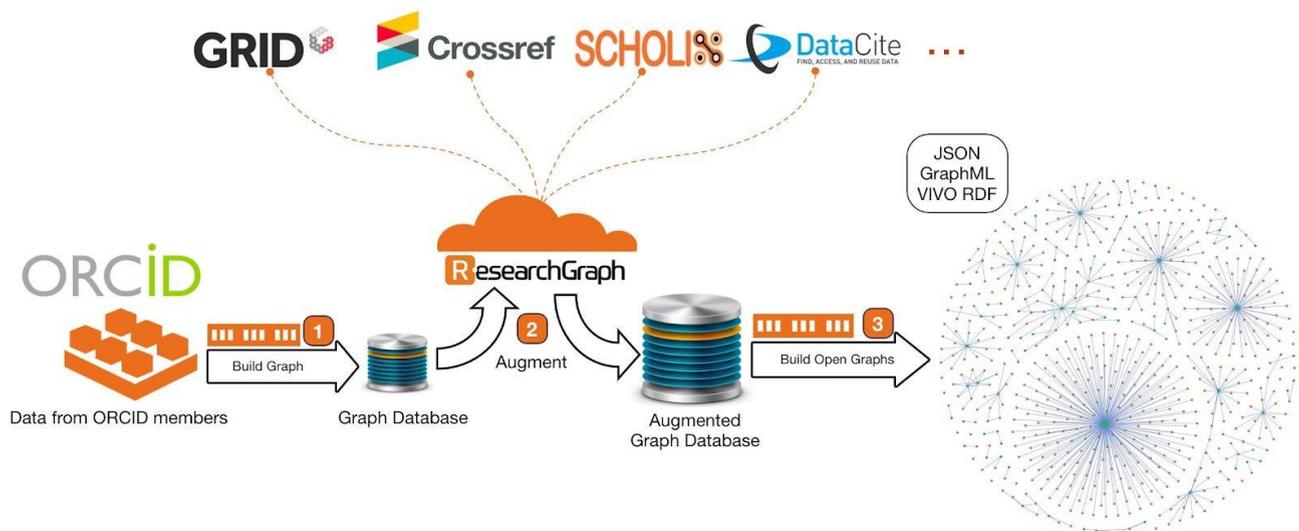


FIGURE 1: CREATING AUGMENTED GRAPH FROM ORCID DATA

The result of this work is newly established links that demonstrate the following connections

- publication → researcher (ORCID) → affiliation → university
- publication → grant → researcher (ORCID) → affiliation → university
- dataset → researcher (ORCID) → affiliation → university
- dataset → publication → researcher (ORCID) → university

We have used these connections to build our collaboration network for Australian ORCID Consortium members. In addition to the national level connections, this graph shows strong collaborations with international research institutions such as Cambridge (UK), CERN (Switzerland) and Cornell University (US).

OBJECTIVES

In this presentation, we report on the second phase of this project and the formation of a new open access dataset from Australian collaboration network using ORCID data. We will discuss the followings:

- The challenge and process of connecting ORCID records to other identifiers
- The connections between the ORCID graph and the PID Graph by FREYA project [3]
- The connections between the ORCID Graph, SCHOLIX and DataCite Event Data.
- The capability to access the graph for individual persistent identifiers using Graph API
- Pilot project for linking the new capability to Research Management Systems
- Open Access Graph under Creative Common (CC) Licenses.

REFERENCES

1. M. Almeida, A. Aryani, Visualising Researcher Collaboration and Linkages using ORCID Data and Research Graph, 12th eResearch Australasia Conference, Australia, 2018
2. A. Aryani, A. Lawrence, M. Zwagerman, L. Kneebone, R. Khorsandi, J. Wang, M. Conlon, Augmenting Scholarly Graphs, 14th International Digital Curation Conference (IDCC), Melbourne, Australia, 2019
3. FREYA Project, <https://www.project-freya.eu>, 2019

BIOGRAPHY OF THE PRESENTER

Associate Professor Amir Aryani is the Head of the Swinburne Social Data Analytics (SoDA) Lab and on the board of Research Graph Foundation. He has experience with large-scale and cross-institution projects in Australia and Europe. His track record includes collaboration with high-profile international institutions such as the British Library and ORCID.