



THE UNIVERSITY OF CHICAGO

Department of Statistics

SCIENTIFIC AND STATISTICAL COMPUTING SEMINAR

BRAXTON OSTING

Department of Mathematics
University of Utah

Dirichlet Graph Partitions

THURSDAY, May 5, 2016 at 4:30 PM
133 Eckhart Hall, 5734 S. University Avenue

ABSTRACT

I'll discuss a geometric approach to graph partitioning where the optimality criterion is given by the sum of the first Laplace-Dirichlet eigenvalues of the partition components. This eigenvalue optimization problem can be solved by a rearrangement algorithm, which we show to converge in a finite number of iterations to a local minimum of a relaxed objective. This partitioning method compares well to state-of-the-art approaches on a variety of graphs constructed from manifold discretizations, synthetic data, the MNIST handwritten digit dataset, and images. I'll present a consistency result for geometric graphs, stating convergence of graph partitions to an appropriate continuum partition.

Organizers:

Lek-Heng Lim, Department of Statistics, lekheng@galton.uchicago.edu, Ridgway Scott, Departments of Computer Science and Mathematics, ridg@cs.uchicago.edu, Jonathan Weare, Department of Statistics and The James Franck Institute, weare@uchicago.edu. SSC Seminar URL: http://www.stat.uchicago.edu/seminars/SSC_seminars.shtml.

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