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Automatic
Control and
Systems
Engineering

The Department of Automatic Control & Systems Engineering
is pleased to announce the following joint seminar:

Distributed optimization over uncertain networks

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Wednesday, 15 March 2017 at 14:00

LT02, Sir Henry Stephenson Building

Abstract

In this talk we provide a proximal minimization based algorithm for distributed convex optimization over time-varying multi-agent networks, in the presence of constraints and uncertainty. We first focus on the deterministic case, develop an iterative algorithm and show that agents reach consensus, and in particular, that they convergence to some optimizer of the centralized problem. Our approach is then extended to the case where the agents' constraint sets are affected by a possibly common uncertainty vector. To tackle this problem we follow a scenario-based methodology and offer probabilistic guarantees regarding the feasibility properties of the resulting solution. We illustrate how this distributed methodology can be applied to the problem of energy management in building networks affected by stochastic uncertainty.

Biography

Kostas Margellos received the Diploma in electrical engineering from the University of Patras, Greece, in 2008, and the Ph.D. in control engineering from ETH Zurich, Switzerland, in 2012. He spent 2013, 2014 and 2015 as a post-doctoral researcher at ETH Zurich, UC Berkeley and Politecnico di Milano, respectively. As of March 2016 he is a Senior Research Fellow (tenure-track faculty member) within the Control Group, Department of Engineering Science, University of Oxford, and a Lecturer at Worcester College.

His research interests include optimization and control of complex uncertain systems, with applications to generation and load side control for power networks.

*Light refreshments will be served following the seminar in the foyer of
the Sir Henry Stephenson Building*