Contribution ID: **4207**   Type: **Poster not-in-competition (Graduate Student) / Affiche non-compétitive (Étudiant(e) du 2e ou 3e cycle)**

(G) (POS-7) Accelerating the search for mass bumps using the Data-Directed Paradigm at the LHC

Tuesday 28 May 2024 17:47 (2 minutes)

The Data-Directed paradigm (DDP) is an innovative approach to efficiently probe new physics across a large number of spectra in the presence of smoothly falling standard model backgrounds. DDP circumvents the need for simulated or functionally derived background estimates that are usually used in traditional analysis by directly predicting a statistical significance using a convolutional neural network trained to regress the log-likelihood based significance. A trained network is then used to identify mass bumps directly on the data without the need to completely model the background, thus saving a considerable amount of analysis time. By detecting mass bumps directly in the data, the DDP has the potential to greatly enhance the discovery reach by exploring many unmapped regions. The efficiency of the method has been demonstrated by successfully identifying various beyond standard model signals in simulated data. A detailed presentation of the methodology and recent developments will be presented.

Keyword-1

Particle Physics

Keyword-2

Machine Learning

Keyword-3

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