



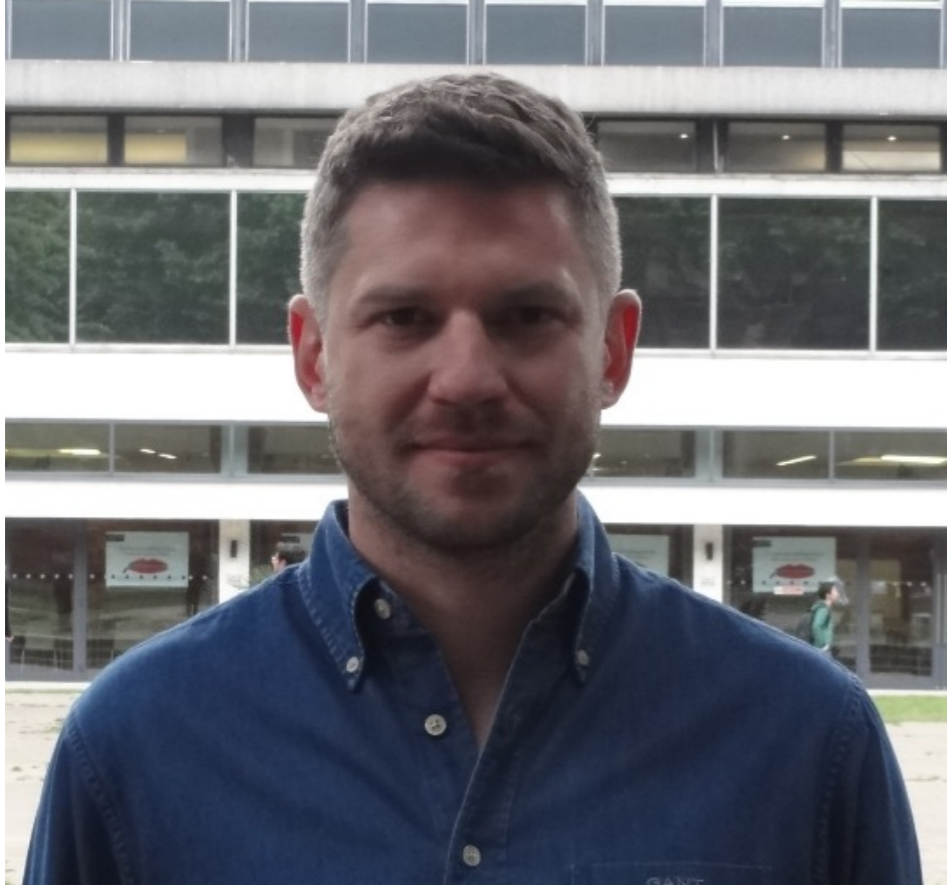
IML News

IML Working Group Meeting
July 7, 2020

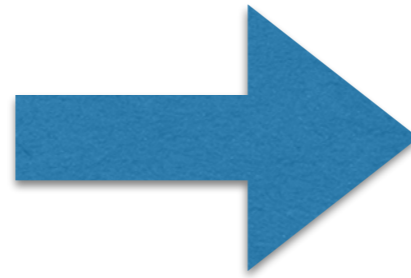
IML Coordinators: Loukas Gouskos (CMS), Gian Michele Innocenti (ALICE), Lorenzo Moneta (SFT), David Rousseau (ATLAS), Pietro Vischia (CMS), Riccardo Torre (TH), Andrea Wulzer (TH)

News

Loukas Gouskos



Thanks Loukas!



Pietro Vischia



Welcome Pietro

4th IML Workshop

Initially planned for June 2-5, 2020 at CERN

Postponed due to the COVID-19 situation

NEW DATE: October 19-22, 2020 at CERN

<https://indico.cern.ch/event/852553>

Please consider registering!

NB: Participants registered for the initial call, need to re-register

Abstract submission is open; deadline Sep 4, 2020

Next Meeting

Tuesday, September 8, 2020

Contact us if you want to give a talk!
[[iml.coordinators@cern.ch](mailto:iml coordinators@cern.ch)]

This Meeting

15:00 → 15:05 **News**

🕒 5m



Speakers: Andrea Wulzer (CERN and EPFL), David Rousseau (LAL-Orsay, FR), Gian Michele Innocenti (CERN), Lorenzo Moneta (CERN), Loukas Gouskos (CERN), Dr Pietro Vischia (Universite Catholique de Louvain (UCL) (BE)), Riccardo Torre (CERN)

15:05 → 15:35 **Machine learning for lattice field theory**

🕒 30m



I will describe avenues to accelerate and enable lattice field theory calculations using machine learning. I will focus in particular on the role of generative models, and requirements such as guarantees of exactness in sampling and the incorporation of complex symmetries (e.g., gauge symmetry) into ML architectures.

Speaker: Phiala Shanahan (MIT)

15:35 → 15:55 **Deep Learning as a Tool for Generic Searches at Colliders**

🕒 20m



In this talk, we will walk through current applications of Deep Learning as a tool for generic searches for New Physics at colliders. We will show recent results on how Deep Learning discriminators perform on new signal unseen during training and on unsupervised methods to search for New Physics in a complete signal agnostic approach.

Speaker: Dr Miguel Crispim Romao (LIP)

15:55 → 16:15 **Graph Neural Networks for 2D Calorimetric Cluster Reconstruction**

🕒 20m



In this work, we seek to explore the use of graph neural networks (GNNs) to perform cluster reconstruction from 2D readouts of a calorimeter system. We leverage the ability of GNNs to learn arbitrary detector geometries to regress in a multi-tasked fashion the energy and centroid coordinated of simulated deposits. This talk will focus on the preliminary results of a proof-of-concept study, amounting to training the algorithm on a simulated dataset loosely inspired by the LHCb electromagnetic calorimeter.

Speaker: Blaise Raheem Delaney (University of Cambridge (GB))