

数学与系统科学研究院

计算数学所学术报告

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报告题目:

**Accelerated and Deep
Expectation-Maximization Method
for Quantized Linear Regression**

邀请人: 戴彧虹 研究员

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下午 15:30

报告地点: 科技综合楼

311 教室

Abstract:

Parameter estimation from quantized data, namely quantized linear regression (QLR), arises from important applications in signal processing, data analysis and wireless communication. We focus on the maximum-likelihood (ML) estimation for QLR. Expectation maximization (EM) is a classic iterative method to handle ML for QLR. In this talk, we analyze the convergence rate of EM for QLR problem and show how system parameters can have an impact on the convergence rate. We do this by connecting EM with proximal gradient method. This connection also gives us new insight to build new accelerated and/or inexact EM schemes, with convergence rate results provided. Furthermore, we develop a deep EM algorithm, wherein we take the structure of our inexact EM algorithm and apply deep unfolding to train an efficient structured deep neural network. Simulation results show that our accelerated exact/inexact EM algorithms run much faster than their standard EM counterparts and that the deep EM algorithm gives promising estimation and runtime performances.

欢迎大家参加！