

Equivariant Point Cloud Generation for Particle Jets

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Generative machine learning models allow fast event generation, yet are so far primarily constrained to fixed data and detector geometries.

We introduce a Deep Sets-based permutation equivariant generative adversarial network (GAN) for generating point clouds with variable cardinality - a flexible data structure optimal for collider events such as jets. The generator utilizes an interpretable global latent vector and does not rely on pairwise information sharing between particles, leading to a significant speed-up over graph-based approaches

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