

学术报告会

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Augmented Distributed Optimization: A General Primal-Dual Perspective

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Abstract:

Distributed optimization has received much attention recently due to its wide applications in sensor fusion, resource allocation and machine learning. Common features of these examples are that there is no centralized center involved and the resources, such as sensing, communication and computation, are usually scattered throughout the network, which basically necessitate completely distributed algorithms that can operate merely based on local information and are preferably robust to the change of network topology. Most of distributed algorithms developed so far suffer from some common issues, such as slow convergence rates and steady-state error (optimum gap). In this talk, I will introduce two new distributed algorithms that can achieve faster convergence rates but are still guaranteed to converge to the exact optimum, which might spark a new research thread in the distributed optimization community. In addition, the connection between these two algorithms is established from the general primal-dual perspective which, indeed, provides a unified framework for distributed algorithms and a new paradigm for the corresponding convergence analysis. Some possible future research topics will be also envisioned in the end of the talk.

Biography:

Jinming Xu is a research fellow of the EXQUITUS center in the School of Electrical and Electronic Engineering at Nanyang Technological University (NTU), Singapore. He received his BSc in mechanical engineering from Shandong University in 2009 and his PhD in electrical engineering from NTU in 2016. His current research interests are primarily in distributed optimization and control, and its applications in large-scale signal processing, machine learning and networked dynamical systems. For more information, please visit <https://jinmingxu.github.io/>.