For Favour of Posting

Applied Mathematics Seminar

Structure-Conforming Operator Learning Based on Direct Sampling Methods for Geometric Inverse Problems

by

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Abstract :

The principle of developing structure-conforming numerical algorithms widely exists in scientific computing, such as conforming finite element methods, finite element exterior calculus, and energy/mass conservation schemes, which all have well-known numerous advantages. In this work, following this principle, we propose a structure-conforming operator learning method based on direct sampling methods for solving some geometric inverse problems. The constructed architecture is conforming to the structure of the underlying inverse operator and is also closely related to the convolutional neural network and Transformer, one state-of-art architecture for many scientific computing tasks. Numerical examples demonstrate that the proposed architecture outperforms many existing operator learning methods in the literature.

Date :	December 9, 2022 (Friday)
Time :	2:45pm – 3:45pm (Hong Kong SAR)
Venue:	Room 219, Lady Shaw Building,
	The Chinese University of Hong Kong, Shatin

All are Welcome