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A Normalized Autoencoder for LHC triggers

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The main goal for the upcoming LHC runs is still to discover BSM physics. It will require analyses able to probe regions not linked to specific models but generally identified as beyond the Standard Model. Autoencoders are the typical choice for fast anomaly detection models. However, they have shown to misidentify anomalies of low complexity signals over background events. I will present an energy-based Autoencoder called Normalized AE, a density-based high-performance anomaly search algorithm. I will show NAE applications on jet tagging and on reconstructed events. In particular, I will discuss how NAE is able to symmetrically tag QCD and top jet images as well as the BSM events proposed for the Anomaly Detection Challenge 2021.

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