THE UNIVERSITY OF CHICAGO

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

SCIENTIFIC AND STATISTICAL COMPUTING SEMINAR

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Convergence Rates in Decentralized Optimization

THURSDAY, January 16, 2014, at 4:30 PM

Eckhart 133, 5734 S. University Avenue

ABSTRACT

The widespread availability of copious amounts of data has created a pressing need to develop optimization algorithms which can work in parallel when input data is unavailable at a single place but rather spread throughout multiple locations. In this talk, we consider the problem of optimizing a sum of convex functions in a network where each node knows only one of the functions; this is a common model which includes as particular cases a number of distributed regression and classification problems. We develop a stochastic gradient method which is fully decentralized and robust to unpredictable node and link failures. Our main results yield convergence time bounds which simultaneously achieve the currently best scalings with time and network size for this problem.

Biography:
Alex Olshevsky received his Ph.D. from MIT in 2010 and after spending two years as a postdoc at Princeton University he joined the Industrial and Enterprise Systems Engineering department at the University of Illinois at Urbana-Champaign. His research interests are in optimization in control, especially in distributed and networked settings. He is a co-recipient of the ICS Prize in 2012 from INFORMS for the best paper on the interface of computer science and operations research and a paper award from SIAM in 2011.

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