

## Dr. Mark N. Gahegan

### Professional Preparation

- University of Leeds, UK, School of Computer Studies, B.S. with honors (1984).
- Curtin University of Technology, Australia, School of Computing Science, Ph.D. Thesis title: “*An architecture for a geographic information system to support full data integration and contextual reasoning*” (1997).

### Appointments

2002-	Full Professor, The Pennsylvania State University, (Geography).
1999-2003	Associate Professor, The Pennsylvania State University, (Geography).
1993-1998	Lecturer (Senior since 1997), Curtin University (Geographic Information Science), Australia.
1991-1993	Lecturer, University of Leeds (Computer Studies), UK.
1989-1991	Research Officer, University of Leeds (Computer Studies), UK.
1988-1989	Software Engineer, Systime Computers, UK.
1986-1988	Research Scientist (computing officer), University of Leeds (Computer Studies) UK.
1985-1986	Research Scientist, University of Leeds (Geography) UK.

### Some Relevant Publications

1. Gahegan, M. (1999). Four barriers to the development of effective exploratory visualization tools for the geosciences. *International Journal of Geographic Information Science*, Vol. 13, No. 4, pp. 289-310.
2. Gahegan, M. (2000). The case for inductive and visual techniques in the analysis of spatial data. *Geographical Systems*, Vol. 7, No. 2, pp. 77-83.
3. Gahegan, M. (2001). Exploratory Geographic Visualization: Analysis with Light. In: *Knowledge Discovery with Geographic Information*, (Eds. Miller, H. and Han, J.), Taylor & Francis: London.
4. Gahegan, M., Wachowicz, M., Harrower, M. and Rhyne, T. (2001). The integration of geographic visualization with knowledge discovery in databases and geocomputation. *Cartography and Geographic Information Science*, Vol. 28, No. 1, pp. 29-44.
5. Gahegan, M. and Brodaric, B. (2002) Computational and Visual Support for Geographical Knowledge Construction: Filling in the gaps between Exploration and Explanation. In: *Advances in Spatial Data Handling, 10th International Symposium on Spatial Data Handling*, D. Richardson and P. van Oosterom (eds.), Springer, New York, pp. 11-26.

6. Gahegan, M., Takatsuka, M., Wheeler, M. and Hardisty, F. (2002). GeoVISTA Studio: a geocomputational workbench. *Computers, Environment and Urban Systems*, Vol. 26, pp. 267-292.
7. Gahegan, M. (2003) Is inductive inference just another wild goose (or might it lay the golden egg)? *International Journal of Geographical Information Science*, Vol. 17, No. 1, pp. 69-92.
8. Guo, D., Gahegan, M., MacEachren, A. M., & Zhou, B. (2005), Multivariate Analysis and Geovisualization with an Integrated Geographic Knowledge Discovery Approach. *Cartography and Geographic Information Science*, 32(2), 113-132.
9. Gahegan, M. 2005, Beyond tools: visual support for the entire process of GIScience. In J. Dykes & A. M. MacEachren & M.-J. Kraak (Eds.), *Exploring Geovisualization* (pp. 83-99). Amsterdam: Elsevier Science.
10. Guo, D. S and Gahegan, M (2006). Spatial Ordering and Encoding for Geographic Data Mining and Visualization, *Journal of Intelligent Information Systems*, Vol. 27, pp. 243-266.

### **Related Activities and Interests**

- Previous research on the following relevant topics: (i) Geovisualization, (ii) Analysis and decomposition of complex, high-dimensional attribute spaces, (iii) Semantics and the construction of meaning, (iv) Development and use of machine learning methods in geography, (v) Building systems to support geographical discovery, (vi) Search, ordering and indexing, (vii) Geographical cluster detection, (viii) Spatial data structures and algorithms.
- Associate director of the GeoVISTA Center for geographic visualization and analysis. Director of the GeoVISTA Studio project to develop an integrated visualization and geocomputational analysis environment. ([www.geovistastudio.psu.edu](http://www.geovistastudio.psu.edu)).
- Chair of Computational Sciences and Engineering Division Advisory Committee, Oak Ridge National Laboratories, Tennessee.
- Penn State's Technical Representative to the *Open Geospatial Consortium (OGC)*; experience and leadership within the open-source geospatial community, evidenced by several GIScience projects in the open-source domain.
- Journal editorial duties *International Journal of Geographical Information Science* (Americas Editor); board memberships for: *Annals of the AAG*, *Computers and Geosciences*, *Geographical Analysis*, *Computers, Environment and Urban Systems* and *Transactions in GIS*, *Cartographica*, *Compass*.
- Program committee member for 25 GIScience and Visualization conferences.