Map Visualization of Geographical Tables (Keynote)

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Abstract

Large-scale map visualization systems play an increasingly important role in presenting geographical datasets to end users. Since these datasets can be extremely large, a map rendering system often needs to select a small fraction of the data to visualize them in a limited space. This talk studies a fundamental challenge in this setting, called thinning: determining appropriate samples of data to be shown on specific geographical regions and zoom levels. Other than the sheer scale of the data, the thinning problem is challenging because of a number of other reasons: (1) data can consist of complex geographical shapes, (2) rendering of data needs to satisfy certain constraints, such as data being preserved across zoom levels and adjacent regions, and (3) after satisfying the constraints, an optimal solution needs to be chosen based on objectives such as maximality, fairness, and importance of data. In the talk, we will go into some of the core technical ideas involved in solving the thinning problem, and introduce numerous open challenges.

Speaker's Biography

Anish Das Sarma is currently a Senior Research Scientist at Google (since May 2010), before which he was a Research Scientist at Yahoo (August 2009-April 2010). Prior to joining Yahoo research, Anish did his Ph.D. in Computer Science at Stanford University, advised by Prof. Jennifer Widom. Anish received a B.Tech. in Computer Science and Engineering from the Indian Institute of Technology (IIT) Bombay in 2004, an M.S. in Computer Science from Stanford University in 2006. Anish is a recipient of the Microsoft Graduate Fellowship, a Stanford University School of Engineering fellowship, and the IIT-Bombay Dr. Shankar Dayal Sharma Gold Medal. Anish has written over 40 technical papers, filed over 10 patents, is associate editor of Sigmod Record, and has served on numerous program committees.