

# Challenges for unsupervised anomaly detection in particle physics

*Wednesday 2 November 2022 10:25 (20 minutes)*

I discuss several approaches to anomaly detection in collider physics, including using variational autoencoders, which rely on the ability to reconstruct certain types of data (background) but not others (signals), and optimal transport distances, which which measures how easily one pT distribution can be changed into another. I discuss advantages and challenges associated with each approach. I also discuss a connection we uncovered between the latent space of a variational autoencoder trained using mean squared error and using optimal transport distances within the dataset.

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