Department of Computer Science and Engineering

Presents

Anna Gilbert, University of Michigan

Sparse Approximation and Algorithms

The past 10 years have seen a confluence of research in sparse approximation amongst computer science, mathematics, and electrical engineering. Sparse approximation encompasses a large number of mathematical, algorithmic, and signal processing problems which all attempt to balance the size of a (linear) representation of data and the fidelity of that representation. I will discuss several of the basic algorithmic problems and their solutions, including compressive sensing and sublinear algorithms for sparse signal recovery. Also, I will address two application areas, analog-to-digital conversion and biological group testing, in which sparse approximation problems appear and for which we have novel hardware and experimental designs.

Bio: Anna Gilbert received an S.B. degree from the University of Chicago and a Ph.D. from Princeton University, both in mathematics. In 1997, she was a postdoctoral fellow at Yale University and AT&T Labs-Research. From 1998 to 2004, she was a member of technical staff at AT&T Labs-Research in Florham Park, NJ. Since then she has been with the Department of Mathematics at the University of Michigan, where she is now a Full Professor. She has received several awards, including a Sloan Research Fellowship (2006), an NSF CAREER award (2006), the National Academy of Sciences Award for Initiatives in Research (2008), the Association of Computing Machinery (ACM) Douglas Engelbart Best Paper award (2008), and the EURASIP Signal Processing Best Paper award (2010).

Her research interests include analysis, probability, networking, and algorithms. She is especially interested in randomized algorithms with applications to harmonic analysis, signal and image processing, networking, and massive datasets.

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