



# THE UNIVERSITY OF CHICAGO

Departments of Computer Science, Mathematics, Statistics, and the  
Computation Institute

## SCIENTIFIC AND STATISTICAL COMPUTING SEMINAR

---

### NIKOS SIDIROPOULOS

Department of Electrical and Computer Engineering  
and Digital Technology Center  
University of Minnesota

### Big Tensor Data, Compressed Sensing, and Preference Measurement

THURSDAY, February 28, 2013, at 4:30 PM  
Eckhart 133, 5734 S. University Avenue

### ABSTRACT

The problem of compressing big sparse tensor datasets down to far smaller ones in a way that preserves low-rank structure will be discussed, and recent extensions of compressed sensing to multi-way (tensor) data will be presented. On a different note, conjoint analysis will be revisited from a maximum likelihood point of view, incorporating suitable statistical models of different aspects of preference measurement. These tools appear promising for the analysis of big multi-dimensional social and behavioral datasets, such as those that arise in marketing research.

**Bio:** Nicholas Sidiropoulos (Fellow, IEEE) received the Diploma in Electrical Engineering from the Aristotelian University of Thessaloniki, Greece, and M.S. and Ph.D. degrees in Electrical Engineering from the University of Maryland—College Park, in 1988, 1990 and 1992, respectively. He has served as Assistant Professor in the Department of Electrical Engineering at the University of Virginia (1997-1999); Associate Professor in the Department of Electrical and Computer Engineering at the University of Minnesota—Minneapolis (2000-2002); Professor in the Department of Electronic and Computer Engineering at the Technical University of Crete, Chania—Crete, Greece (2002-2011); and Professor in the Department of Electrical and Computer Engineering at the University of Minnesota—Minneapolis (2011-). His research interests are in signal processing for communications, convex optimization, cross-layer resource allocation for wireless networks, and multiway analysis - i.e., linear algebra for data arrays indexed by three or more variables. His current research focuses primarily on signal and tensor analytics, with applications in cognitive radio, big data, and preference measurement. He received the NSF/CAREER award in 1998, and the IEEE Signal Processing Society (SPS) Best Paper Award in 2001, 2007, and 2011. He served as IEEE SPS Distinguished Lecturer (2008-2009), and as Chair of the IEEE Signal Processing for Communications and Networking Technical Committee (2007-2008). He received the 2010 IEEE Signal Processing Society Meritorious Service Award.

---

#### 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 Mathematics and the Computation Institute, weare@math.uchicago.edu.

SSC Seminar URL: [http://www.stat.uchicago.edu/seminars/SSC\\_seminars.shtml](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>.