



THE UNIVERSITY OF CHICAGO

Department of Statistics

SCIENTIFIC AND STATISTICAL COMPUTING SEMINAR

GONGGUO TANG

Department of Electrical Engineering and Computer Science
Colorado School of Mines

Atomic Norm Minimization: From Line Spectrum to Tensor and Beyond

THURSDAY, May 19, 2016 at 4:30 PM
133 Eckhart Hall, 5734 S. University Avenue

ABSTRACT

Modern data analysis relies on identifying complex models from noisy and incomplete data. Many such tasks can be formulated and analyzed as linear inverse problems. By generalizing the L1 norm for sparse recovery and the nuclear norm for matrix completion, atomic norm provides a powerful and universal framework for constructing convex regularizers to solve inverse problems. Particularly, this framework allows enforcing sparsity constraint with respect to continuously parametrized building-block signals. Notable examples include line spectral signals, tensors, mixtures of translations, radar signals, linear systems, and so on. The talk will pay special attention to line spectrum and tensor problems and beyond. I will highlight the optimality of this framework in handling missing data, noise, parameter estimation, and outliers. Computational methods such as discretization, semidefinite relaxation, and low-rank factorization, for solving optimizations involving atomic norms will be also discussed.

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.

If you wish to subscribe to our email list, please visit the following website:
<https://lists.uchicago.edu/web/arc/statseminars>.