# Moving Between Scales: Computationally Modelling Social Dynamics in the Elite Society of Premodern China

Wenyi Shang[a]

[a] School of Information Sciences, University of Illinois Urbana-Champaign, USA

[wenyis3@email.edu](mailto:wenyis3@email.edu)

## ABSTRACT

This dissertation employs the perspective of library and information science (LIS) to inform and guide methodological reflections in two interdisciplinary fields, computational social science (CSS) and digital humanities (DH). However, CSS often prioritizes recent digital trace data over archival material from earlier periods, and the large-scale methods used in DH face criticism from humanists for their incapability to capture perspectival and interpretative nuances.

This dissertation blends humanistic and social-scientific approaches to study premodern China, emphasizing the importance of "moving between scales." It bridges different scales of analysis by transitioning dynamically between them, examines small-scale structures to uncover how they reflect large-scale dynamics, and explores mid-range social phenomena by investigating prosopography of elite society members. Four research questions are posed: (1) What are the challenges and opportunities in investigating a social network based on biased text? (2) How can prosopographical data lead to conclusions about the shifting center of political power? (3) How can structural characteristics in multiple networks reveal changes in political culture? (4) What can bibliographic metadata reveal about the particularity of publishing history of 16th-to-19th-century Chinese books?

By addressing these questions, this dissertation intends to leverage theories and practices of LIS to develop computational models unveiling historical trends. It seeks to contribute to CSS by enhancing social scientists' understanding on how societies and cultural systems evolve over time, to DH by revealing the historical changes in the *longue durée* in premodern China, and to LIS by fulfilling its mission of providing an information perspective to traditional academic disciplines.

## ALISE RESEARCH TAXONOMY TOPICS

Digital Humanities; Machine learning; Data mining; Print culture; Cataloging.

**AUTHOR KEYWORDS**

Computational social science; Network analysis; Bibliographic metadata; Prosopography; Premodern Chinese history.