Contribution ID: 39

Calorimeter Clustering at FCC-ee with E(n) Equivariant Graph Neural Networks

Wednesday 27 September 2023 12:35 (5 minutes)

Reconstructing particles from raw detector outputs at the FCC is a challenging task due to complex detector geometries and highly granular, unique shower shapes. Conventional computer vision approaches are typically not suitable for application to the sparse detector outputs, so other methods more suited for unstructured data shall be consulted. We employ E(n) equivariant graph neural networks trained with object condensation loss for ECAL and HCAL calorimeter clustering in a CLIC-like CLD detector. A successful deep learning-based approach for calorimeter clustering in the FCC-ee is proposed and the next steps for improvement are suggested.

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Session Classification: Lunch including poster session