Mathematics of deep learning

Abstract:
Deep learning is a rapidly developing area of machine learning, which uses artificial neural networks to perform learning tasks. Although mathematical description of neural networks is simple, theoretical explanation of spectacular performance of deep learning remains elusive. Even the most basic questions about remain open. For example, how many different functions can a neural network compute? Jointly with Pierre Baldi (UCI CS) we discovered a general capacity formula for all fully connected boolean networks. The formula predicts, counterintuitively, that shallow networks have greater capacity than deep ones. So, mystery remains.

Host: Rayan Saab
Thursday, April 11, 2019
4:00 PM
AP&M 6402