



The University of Chicago
Department of Statistics
SUMMER Seminar Series

THOMAS SCHULTZ

Computation Institute
University of Chicago

**Symmetric Tensor Fields in Diffusion MRI and
Computer Vision**

MONDAY, July 11, 2011, at 4:00 PM
110 Eckhart Hall, 5734 S. University Avenue

ABSTRACT

Tensors, which can be seen as a generalization of matrices to higher order, are increasingly recognized as a valuable mathematical framework for the analysis of complex data. This talk will present applications of symmetric tensor fields in Diffusion MRI, a medical imaging modality that allows for a noninvasive investigation of the nerve fiber pathways in the human brain. In particular, I will highlight the use of low-rank tensor approximations to infer fiber directions from mixture models. The second part of the talk will survey some initial results on transferring and extending similar mathematical models to applications in image processing and computer vision. I will conclude with discussing open problems and ongoing work with Lek-Heng Lim.

For further information and about building access for persons with disabilities, please contact Laura Rigazzi at 773.702.8333 or send email (lrigazzi@galton.uchicago.edu). If you wish to subscribe to our email list, please visit the following website: <https://lists.uchicago.edu/web/arc/statseminars>.