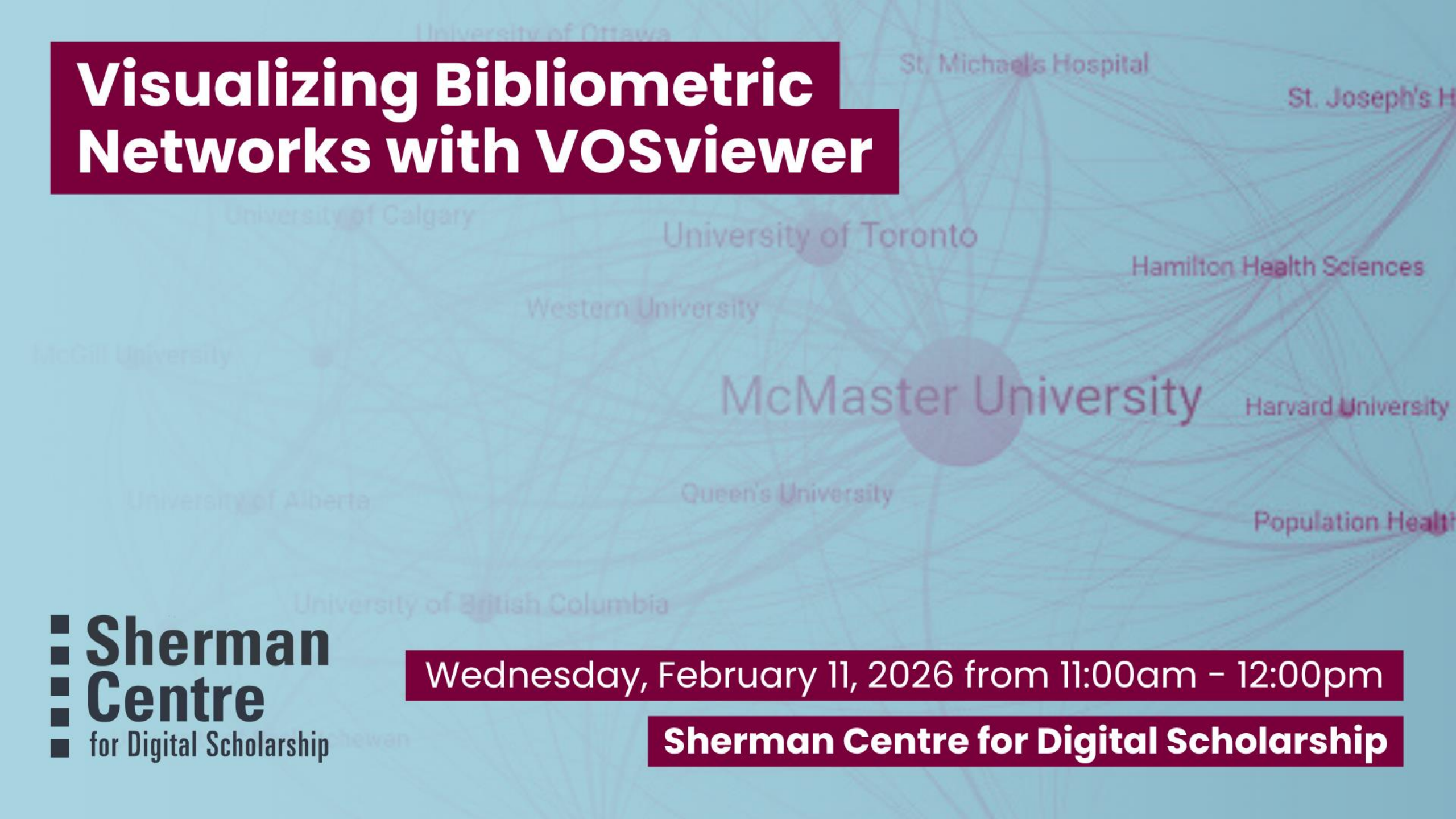
Visualizing Bibliometric Networks with VOSviewer



Sherman Centre for Digital Scholarship

Wednesday, February 11, 2026 from 11:00am - 12:00pm

Sherman Centre for Digital Scholarship

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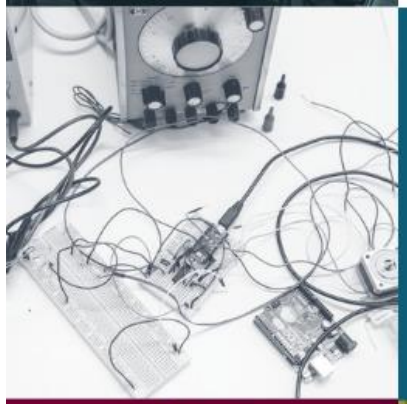

Visualizing Bibliometric Networks with VOSviewer

Jack Young, Research Impact & Bibliometrics Librarian

February 11, 2026

McMaster University Library

Land Acknowledgement

McMaster University is located on the traditional Territories of the Mississauga and Haudenosaunee Nations, and within the lands protected by the “Dish With One Spoon” wampum agreement.

Code of Conduct

The Sherman Centre and the McMaster University Library are committed to fostering a supportive and inclusive environment for its presenters and participants.

As a participant in this session, you agree to support and help cultivate an experience that is collaborative, respectful, and inclusive, as well as free of harassment, discrimination, and oppression. We reserve the right to remove participants who exhibit harassing, malicious, or persistently disruptive behaviour.

Please refer to our code of conduct webpage for more information: **scds.ca/events/code-of-conduct**

Certificate Programs

The Sherman Centre for Digital Scholarship Certificate of Attendance

The Sherman Centre's certificate program recognizes attendance at our workshops. It complements degree training, supports the development of critical competencies in data analysis, research data management, and digital scholarship, and formalizes core skills fostered by our workshops.

Participants are invited to attend seven workshops and receive a certificate of attendance. To verify your participation in today's workshop, we will provide a code and additional instructions at the end of the session.

You can learn more about the certificate program at **scds.ca/certificate-program**

The Canadian Certificate for Digital Humanities

This workshop is also eligible for the Canadian Certificate for Digital Humanities. To learn more about the certificate, visit **ccdhhn.ca**. You can also contact local liaison Alexis-Carlota Cochrane at scds@mcmaster.ca

Winter 2026: Upcoming Workshops

Data Analysis Support Hub

February 12: Introduction to Python Programming

March 10: Create and Interactive Dashboard Using ArcGIS

Do More with Digital Scholarship

February 25: Build Your Own Chatbot: Local Applications in Generative AI on Your Laptop

March 19: Social Media Data! Practical & Ethical Collection, Visualization & Management

Research Data Management

February 19: Communities Empowered by Data 101: Tools and Best Practices

May 12: Data Management Plan Bootcamp (In-Person)

May 19: Data Deposit Bootcamp (In-Person)

Register for Upcoming Workshops: https://u.mcmaster.ca/scds-workshops

Learning Objectives

By the end of this workshop, you will be able to:

- Identify appropriate bibliometric techniques for analyzing large publication sets
- Create clear, compelling network visualizations using VOSviewer
- Interpret and explain bibliometric network maps to support research impact analysis and exploration

What is a Bibliometric Network?

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What is Bibliometric Data?

Bibliometric data is information that describes various research outputs (e.g. journal articles, books, datasets, presentations, etc.). This can include:

- Publication data (e.g. date, source, topic, type)
- Contributor information (e.g. authors, institutions, countries, funders)
- Usage statistics (e.g. citations, downloads, mentions, shares)

Traditionally, this meta-data (or data about data) had existed outside of copyright structures, making it highly accessible and open to a variety of interesting use cases

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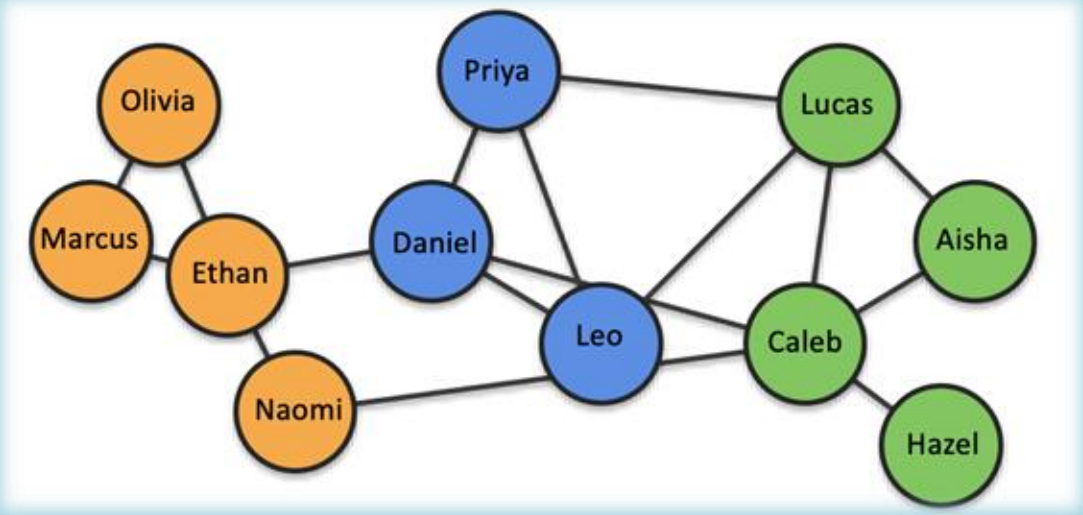
What is Network Visualization?

Network visualization is an approach to mapping complex relationships by representing entities as *nodes* and their connections as *links*.



Network visualizations can be used for a variety of purposes, but in the context of bibliometric analysis they are particularly helpful for exploring collaboration networks, tracing patterns in scholarly communication, and identifying emerging topics, gaps, and opportunities in a field of research.

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Creating Bibliometric Networks

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Choose a Network Analysis Software

- VOSviewer is free software for visualizing bibliometric networks developed at the Centre for Science and Technology (CWTS) at Leiden University.

- Works with publication data from the leading scholarly databases, including:
  - Web of Science
  - Scopus
  - PubMed
  - Dimensions Analytics
  - OpenAlex

- Desktop version offers enhanced functionality and customization of networks, while online version prioritizes ease of use and sharing of resulting visualizations.

Download VOSviewer

Define a Publication Set

VOSviewer networks are built on publication sets that we pre-define using one or more scholarly citation databases.

- Consider the characteristics of the publications you wish to analyze and build a search strategy to capture this publication set in a citation database (e..g Web of Science, Scopus, Dimensions, OpenAlex, etc.). Are you interested in publications:
    - From a given journal or set of journals?
    - From a specific institution?
    - Containing certain keywords?
    - Acknowledging a specific funder?

- After building this search strategy, we are ready to import the resulting publication metadata into VOSviewer for analysis.

Select Appropriate Analysis Technique

VOSviewer offers a wide range of analysis techniques, depending on the specific question(s) you are trying to answer about your publication set.

- Determine the unit of analysis (what will the *nodes* in your network represent?)
  - Authors
  - Organizations
  - Publications
  - Journals
  - Keywords

- Determine the analysis approach (what will the *links* in your network represent?)
  - Co-authorship
  - Citations
  - Shared references (bibliographic coupling)
  - Keyword co-occurence

Live Demonstration

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Research Impact Questions?

Website: library.mcmaster.ca/services/research-impact

Contact: impact@mcmaster.ca

SCDS Links

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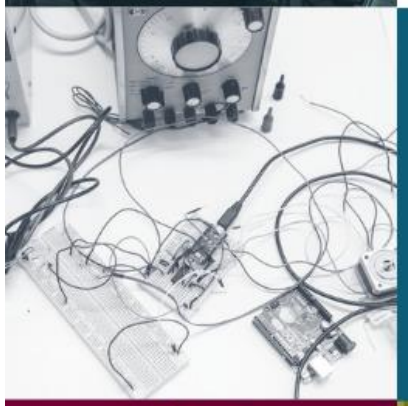

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