Distinguished Speaker Series

Friday February 10, 2017 ● 1:30 PM– 2:30PM – SU: Egmont Key Rm 224

The representation of spatial data is an important issue in computer graphics, computer vision, geographic information systems, and robotics. A wide number of representations is currently in use. Recently, there has been much interest in hierarchical data structures such as quadtrees, octrees, R-trees, etc. The key advantage of these representations is that they provide a way to index into space. In fact, they are little more than multidimensional sorts. They are compact and depending on the nature of the spatial data they save space as well as time and also facilitate operations such as search. In this talk we give a brief overview of hierarchical spatial data structures and related research results. In addition we demonstrate the SAND Browser (found at http://www.cs.umd.edu/~brabec/sandjava) and the VASCO JAVA applet which illustrate these methods (found at http://www.cs.umd.edu/~hjs/quadtree/index.html).

Dr. Hanan Samet

University of Maryland, College Park

Hanan Samet (http://www.cs.umd.edu/~hjs/) is a Distinguished University Professor of Computer Science at the University of Maryland, College Park. He received the B.S. degree in engineering from UCLA, and the M.S. Degree in operations research 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 (TSAS), founding chair of ACM SIGSPATIAL, and a Fellow of ACM, IEEE, AAAS, IAPR (International Association of Pattern Recognition), and UCGIS (University Consortium for Geographic Science). He is 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, 2011 ACM Paris Kanellakis Theory and Practice Award, and 2014 IEEE Computer Society Wallace McDowell Award. He has had a number of best paper awards including at the 2008 SIGMOD and SIGSPATIAL conferences. He was elected to the ACM Council as the Capitol Region Representative for the term 1989-1991, and was an ACM Distinguished Speaker for the term 2008-2015.

Hosted by: Dr. Gary T. Leavens