5th Inter-experiment Machine Learning Workshop

Tuesday 10 May 2022

Workshop: Jets and simulations - 500/1-001 - Main Auditorium (16:05 - 18:05)

-Conveners: Riccardo Torre; Michael Aaron Kagan

time	[id] title	presenter
16:05	[28] Particle-based Fast Jet Simulation at the LHC with Variational Autoencoders	ORZARI, Breno
16:20	[43] Hadrons, Better, Faster, Stronger	EREN, Engin
16:45	[27] SUPA: A Lightweight Diagnostic Simulator for Machine Learning in Particle Physics.	Mr KUMAR SINHA, Atul
17:10	[15] Calibrating stochastic simulations with optimal transport	WINDISCHHOFER, Philipp

Wednesday 11 May 2022

Workshop: Uncertainty-aware learning, invertible networks, and anomaly detection in DQM - 4/3-006 - TH Conference Room (09:00 - 10:30)

-Conveners: Pietro Vischia; Simon Akar

time	[id] title	presenter
09:00	[52] Conditional Invertible Network for Neutrino Regression	Mr LEIGH, Matthew
09:25	[47] Uncertainty Aware Learning for High Energy Physics With A Cautionary Tale	GHOSH, Aishik
09:30	[4] Learning New Physics aware of systematic uncertainties	GROSSO, Gaia
09:45	[35] Learning Optimal Test Statistics in the Presence of Nuisance Parameters	HEINRICH, Lukas Alexander
10:00	[58] Spatio-Temporal Anomaly Detection for the DQM of the CMS Experiment via Graph Networks	ASRES, Mulugeta

Workshop: Neural ratio estimators, Autoencoders, Orsay workshop summary - 500/1-001 - Main Auditorium (15:00 - 16:00)

-Conveners: Simon Akar; Fabio Catalano

time	[id] title	presenter
15:00	[3] Truncated Marginal Neural Ratio Estimation with swyft	MILLER, Benjamin Kurt
15:25	[32] Summary of Learning To Discover workshop	ROUSSEAU, David
15:50	[53] Autoencoders for semivisible jet detection	NIEDZIELA, Jeremi
15:55	[34] Invariant Representation Driven Neural Classifier for Anti-QCD Jet Tagging	CHENG, Taoli

Workshop: Simulation-based inference, neural ratio estimates, end-to-end reconstruction, anomaly detection - 500/1-001 - Main Auditorium (16:30 - 18:15)

-Conveners: Fabio Catalano; Simon Akar

time	[id] title	presenter
16:30	[14] Cosmological Simulation-Based Inference with Truncated Marginal Neural Ratio Estimation	COLE, Alex
16:55	[6] CURTAINs for you Sliding Window: Constructing Unobserved Regions by Transporting Adjacent INtervals to improve the reach of bump hunts in the search for new physics	SENGUPTA, Debajyoti
17:20	[55] Object condensation for end-to-end reconstruction in high occupancy calorimeters with graph neural networks	QASIM, Shah Rukh
17:45	[49] Anomaly detection for the quality control of silicon sensor wafers for the CMS HGCAL upgrade	GRÖNROOS, Sonja
18:00	[5] Clustering for interpreting complex high-energy physics models	HOPKINS, Walter

Thursday 12 May 2022

Workshop: Generative Models - 4/3-006 - TH Conference Room (09:00 - 10:10)

-Conveners: Riccardo Torre; Michael Aaron Kagan

time	[id] title	presenter
09:00	[33] Calomplification: The Power of Generative Calorimeter Models	BIERINGER, Sebastian Guido
09:25	[56] How to generate all possible simulations with GANs?	DUBINSKI, Jan Michal
09:30	[13] Information-theoretic stochastic contrastive conditional GAN (InfoSCC-GAN) for physical data generation	KINAKH, Vitaliy
09:55	[25] IEA-GAN: Intra-Event Aware GAN for the Fast Simulation of PXD Background at Belle II	HASHEMI, Hosein

Workshop: ML in theory and phenomenology - 500/1-001 - Main Auditorium (10:35 - 12:10)

-Conveners: Michael Aaron Kagan; Riccardo Torre

time	[id] title	presenter
10:35	[1] An infra-red and collinear safe message passing neural network	Mr NGAIRANGBAM, Vishal Singh
11:00	[38] Quarks and gluons in the Lund plane	TAKACS, Adam Dr DREYER, Frederic Alexandre SOYEZ, Gregory
11:15	[31] Targeting Multi-Loop Integrals with Neural Networks	WINTERHALDER, Ramon
11:40	[40] Towards a Deep Learning Model for Hadronization	SIODMOK, Andrzej Konrad
12:05	[30] Using Machine Learning techniques in phenomenological studies in flavour physics	ALDA GALLO, Jorge

Workshop: Generative models, and identification algorithms - 500/1-001 - Main Auditorium (13:30 - 15:10)

-Conveners: Anja Butter; Fabio Catalano

time	[id] title	presenter
13:30	[9] Turbo-Sim: a generalised generative model with a physical latent space	QUÉTANT, Guillaume
13:55	[18] Funnels: Exact maximum likelihood with dimensionality reduction	KLEIN, Samuel Byrne
14:20	[16] ML-based Correction to Accelerate Geant4 Calorimeter Simulations	KOURLITIS, Evangelos
14:25	[51] Particle identification with machine learning in ALICE Run 3	KABUS, Maja
14:50	[57] Data-driven machine learning algorithms for the calibration of space-charge distortion fluctuations in the ALICE TPC	IVANOV, Marian

Workshop: Fast and real-time inference - 4/3-006 - TH Conference Room (15:40 - 17:00)

-Conveners: Fabio Catalano; Anja Butter

time	[id] title	presenter
15:40	[45] FPGA acceleration of the CMS DNN based LLP Jet Algorithm for the LHC High-Luminosity upgrade	OURIDA, Tarik

16:05	[41] Ephemeral Learning - Augmenting Triggers with Online-Trained Normalizing Flows	DIEFENBACHER, Sascha Daniel
16:20	[21] Optimized Deep Learning Inference on High Level Trigger at the LHC: Computing time and Resource assessment	HASAN, Syed Anwar Ul
16:35	[20] Unsupervised learning for real-time SUEP detection in a High Level Trigger system at the LHC	CHHIBRA, Simranjit Singh
16:40	[10] Neural network based primary vertex reconstruction with FPGAs for the upgrade of the CMS level-1 trigger system	KOMM, Matthias
16:55	[8] Multi-objective optimization for the CMS High Granularity Calorimeter Level 1 trigger	HAKIMI, Alexandre

Friday 13 May 2022

Workshop: ML as a service, QML, reconstruction - 500/1-001 - Main Auditorium (09:00 - 10:45)

-Conveners: Simon Akar; Fabio Catalano

time	[id] title	presenter
09:00	[17] Neural network distributed training and optimization library (NNLO)	VELJANOVIC, Irena
09:25	[12] MLaaS4HEP: Machine Learning as a Service for HEP	GIOMMI, Luca
09:30	[19] Quantum Machine Learning algorithms in the latent space of HEP events	WOZNIAK, Kinga Anna
09:55	[7] GNN-based algorithm for full-event filtering and interpretation at the LHCb trigger	GARCIA PARDINAS, Julian
10:20	[36] Graph Neural Network Track Reconstruction for the ATLAS ITk Detector	MURNANE, Daniel Thomas

Workshop: Reconstruction and identification - 500/1-001 - Main Auditorium (11:15 - 12:30)

-Conveners: Simon Akar; Fabio Catalano

time	[id] title	presenter
11:15	[50] Application of artificial intelligence in the reconstruction of signals from the PADME electromagnetic calorimeter	STOIMENOVA, Kalina
11:20	[46] Semi-supervised Graph Neural Networks for Pileup Noise Removal	PASPALAKI, Garyfallia
11:25	[44] CBM performance for (multi-)strange hadron measurements using Machine Learning techniques	KHAN, Shahid
11:30	[37] Leveraging universality of jet taggers through transfer learning	GRABARCZYK, Radoslaw Piotr
11:55	[29] Particle Transformer for Jet Tagging	QIAN, Sitian
12:20	[26] ML for SUEP Detection	LAVEZZO, Luca Marco
12:25	[24] Using Graph autoencoders to trigger on new physics at the LHC	SHAHID, Muhammad-Hassan

Workshop: Identification, reconstruction, and experimental design - 500/1-001 - Main Auditorium (14:00 - 16:00)

-Conveners: Lorenzo Moneta; Pietro Vischia

time	[id] title	presenter
14:00	[23] Likelihood-Free Frequentist Inference for Calorimetric Muon Energy Measurement	MASSERANO, Luca
14:25	[42] Two-level graphs for muon-tomography inference	Dr STRONG, Giles Chatham
14:50	[22] Electron identification in ATLAS using a deep neural network	EHRKE, Lukas
14:55	[11] Tracking of Proton Traces in a Digital Tracking Calorimeter using Reinforcement Learning	KORTUS, Tobias
15:10	[48] Point Cloud Deep Learning Methods for Pion Reconstruction in the ATLAS Detector	PETTEE, Mariel
15:35	[39] Explaining machine-learned particle-flow reconstruction	MOKHTAR, Farouk