Contribution ID: **495**　　　　　　　　　　　　　　　　　　　　　　　　Type: **Plenary**

TrackML : a tracking Machine Learning challenge

Thursday 14 March 2019 11:00 (20 minutes)

The HL-LHC will see ATLAS and CMS see proton bunch collisions reaching track multiplicity up to 10.000 charged tracks per event. Algorithms need to be developed to harness the increased combinatorial complexity. To engage the Computer Science community to contribute new ideas, we organize a Tracking Machine Learning challenge (TrackML). Participants are provided events with 100k 3D points, and are asked to group the points into tracks; they are also given a 100GB training dataset including the ground truth. The challenge is run in two phases. The first "Accuracy" phase has run on Kaggle platform from May to August 2018; algorithms were judged judged only on a score related the fraction of correctly assigned hits. The second "Throughput" phase runs Sep 2018 to March 2019 on Codalab, will require code submission; algorithms are there ranked by combining accuracy and speed. The first phase has seen 653 participants, with top performers with innovative approaches. The second phase will finish at the time of ACAT. The talk will report on the first lessons from the challenge.

Authors: SALZBURGER, Andreas (CERN); USTYUZHANIN, Andrey (Yandex School of Data Analysis (RU)); GERMAIN, Cecile (Universite Paris Sud); ROUSSEAU, David (LAL-Orsay, FR); MOYSE, Edward (University of Massachusetts (US)); GRAY, Heather (LBNL); GUYON, Isabelle; VLIMANT, Jean-Roch (California Institute of Technology (US)); BASARA, Laurent Roger Igor (Universita degli Studi di Trento è INFN (IT)); HUSHCHYN, Mikhail (Yandex School of Data Analysis (RU)); KIEHN, Moritz (Universite de Geneve (CH)); CALAFIURA, Paolo (Lawrence Berkeley National Lab. (US)); AMROUCHE, Sabrina (Université de Geneve (CH)); FARRELL, Steven Andrew (University of California-Unknown-Unknown); GOLLING, Tobias (Universite de Geneve (CH)); ESTRADE, Victor (LRI); INNOCENTE, Vincenzo (CERN); GLIGOROV, Vladimir (University of Glasgow); YILMAZ, Yetkin (LAL-Orsay (FR))

Presenter: VLIMANT, Jean-Roch (California Institute of Technology (US))

Session Classification: Plenary

Track Classification: Track 2: Data Analysis - Algorithms and Tools