Investigating Mobility and Research Themes through Faculty Hiring Network in GIScience

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ABSTRACT:

The rapid growth in Geographic Information System/Science (GIS), fueled by technological advances and the demand for spatial analysis, is revolutionizing data-driven solutions across various fields. This evolution has prompted educational institutions to expand their GIS programs, both in number and in breadth, catering to the rising demand for skilled professionals. As a result of this expansion in GIS programs, there has been a notable increase in the recruitment of specialized GIS faculty. Academic hiring trends have been a subject of extensive study across various disciplines, such as computer science, economics, and history. In recent years, there has been growing interest in quantifying the faculty hiring process to examine inequity in academia. However, GIScience, a critical geography sub-domain for the past three decades, still lacks substantial studies in this area, presenting a unique opportunity for in-depth research into its hiring patterns and implications.

This study examines the faculty hiring networks of GIScience, with a particular focus on profiling the global placement patterns of GIS faculty members and examining how these patterns are influenced by factors such as the attended Ph.D. program and the year of Ph.D. graduation. This research leverages a comprehensive dataset from the GISphere Guide (https://gisphere.info/) in combination with network analysis to visualize the academic trajectories of approximately 700 GIS faculty members globally. This approach uncovers the patterns of faculty mobility and the relationships between academic institutions, shedding light on the interconnectedness of the GIS community.

The study reveals a diverse landscape of faculty placements, with certain universities like Ohio State University and the University of California, Santa Barbara emerging as significant contributors to GIS faculty (Figure 1). However, the distribution of expertise is not centralized, indicating a wide dispersal of GIS knowledge across various institutions. The study also introduces the Diversity Index to measure the international representation within the GIS faculty, providing a quantitative perspective on the global reach and interconnectedness of the field. In addition, the research also examines the evolution of research themes in GIS. Employing semantic word clouds, it visualizes how research interests shift over time, underscoring the field's adaptability and the emergence of new sub-domains.

In conclusion, this research provides a detailed investigation of the GIS faculty hiring network, offering a clearer picture of faculty mobility, the spread of research themes, and the structure of academic relationships in the field. It highlights the importance of a comprehensive approach to

understanding the academic landscape of GIS, paving the way for future studies that can build on these findings to further enrich our understanding of the GIScience education.

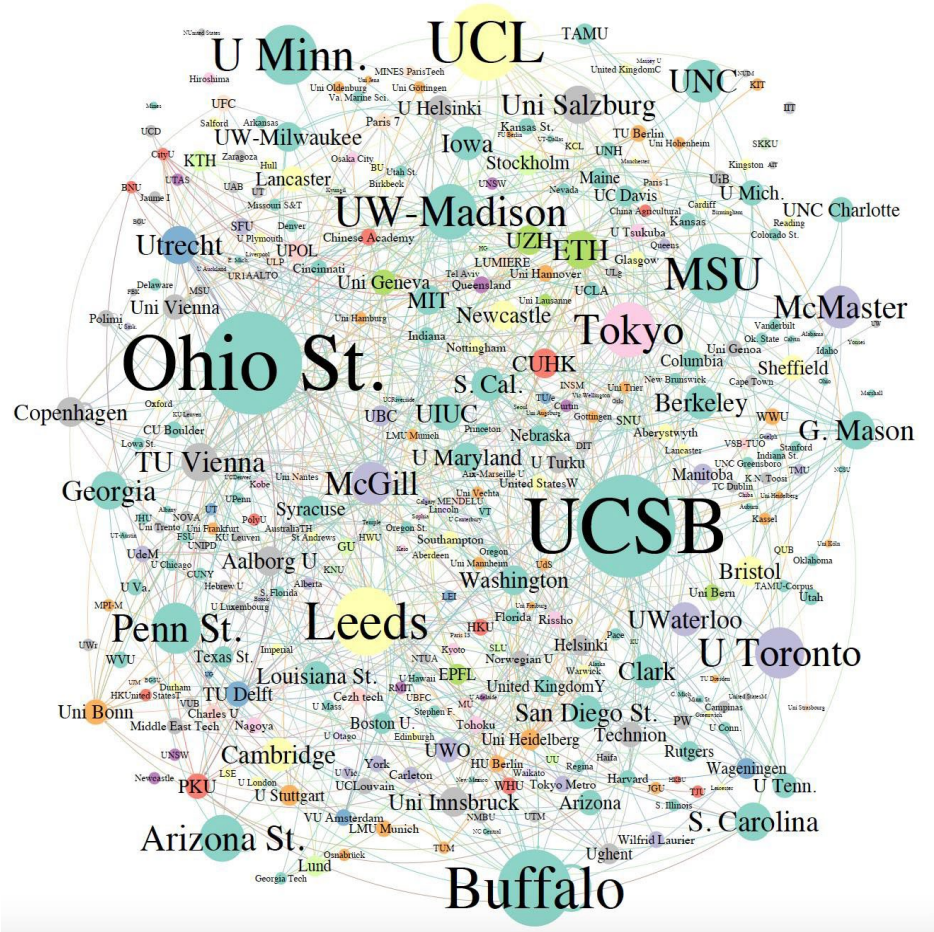

Figure 1. The Global Network and Placement of GIScience Faculty. Node size represents the number of graduates and colors are used to differentiate countries of university origin.

KEYWORDS: *Geographic Information Science (GIScience), faculty hiring network, network analysis, semantic word clouds, academic dynamics, faculty placement*

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