

# Communication and Sample/Gradient Complexities of Decentralized Optimization

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**Talk will take place from 1:00PM - 2:00PM through Zoom.**

**Abstract:** One fundamental problem in decentralized multi-agent optimization is the trade-off between communication complexity and gradient/sampling complexity. In this talk we discuss the upper and lower complexity bounds of sample/gradient complexities and communication complexities in decentralized multi-agent optimization. We also describe a novel algorithm whose sample/gradient complexities match the lower complexity bounds for centralized convex smooth optimization and are independent of the network structure. To the best of our knowledge, these gradient and sampling complexities have not been obtained before in the literature of decentralized optimization over a constrained feasible set.