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Inverse Problems Seminar

Numerical Analysis of Deep Solvers for the Second-Order Elliptic Differential Equations

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Abstract

In recent years, deep neural networks (DNN) have been shown to be a powerful tool for solving PDEs empirically. However, numerical analysis of these deep solvers are far from complete. In this talk, we will provide the convergence rate to two typical deep solvers: Deep Ritz method (DRM) and Physics-Informed Neural Networks (PINNs) for the second order elliptic equations. The error estimations are decomposed into approximation error and statistical error, which depend on the number of training samples, depth and width of the deep neural networks. The analysis is based on the ReLU^k DNNs, but they can be easily extended to other DNNs with typical activation functions.

Date: 29 September (Thursday)
Time: 10:00am – 11:00am (Hong Kong Time)
ZOOM link: <https://cuhk.zoom.us/j/98241093146>
Meeting ID: 982 4109 3146

All are Welcome