HEP NN training

This session will introduce aspects of unsupervised (and weakly supervised) learning methods and demonstrate these concepts using concrete problems from particle physics. The availability of high-quality synthetic data from Monte Carlo (MC) simulation is a key ingredient for the success of particle physics. However, the production and storage of these MC simulations occupies a large fraction of computing resources of big experimental collaborations. We will introduce generative machine learning models such as generative adversarial networks (GANs) and autoencoders which promise a way to greatly speed-up simulation. Furthermore, we will explore the idea of unsupervised searches for anomalies as a novel way of data quality monitoring and potential discovery.

NOTE: to use the Jupyter Notebooks available on Google's colab site you should have a Google Drive area to copy them to.

Presenters: KSIECZKA , Gregor; BENATO, Lisa

Session Classification: Parallel Session ML/AI