

Charline Rougier

*PhD student, Laboratoire des
deux Infinis, Toulouse, France*

Tracking with Graph Neural Networks for LHC ATLAS Data

Tuesday, March 14th, 2023
12:00 PM – 1:00 PM

Join ZoomGov Meeting

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pwd=Qm9LSTZrYWWE5ajU2Q
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Meeting ID: 161 625 7566
Passcode: 013148

Host: Jin Huang/ Carlos Soto

Abstract: In preparation for the upcoming HL-LHC era, ATLAS is pursuing several methods to reduce the resources consumption needed to reconstruct the trajectory of charged particles (tracks) in the new all-silicon Inner Tracker (ITk). This includes the development of new algorithms suitable for massively parallel computing architecture like GPUs. Algorithms for track pattern recognition based on graph neural networks (GNNs) have emerged as a particularly promising approach. Previous work using simulated data from the TrackML challenge show high track reconstruction efficiency. In this presentation, I will describe a first functional implementation of a GNN-based track pattern reconstruction for ITk, achieving a high GNN track reconstruction efficiency and promising fake track rate.

Biography: Charline is a PhD student in Toulouse, France, in the Laboratoire des deux Infinis. She is studying new algorithms for tracking under HL-LHC conditions in ATLAS and analyzing ATLAS Run 2 data to search for new heavy scalars. She is currently in the final year of her PhD, and can be reached at charline.rougier@cern.ch.