



Contribution ID: 52

Type: **Poster presentation**

Particle-based Fast Jet Simulation at the LHC with Variational Autoencoders

Wednesday 25 August 2021 17:00 (30 minutes)

We study how to use Deep Variational Autoencoders for a fast simulation of jets of particles at the LHC. We represent jets as a list of constituents, characterized by their momenta. Starting from a simulation of the jet before detector effects, we train a Deep Variational Autoencoder to return the corresponding list of constituents after detection. Doing so, we bypass both the detector simulation, and the event reconstruction steps of a traditional event processing, potentially speeding up significantly the events generation workflow. Using as benchmark a convolutional VAE, we discuss how to customize the loss to improve accuracy.

Is this abstract from experiment?

Yes

Name of experiment and experimental site

CMS

Is the speaker for that presentation defined?

Yes

Details

Mary Touranakou, PhD Student, National and Kapodistrian University of Athens, Greece, <https://www.di.uoa.gr/>

Internet talk

Maybe

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Session Classification: Mini-workshop on Machine Learning for Particle Physics