



Contribution ID: 657 Contribution code: **contribution ID 657**

Type: **Oral**

Testing the boundaries: Normalizing Flows for higher dimensional data sets.

Tuesday 30 November 2021 18:40 (20 minutes)

Normalizing Flows (NFs) are emerging as a powerful brand of generative models, as they not only allow for efficient sampling, but also deliver density estimations by construction. They are of great potential usage in High Energy Physics (HEP), where we unavoidably deal with complex high dimensional data and probability distributions are everyday's meal. However, in order to fully leverage the potential of NFs it is crucial to explore their robustness as the dimensionality of our data increases. Thus, in this talk, we discuss the performance of some of the most popular types of NFs on the market, on several example data sets with escalating number of dimensions.

Significance

In recent years, proof of concept publications on Normalizing Flows (NFs) applications in High Energy Physics (HEP) have been on the rise. However, a systematic study of the robustness of NFs as the dimensionality of our data increases is missing. Our work aims to fill that void to provide a better idea of the potential reach of applying NFs in HEP.

References

Speaker time zone

Compatible with Europe

Primary authors: Dr KHOSA, Charanjit (University of Genoa); REYES-GONZÁLEZ, Humberto (University of Genoa); Dr TORRE, Riccardo (INFN Genoa)

Presenter: REYES-GONZÁLEZ, Humberto (University of Genoa)

Session Classification: Track 3: Computations in Theoretical Physics: Techniques and Methods

Track Classification: Track 3: Computations in Theoretical Physics: Techniques and Methods