Computational Mathematics Seminar Series

Adaptive sampling for the neural network approximation of PDEs

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Professor

Digital Media Center 1034
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Abstract:

Deep learning-based numerical methods are being actively investigated for the approximation of PDEs from different perspectives including numerical analysis, algorithm development and applications. One common key component of these learning-based approximation methods is the training set, which consists of random samples in the computation domain. These random samples define a discrete optimization problem for the optimal neural network approximate solution. In this talk, we pay particular attention to the training set and demonstrate that adaptive sampling can improve significantly the accuracy of the neural network approximation especially for low-regularity and high-dimensional problems.

Speaker's Bio:

Xiaoliang Wan is a professor in Math department and CCT at LSU. He received his PhD in applied mathematics from Brown University in 2007. Prior to joining LSU in 2009, he did postdoc research at MIT and Princeton. His current research interests include sicentific machine learning and uncertainty quantification.

This lecture has refreshments @ 03:00 pm

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