

Graphs in eResearch BOF

Ian Thomas¹, Amir Aryani², Nick May³

¹RMIT University, Melbourne, Australia, ian.edward.thomas@rmit.edu.au

²Research Graph Foundation, Melbourne, Australia, aaryani@swinburne.edu.au

³RMIT University, Melbourne, Australia, nicholas.may@rmit.edu.au

DESCRIPTION

This BoF invites research software engineers, infrastructure experts and e-researchers to discuss the use of graphs in eResearch applications and domains. Graphs [1] model heterogeneous, highly-connected data, with connectivity beyond that easily modelled or analysed in relational or document databases. This approach has applications in analysing social networks, knowledge graphs, IT networks, fraud detection and in recommendation engines.

We consider the use of graphs in two broad classes of applications:

- network applications for labelling, clustering and analysing big data sets (such as business networks, survey analysis, eresearch data analysis [2])
- knowledge representation of structured data such as seen in RDF, ontologies, and graphs that provide the interoperable aspects of FAIR [3] data.

SESSION STRUCTURE

This BoF session mixes presentations with round-table discussions.

The programme starts with an overview of the area with an introductory talk to establish base concepts and approaches, followed by a number of short talks from members of the community on experiences and applications in these technologies. The second half the allotted time will be a round-table group discussion on challenges and successes.

1. Introduction to graphs and graph databases (10 mins)
2. Lightning talks - uses and the potential of graphs for research (5 mins each)
3. Group discussion + wrap-up and next steps (35 mins)

AUDIENCE

This BoF will be of interest to those who support and implement network-based databases, graph analytics pipelines or platforms for knowledge representation. This could be the task of supporting researchers in using graph technologies for their research or in the use of graphs to represent data in eResearch applications.

OUTCOMES

The overall outcome is to investigate resources for users of graph technologies, provide networking opportunities and determine interest in forming a national special interest group. Participants will come away with a better understanding of the role that graph based technologies can have in modern eResearch processes.

Please join us at this event to actively work on how we can enhance collaboration around the application of graphs and graph databases in research.

REFERENCES

1. Bechberger, D. NDC Oslo 2018 - A Practical Guide to Graph Databases, <https://www.slideshare.net/DaveBechberger/ndc-oslo-2018-a-practical-guide-to-graph-databases-102313908>, accessed 21 June 2019
2. Aryani, A., Poblet, M.; Unsworth, K., Wang, J., Evans B., Devaraju, A., Hausstein, B., Klas, C., Zapilko, B., Kaplun, S., A Research Graph dataset for connecting research data repositories using RD-Switchboard, Scientific Data, 5 , pp. 180099, 2018.
3. Wilkinson, M. D. et al. The FAIR Guiding Principles for scientific data management and stewardship. Sci. Data 3:160018 doi: 10.1038/sdata.2016.18 (2016).