THE UNIVERSITY   **OF HONG KONG**

Institute of Mathematical Research
Department of Mathematics

Numerical Analysis Seminar

An unified regularization framework for non-line-of-sight imaging

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Abstract

Non-line-of-sight imaging aims at recovering obscured objects from multiple scattered light. It has recently received widespread attention due to its potential applications such as autonomous driving, rescue operations, and remote sensing. However, in cases with high measurement noise, obtaining high-quality reconstructions remains a challenging task. In this talk, I present an unified regularization framework, which can be tailored for different scenarios, including indoor and outdoor scenes with substantial background noise under both confocal and non-confocal settings. The proposed regularization framework incorporates sparseness and non-local self-similarity of the hidden objects as well as smoothness of the measured signals. We show that the estimated signals, albedo, and surface normal of the hidden objects can be reconstructed robustly even with high measurement noise under the proposed framework. Reconstruction results on synthetic and experimental data show that our approach recovers the hidden objects faithfully and outperforms state-of-the-art reconstruction algorithms in terms of both quantitative criteria and visual quality.

Date:	August 31, 2023 (Thursday)
Time:	2:00pm – 3:00pm
Venue:	Room 210, Run Run Shaw Building HKU

All are welcome