

# **CERN openlab Technical Workshop**

## **Report of Contributions**

Contribution ID: 1

Type: **not specified**

# **FPGA-based Machine Learning Inference for CMS with the Micron Deep Learning Accelerator**

*Wednesday, January 22, 2020 10:30 AM (15 minutes)*

**Presenter:** JAMES, Thomas Owen (CERN)

**Session Classification:** Computing Architectures for ML, Data Acquisition and Processing

Contribution ID: 2

Type: **not specified**

## **Prototyping of a DL-based Particle Identification System for the Dune Neutrino Detector**

*Wednesday, January 22, 2020 10:45 AM (15 minutes)*

**Presenter:** RODRIGUEZ ALONSO, Manuel Jesus (CERN)

**Session Classification:** Computing Architectures for ML, Data Acquisition and Processing

Contribution ID: 3

Type: **not specified**

## Partner talk: Micron DLA

*Wednesday, January 22, 2020 11:00 AM (25 minutes)*

**Presenter:** VITEZ, Marko (Sr. Machine Learning Software Engineer, Micron)

**Session Classification:** Computing Architectures for ML, Data Acquisition and Processing

Contribution ID: 4

Type: **not specified**

# Data Analytics and IoT for Industrial Control Systems

*Wednesday, January 22, 2020 11:25 AM (15 minutes)*

**Presenter:** SIROKY, Filip (CERN)

**Session Classification:** Computing Architectures for ML, Data Acquisition and Processing

Contribution ID: 5

Type: **not specified**

## Fast deep neural network inference on FPGAs

*Wednesday, January 22, 2020 11:55 AM (15 minutes)*

**Presenter:** SUMMERS, Sioni Paris (CERN)

**Session Classification:** Computing Architectures for ML, Data Acquisition and Processing

Contribution ID: 6

Type: **not specified**

## Partner talk: Siemens

**Session Classification:** Computing Architectures for ML, Data Acquisition and Processing

Contribution ID: 7

Type: **not specified**

## Neuromorphic Computing

*Wednesday, January 22, 2020 12:10 PM (15 minutes)*

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

**Session Classification:** Computing Architectures for ML, Data Acquisition and Processing



Contribution ID: 8

Type: **not specified**

## Fast Simulation with GANs

**Presenter:** Dr VALLECORSA, Sofia (CERN)

**Session Classification:** Computing Architectures for ML, Data Acquisition and Data Processing

Contribution ID: 9

Type: **not specified**

## Deep Learning use cases in CMS

*Wednesday, January 22, 2020 1:45 PM (15 minutes)*

**Presenter:** PIERINI, Maurizio (CERN)

**Session Classification:** Computing Architectures for ML, Data Acquisition and Data Processing

Contribution ID: **10**

Type: **not specified**

## **The LHCb Allen project**

*Wednesday, January 22, 2020 2:00 PM (15 minutes)*

**Presenter:** GLIGOROV, Vladimir (Centre National de la Recherche Scientifique (FR))

**Session Classification:** Computing Architectures for ML, Data Acquisition and Data Processing

Contribution ID: **11**

Type: **not specified**

# The CMS Heterogeneous Computing Revolution

*Wednesday, January 22, 2020 2:15 PM (15 minutes)*

**Presenters:** Dr BOCCI, Andrea (CERN); PANTALEO, Felice (CERN)

**Session Classification:** Computing Architectures for ML, Data Acquisition and Data Processing

Contribution ID: 12

Type: **not specified**

## Deep Learning in ROOT using GPU

*Wednesday, January 22, 2020 3:00 PM (15 minutes)*

**Presenter:** MONETA, Lorenzo (CERN)

**Session Classification:** Computing Architectures for ML, Data Acquisition and Data Processing

Contribution ID: 13

Type: **not specified**

## **Exploiting Modular HPC in the context of DEEP-EST and ATTRACT projects**

*Wednesday, January 22, 2020 2:30 PM (15 minutes)*

**Presenter:** KHRISTENKO, Viktor (CERN)

**Session Classification:** Computing Architectures for ML, Data Acquisition and Data Processing

Contribution ID: 14

Type: **not specified**

## Deep Learning for de-noising DUNE data on Power

*Thursday, January 23, 2020 10:05 AM (10 minutes)*

**Presenter:** VALLECORSA, Sofia (CERN)

**Session Classification:** Computing Architectures for ML, Data Acquisition and Processing

Contribution ID: 15

Type: **not specified**

## **DAQDB: a key-value store for data acquisition**

*Thursday, January 23, 2020 9:50 AM (15 minutes)*

**Presenter:** LEHMANN MIOTTO, Giovanna (CERN)

**Session Classification:** Computing Architectures for ML, Data Acquisition and Processing



Contribution ID: 16

Type: **not specified**

## Partner talk: Intel OneAPI

*Thursday, January 23, 2020 9:00 AM (25 minutes)*

**Presenter:** PEREZ, Francisco (Intel)

**Session Classification:** Computing Architectures for ML, Data Acquisition and Processing

Contribution ID: 17

Type: **not specified**

# Reperforming a Nobel Prize Discovery on Kubernetes and the Google Cloud

*Thursday, January 23, 2020 12:00 PM (15 minutes)*

**Presenter:** BRITO DA ROCHA, Ricardo (CERN)

**Session Classification:** Data Center Technologies

Contribution ID: **18**

Type: **not specified**

## **EOS Comtrade project**

*Thursday, January 23, 2020 12:15 PM (15 minutes)*

**Presenter:** MASCETTI, Luca (CERN)

**Session Classification:** Data Center Technologies

Contribution ID: 19

Type: **not specified**

## **Partner talk: Oracle Single-sided messaging for accelerators: A directional talk**

*Thursday, January 23, 2020 10:50 AM (25 minutes)*

**Presenter:** SWART, Garret (Oracle)

**Session Classification:** Data Center Technologies

Contribution ID: **20**

Type: **not specified**

## **Disaster Recovery: from on-premises to cloud**

*Thursday, January 23, 2020 11:15 AM (15 minutes)*

**Presenter:** NAPPI, Antonio (CERN)

**Session Classification:** Data Center Technologies

Contribution ID: 21

Type: **not specified**

## Data analytics in the Cloud

*Thursday, January 23, 2020 11:30 AM (15 minutes)*

**Presenter:** CASTELLOTTI, Riccardo (CERN)

**Session Classification:** Data Center Technologies

Contribution ID: 22

Type: **not specified**

## Oracle Oracle Management Cloud

**Presenter:** TSOUVELEKAKIS, Aimilios (CERN)

**Session Classification:** Data Center Technologies

Contribution ID: 23

Type: **not specified**

## The BioDynaMo project

*Thursday, January 23, 2020 2:15 PM (20 minutes)*

**Presenters:** HESAM, Ahmad Siar (CERN); BREITWIESER, Lukas (CERN, ETH Zurich)

**Session Classification:** Working with other Sciences



Contribution ID: 24

Type: **not specified**

## The LivingLab project

*Thursday, January 23, 2020 2:35 PM (20 minutes)*

**Presenters:** DI MEGLIO, Alberto (CERN); MANSET, David

**Session Classification:** Working with other Sciences

Contribution ID: 25

Type: **not specified**

## The SmartLinac project

*Thursday, January 23, 2020 3:10 PM (15 minutes)*

**Presenter:** DONON, Yann Pierre

**Session Classification:** Working with other Sciences

Contribution ID: 26

Type: **not specified**

## Use of deep learning in UNOSAT

*Thursday, January 23, 2020 3:25 PM (15 minutes)*

**Presenter:** NEMNI, Edoardo (unitar (CH))

**Session Classification:** Working with other Sciences

Contribution ID: 27

Type: **not specified**

## DNA storage pilot

**Presenter:** DI MEGLIO, Alberto (CERN)

**Session Classification:** Data Center Technologies

Contribution ID: 28

Type: **not specified**

# Quantum GAN

*Wednesday, January 22, 2020 3:50 PM (15 minutes)*

**Presenter:** CHANG, Su Yeon

**Session Classification:** Quantum Computing

Contribution ID: 29

Type: **not specified**

## Alice Grid Storage Optimization

*Wednesday, January 22, 2020 4:05 PM (15 minutes)*

**Presenter:** POPA, Mircea-Marian (University Politehnica of Bucharest (RO))

**Session Classification:** Quantum Computing

Contribution ID: **30**

Type: **not specified**

## Quantum SVM

*Wednesday, January 22, 2020 4:20 PM (15 minutes)*

**Presenter:** SUN, Shaojun (University of Wisconsin Madison (US))

**Session Classification:** Quantum Computing

Contribution ID: **31**

Type: **not specified**

## **GPU Usage Status & Plans in ATLAS**

*Thursday, January 23, 2020 9:25 AM (15 minutes)*

**Presenter:** KRASZNAHORKAY, Attila (CERN)

**Session Classification:** Computing Architectures for ML, Data Acquisition and Processing



Contribution ID: 32

Type: **not specified**

## LHCb Machine Learning Challenges

*Thursday, January 23, 2020 10:15 AM (15 minutes)*

**Presenter:** USTYUZHANIN, Andrey (Yandex School of Data Analysis (RU))

**Session Classification:** Computing Architectures for ML, Data Acquisition and Processing

Contribution ID: 33

Type: **not specified**

## **WinCC Open Architecture Next Generation Archiver (NGA)**

*Wednesday, January 22, 2020 11:40 AM (15 minutes)*

**Presenter:** HENNESSEY, Anthony (CERN)

**Session Classification:** Computing Architectures for ML, Data Acquisition and Processing

Contribution ID: 34

Type: **not specified**

## **Solving NP-hard combinatorial problems via quantum computing**

*Wednesday, January 22, 2020 5:20 PM (20 minutes)*

**Presenter:** Prof. WANG, Jingbo

**Session Classification:** Quantum Computing

Contribution ID: 35

Type: **not specified**

## Event Classification with Quantum Machine Learning

*Wednesday, January 22, 2020 4:35 PM (15 minutes)*

**Presenter:** TERASHI, Koji (University of Tokyo (JP))

**Session Classification:** Quantum Computing

Contribution ID: 36

Type: **not specified**

# A Quantum Graph Neural Network Approach to Particle Track Reconstruction

*Wednesday, January 22, 2020 4:50 PM (15 minutes)*

**Presenter:** TUYSUZ, Cenk (Middle East Technical University (TR))

**Session Classification:** Quantum Computing

Contribution ID: 37

Type: **not specified**

## **Caching and Processing Wide, Dense, Jagged HEP Data in Apache Spark with Laurelin and Coffea**

*Wednesday, January 22, 2020 3:15 PM (15 minutes)*

**Presenter:** MELO, Andrew Malone (Vanderbilt University (US))

**Session Classification:** Computing Architectures for ML, Data Acquisition and Data Processing

Contribution ID: **38**

Type: **not specified**

## **DL analysis on wearable devices**

*Thursday, January 23, 2020 2:55 PM (15 minutes)*

**Presenter:** FERRARI, Anna (Milano Bicocca)

**Session Classification:** Working with other Sciences

Contribution ID: 39

Type: **not specified**

## **Oracle Autonomous Database and analytics technologies and CERN control systems**

**Presenters:** MASSON, Albert (CERN); MARTIN MARQUEZ, Manuel (CERN)

**Session Classification:** Data Center Technologies



Contribution ID: 40

Type: **not specified**

## **Open Days ticket reservation system development and maintenance**

*Thursday, January 23, 2020 11:45 AM (15 minutes)*

**Presenter:** KOZLOVSZKY, Viktor (CERN)

**Session Classification:** Data Center Technologies

Contribution ID: 41

Type: **not specified**

## **First experience of CMS reconstruction with OneAPI**

*Thursday, January 23, 2020 9:40 AM (10 minutes)*

**Presenter:** BOCCI, Andrea (CERN)

**Session Classification:** Computing Architectures for ML, Data Acquisition and Processing

Contribution ID: 42

Type: **not specified**

# Knowledge Transfer and Medical Applications at CERN

*Thursday, January 23, 2020 2:00 PM (15 minutes)*

**Presenter:** CIRILLI, Manuela (CERN)

**Session Classification:** Working with other Sciences

Contribution ID: 43

Type: **not specified**

## Fast Simulation with GANs

*Wednesday, January 22, 2020 12:25 PM (15 minutes)*

**Presenter:** VALLECORSA, Sofia (CERN)

**Session Classification:** Computing Architectures for ML, Data Acquisition and Processing

Contribution ID: 44

Type: **not specified**

# HEP Workflows as Benchmarks of computing architectures

*Wednesday, January 22, 2020 2:45 PM (15 minutes)*

**Presenter:** GIORDANO, Domenico (CERN)

**Session Classification:** Computing Architectures for ML, Data Acquisition and Data Processing

Contribution ID: 45

Type: **not specified**

# OpenQKD - European Quantum Key Distribution Testbed

*Wednesday, January 22, 2020 5:05 PM (15 minutes)*

**Presenter:** FROEWIS, Florian

**Session Classification:** Quantum Computing

Contribution ID: 46

Type: **not specified**

## Group photo

*Wednesday, January 22, 2020 12:40 PM (5 minutes)*