"A General Approach to Discovering, Registering, and Extracting Features from Raster Maps"

A Geography Colloquium presentation by

Dr. Craig Knoblock

Thursday, February 3, 2011: 1940 Buchanan, 3:30–4:45 pm

Abstract:
Maps can be a great source of information for a given geographic region, but they can be difficult to find and even harder to process. A significant problem is that many interesting and useful maps are only available in raster format, and, even worse, many maps have been poorly scanned and they are often compressed with lossy compression algorithms. Furthermore, for many of these maps there is no meta data providing the geographic coordinates, scale, or projection. Previous research on map processing has developed techniques that typically work on maps from a single map source. In contrast, we have developed a general approach to finding and processing street maps. This includes techniques for discovering maps online, extracting geographic and textual features from maps, using the extracted features to determine the geographic coordinates of a map, and aligning maps with imagery. The resulting system can automatically discover maps for a given region and then process the maps to produce accurately aligned road and text layers.

Bio:
Craig Knoblock is the Director of Information Integration at the Information Sciences Institute, a unit of the University of Southern California (USC), and a Research Professor in the USC Computer Science Department. He was awarded his Bachelor of Science degree by Syracuse University, and his Master's and Ph.D. by Carnegie Mellon University, all in Computer Science. Dr. Knoblock is also a founder of Fetch Technologies, a web extraction and integration provider, and of Geosemble Technologies, which develops geospatial data integration solutions. At the Information Sciences Institute (ISI), Dr. Knoblock leads a team of about 20 researchers, staff and students in developing intelligent techniques for rapid, efficient information integration. He focuses on constructing distributed, integrated applications from online sources through information extraction, source modeling, record linkage, constraint reasoning, and other technologies for geospatial and bioinformatics data integration. Dr. Knoblock is a Fellow of the Association for the Advancement of Artificial Intelligence (AAAI), a Distinguished Scientist of the Association of Computing Machinery (ACM), a Trustee of the International Joint Conference on Artificial Intelligence (IJCAI), and past President of the International Conference on Automated Planning and Scheduling (ICAPS). He has served on the Senior Program Committee of the National Artificial Intelligence Conference, among others, and is conference chair for the 2011 International Joint Conference on AI (IJCAI). Dr. Knoblock has published *Generating Abstraction Hierarchies* (Kluwer Academic Publishers, 1993), along with more than 200 journal articles, book chapters, and conference papers. He serves on the Editorial Boards of several journals, including *Artificial Intelligence* and the *Journal of Web Semantics*.