



Contribution ID: 102

Type: Oral presentation using Zoom

Angular Conditioning of Generative Models for Fast Calorimeter Shower Simulation

Thursday, 28 October 2021 15:30 (24 minutes)

Detector simulation is a key cornerstone of modern high energy physics. Traditional simulation tools are reliant upon Monte Carlo methods, which consume significant computational resources and are projected to be a major bottleneck at the high luminosity stage of the LHC and for future colliders. Calorimeter shower simulation has been a focus of fast simulation efforts, as it is particularly intensive from a computational stand point due to a large number of particle interactions with the detector material.

Deep generative models hold promise as a potential solution, offering drastic reductions in compute times. Recent work in our group in the context of the ILD concept has demonstrated the suitability of various generative models for accurately reproducing showers displaying key physics properties in a highly granular calorimeter. While this initial work focused on the specific case of a particle incident perpendicular to the calorimeter face, a practical simulator must incorporate arbitrary angles of incidence and simulate them correctly. This talk will address ongoing efforts to add conditioning on the incident angle of the particle.

1st preferred time slot for your oral presentation

19:00-21:00 JST (12:00-14:00 CEST, 6:00-8:00 EDT, 3:00-5:00 PDT)

2nd preferred time slot for your oral presentation

15:30-17:30 JST (8:30-10:30 CEST, 2:30-4:30 EDT, 23:30-1:30 PDT)

Primary author: MCKEOWN, Peter

Presenter: MCKEOWN, Peter

Session Classification: A&B: Software/Computing & Calorimeters

Track Classification: Parallel sessions: Detectors: Session A: Software / Computing