Contribution ID: **126**   Type: **Presentation**

Deep Neural Networks for HEP Images

Tuesday, 1 August 2017 13:30 (25 minutes)

Deep neural networks (DNNs) have revolutionized many areas of science and technology. In this talk, we will discuss cutting edge developments in DNNs for high energy physics, using jet physics (including calorimeter showers) as an example that has attracted significant recent attention. Domain specific challenges require new techniques to make full use of the algorithms. A key focus is on understanding how and what the algorithms learn. DNN techniques are demonstrated for classification, regression, and generation. In addition to providing powerful baseline performance, we show how to train complex models directly on data and to generate sparse stacked images with non-uniform granularity.

Primary authors: NACHMAN, Benjamin (LBNL); METODIEV, Eric (MIT); RUBBO, Francesco (SLAC National Accelerator Laboratory); DERY, Lucio (Stanford); DE OLIVEIRA, Luke (LBNL); SCHWARTZ, Matt (Harvard); PAGANINI, Michela (Yale); PATRICK, komiske (MIT)

Presenter: NACHMAN, Benjamin (LBNL)

Session Classification: Computing, Analysis Tools, and Data Handling

Track Classification: Computing, Analysis Tools and Data Handling