

Hands on MadMiner

Thursday, 18 February 2021 15:30 (1 hour)

I will review the MadMiner tool, which implements approaches to approximate the fully differential likelihood (or likelihood ratio) including showering and detector effects with machine learning. The techniques are described in three publications “Constraining Effective Field Theories With Machine Learning”, “A Guide to Constraining Effective Field Theories With Machine Learning”, and “Mining gold from implicit models to improve likelihood-free inference” and MadMiner: Machine-learning-based inference for particle physics describes the tool itself.

The hour will be based on this on-line tutorial: <http://theoryandpractice.org/madminer-tutorial/>

I will also describe recent work to deploy MadMiner workflows at scale using REANA.

In order to get the most out of our time in the MadMiner tutorial, I would like to ask that you first complete some preliminary steps, which involves installing Docker on your laptop and pulling the Docker images for the tutorial. The MadMiner tool has many software dependencies (MadGraph, Pythia, Delphes, pytorch, etc.). The full software environment is already setup in these docker images. There is a webpage for the tutorial. I would ask that you complete the setup described in the preliminaries page: <http://theoryandpractice.org/madminer-tutorial/preliminaries.html>

Thank you and see you Thursday!

Kyle

Presenter: CRANMER, Kyle Stuart (New York University (US))

Session Classification: Tutorials and hands-ons