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Interaction networks for jet characterisation at the LHC

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We study the use of interaction networks to perform tasks related to jet reconstruction. In particular, we consider jet tagging for generic boosted-jet topologies, tagging of large-momentum H→bb decays, and anomalous-jet detection. The achieved performance is compared to state-of-the-art deep learning approaches, based on Convolutional or Recurrent architectures. Unlike these approaches, Interaction Networks allow to reach state-of-the art performance without making assumptions on the underlying data (e.g., detector geometry or resolution, particle ordering criterion, etc.). Given their flexibility, Interaction Networks provide an interesting possibility for deployment-friendly deep learning algorithms for the LHC experiments.

Consider for promotion

Yes

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