The Hong Kong University of Science and Technology

Department of Mathematics

PhD THESIS EXAMINATION

Robust Blessings of Lipschitz Loss Functions: Statistical and Computational Perspectives

By

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ABSTRACT

This seminar will demonstrate the estimation performances of Lipschitz loss functions, which may or may not be differentiable, from statistical and computational perspectives. In general, regularity properties of Lipschitz loss functions exhibit an interesting phenomenon: when the variable of the function is sufficiently close to the ground truth, its properties become alike square loss and are smoother. This phenomenon is attributed to the smoothness effect of noise and it can have distinct reflections in different problems.

We shall also provide iterative convergence dynamics of sub-gradient for Lipschitz loss, which goes beyond existing works by guaranteeing statistically optimal error rates of the algorithm output, with robustness against heavy-tailed noise and sparse corruptions simultaneously.

Date : 27 May 2024, Monday

Time : 3:00 pm

Venue : Room 4472 (Lifts 25/26)

***Thesis Examination Committee*:**

Chairman	**:**	**Prof. Stuart Arthur GIETEL-BASTEN, SOSC/HKUST**
Thesis Supervisor	**:**	**Prof. Dong XIA, MATH/HKUST**
Member	**:**	**Prof. Jianfeng CAI, MATH/HKUST**
Member	**:**	**Prof. Zhigang BAO, MATH/HKUST**
Member	**:**	**Prof. Lucy XIA, ISOM/HKUST**
External Examiner	**:**	**Prof. Junhui WANG, Department of Statistics / The Chinese University of Hong Kong**

(Open to all faculty and students)

The student's thesis is now being displayed on the reception counter in the General Administration Office (Room 3461).