NCTS
National Center for Theoretical Sciences

NCTS Short Course on
Scientific Deep Learning

Time July 3-8, 2023, 10:00-12:00, 13:00-14:00

Venue Room 505, Cosmology Building, NTU

Speaker

Tan Bui-Thanh
University of Texas at Austin

Organizers

Weichung Wang
National Taiwan University

Chun-Hao Yang
National Taiwan University

Course Outline & Descriptions

This short course discusses various aspects of an important class of scientific machine learning, namely scientific deep learning. To that end, the course will cover the following topics (with certain depths including proofs of relevant theorems):

1. quick review/introduction to optimization and probability,

2. statistical machine learning framework with deep learning,

3. stochastic gradient descents,

4. bias-variance estimation for deep neural network,

5. exploding-vanishing problems in deep learning and methods to overcome these problems. Lecture notes with more in-depth results will be provided.

Registration

Contact: Murphy Yu murphyyu@ncts.tw