University of Pennsylvania
MKSE Seminar – Electrical and Systems Engineering Department –
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“DISTRIBUTED OPTIMIZATION OVER A NETWORK”

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Room 337 Towne, 11:00am – 12:00pm

Abstract
Recent advances in wired and wireless technology necessitate the development of theory, models and tools to cope with new challenges posed by large-scale optimization problems over networks. In this talk, we consider distributed multi-agent network systems where each agent has its own convex objective function, which can be evaluated with stochastic errors. The problem consists of minimizing the sum of the agent functions, without a central coordinator and without agents sharing the explicit form of their objectives. However, the agents are willing to cooperate with each other locally to solve the problem, by exchanging their estimates of an optimal solution. We discuss such distributed algorithms for synchronous and asynchronous implementations. We present convergence results and convergence rate estimates, and provide some numerical results.

Biography
Angelia Nedich received her B.S. degree from the University of Montenegro (1987) and M.S. degree from the University of Belgrade (1990), both in Mathematics. She received her Ph.D. degrees from Moscow State University (1994) in Mathematics and Mathematical Physics, and from Massachusetts Institute of Technology in Electrical Engineering and Computer Science (2002). She has been at the BAE Systems Advanced Information Technology from 2002-2006. In Fall 2006, as Assistant Professor, she has joined the Department of Industrial and Enterprise Systems Engineering at the University of Illinois at Urbana-Champaign, USA. She is the recipient of the NSF CAREER Award 2008 in Operations Research for her work in distributed multi-agent optimization.

Her general interest is in optimization including fundamental theory, models, algorithms, and applications. Her current research interest is focused on large-scale convex optimization, distributed multi-agent optimization, stochastic approximations in optimization and variational inequalities with applications in signal processing, machine learning, and decentralized control.

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