Contribution ID: **945** Type: **Talk**

Deep Learning Versatility in New Physics Searches

Friday 31 July 2020 12:15 (15 minutes)

In this talk, we will talk about the application of Deep Learning models as a discriminant step to improve sensitivity at searches for new physics. Of particular interest, we will focus on the transferability of Deep Learning models, where a neural network trained to isolate a specific signal can still provide sensitivity when deriving upper limits on a different process. This is expanded to include a discussion on the versatility of Deep Learning models to provide enough sensitivity in cases where the signal present in the sample does not follow the assumptions of an analysis.
In addition, we will discuss if the inclusion of low-level features, for example Earth-Moving Distance calculated on detector information from reconstructed objects, can improve sensitivity on top of reconstructed event variables. This study opens the way to use Deep Learning as a tool to connect different physical observables and guide the study of creating new observables.

Secondary track (number)

14

Author: Dr CRISPIM ROMAO, Miguel (LIP)

Co-authors: Prof. CASTRO, Nuno (LIP); Dr COSTA BATALHA PEDRO, Rute (LIP Laboratorio de Instrumentacao e Fisica Experimental de Part); VALE, Tiago (LIP Laboratorio de Instrumentacao e Fisica Experimental de Part)

Presenter: Dr CRISPIM ROMAO, Miguel (LIP)

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