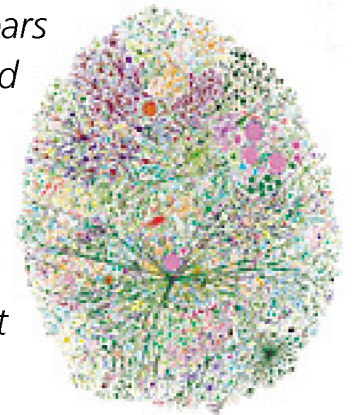


The Oliver Club

www.math.cornell.edu/~oliver/

Search Algorithms and the Structure of Complex Networks

The study of complex networks has emerged over the past several years as a theme spanning many disciplines, ranging from mathematics and computer science to the social and biological sciences. A significant amount of recent work in this area has focused on the development of algorithmic and probabilistic models that capture some of the qualitative properties observed in large-scale network data; such models have the potential to help us reason, at a general level, about the ways in which real-world networks are organized.



We survey one particular line of network research, concerned with search algorithms and small-world phenomena, that illustrates this style of analysis. We begin by describing work in the social sciences that provided the first empirical basis for the “six degrees of separation” phenomenon in social networks; we then discuss some probabilistic network models motivated by this work, illustrating how these models lead to novel algorithmic and graph-theoretic questions, and how they are supported to a striking extent by recent empirical studies of large social networks.



Jon Kleinberg

Cornell University

Refreshments will be served at 3:55 PM in the Mathematics Department lounge (532 Malott Hall).

**Thursday, February 8, 2007
at 4:25 PM in 406 Malott Hall**