CAL POLY
SAN LUIS OBISPO
Physics Department
College of Science & Mathematics

Physics Applications of Machine Learning With Neural Networks

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Thursday, October 17, 2024
11:10 am - 12:00 Noon
Building 53, Room 215
Pizza will be served!

Abstract: Today's "AI-hype" is primarily driven by the successes of a mathematical construct called a "neural network." After a summary of machine learning, an introduction to neural networks will be given. Then, two projects using neural networks (done by the PI during a sabbatical visit with an AI group) will be shown. The first is a Physics Informed Neural Network that allows one to model a physical system (whose differential equation is known) using a neural network. The second is a Convolutional Neural Network, which the PI believes can assist researchers looking for insights into data they are already working with. Student projects are available. Update: This year's Nobel Prize in physics will be discussed.

Bio: Tom has been a professor in the Cal Poly Physics Department since 2001. He has always had an interest in AI and decided to just "jump in" and work on AI during a sabbatical last year, where he spent 4 months with an AI group at Te Herenga Waka Victoria University in Wellington, New Zealand. He is interested in finding uses of machine learning and neural networks in the basic sciences.