Reading News with Maps by Exploiting Spatial Synonyms

**SPEAKER**
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**DATE**
9 December 2016 (Friday)
**TIME**
3:00 pm - 4:00 pm
**VENUE**
CS Seminar Room, Y6405, 6th Floor
Yellow Zone, Academic 1
City University of Hong Kong
83 Tat Chee Avenue
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**ABSTRACT**

NewsStand is an example application of a general framework to enable people to search for information using a map query interface, where the information results from monitoring the output of over 10,000 RSS news sources and is available for retrieval within minutes of publication. The advantage of doing so is that a map, coupled with an ability to vary the zoom level at which it is viewed, provides an inherent granularity to the search process that facilitates an approximate search. This distinguishes it from today’s prevalent keyword-based conventional search methods that provide a very limited facility for approximate searches and which are realized primarily by permitting a match via use of a subset of the keywords. However, it is often the case that users do not have a firm grasp of which keyword to use, and thus would welcome the search to also take synonyms into account. For queries to spatially-referenced data, the map query interface is a step in this direction as the act of pointing at a location (e.g., by the appropriate positioning of a pointing device) and making the interpretation of the precision of this positioning specification dependent on the zoom level is equivalent to permitting the use of spatial synonyms (i.e., letting spatial proximity play a role rather than only seeking an exact match of a query string). Of course, this is all predicated on the use of a textual specification of locations rather than a geometric one, which means that one must deal with the potential for ambiguity.

The issues that arise in the design of a system like NewsStand, including the identification of words that correspond to geographic locations, are discussed, and examples are provided of its utility. More details can be found in the video at http://vimeo.com/106352925 which accompanies the “cover article” of the October 2014 issue of the Communications of the ACM about NewsStand at http://tinyurl.com/newsstand-cacm or a cached version at http://www.cs.umd.edu/~hjs/pubs/cacm-newsstand.pdf.

**BIOGRAPHY**

Hanan Samet (http://www.cs.umd.edu/~hjs/) is a Distinguished University Professor of Computer Science at the University of Maryland, College Park and is a member of the Institute for Computer Studies. He is also a member of the Computer Vision Laboratory at the Center for Automation Research where he leads a number of research projects on the use of hierarchical data structures for database applications, geographic information systems, computer graphics, computer vision, image processing, games, robotics, and search. He received the B.S. degree in engineering from UCLA, and the M.S. and Ph.D. degrees in computer science from Stanford University. His doctoral dissertation dealt with proving the correctness of translations of LISP programs which was the first work in translation validation and the related concept of proof-carrying code. He is the author of the recent book “Foundations of Multidimensional and Metric Data Structures” (http://www.cs.umd.edu/~hjs/multidimensional-book-flyer.pdf) published by Morgan-Kaufmann, an imprint of Elsevier, in 2006, an award winner in the 2006 best book in Computer and Information Science competition of the Professional and Scholarly Publishers (PSP) Group of the American Publishers Association (AAP), and of the first two books on spatial data structures “Design and Analysis of Spatial Data Structures”, and “Applications of Spatial Data Structures: Computer Graphics, Image Processing, and GIS”, both published by Addison-Wesley in 1990. He is the Founding Editor-In-Chief of the ACM Transactions on Spatial Algorithms and Systems (TASAS), the founding chair of ACM SIGSPATIAL, a recipient of a Science Foundation of Ireland (SFI) Walton Visitor Award at the Centre for Geocomputation at the National University of Ireland at Maynooth (NUIM), 2009 UCGIS Research Award, 2010 CMPS Board of Visitors Award at the University of Maryland, 2011 ACM Paris Kanellakis Theory and Practice Award, 2014 IEEE Computer Society Wallace McDowell Award, and a Fellow of the ACM, IEEE, AAAS, IAPR (International Association for Pattern Recognition), and UCGIS (University Consortium for Geographic Science). He received best paper awards in the 2007 Computers & Graphics Journal, the 2008 ACM SIGMOD and SIGSPATIAL ACMGIS Conferences, the 2012 SIGSPATIAL MobiGIS Workshop, and the 2013 SIGSPATIAL GIR Workshop, as well as a best demo award at the 2011 SIGSPATIAL ACMGIS’11 Conference. His paper at the 2009 IEEE International Conference on Data Engineering (ICDE) was selected as one of the best papers for publication in the IEEE Transactions on Knowledge and Data Engineering. He was elected to the ACM Council as the Capitol Region Representative for the term 1989-1991, and is an ACM Distinguished Speaker.

All are welcome!