CERN openlab Technical Workshop

Report of Contributions

https://indico.cern.ch/e/TW19

Contribution ID: **1** Type: **not specified**

Welcome and goals of the workshop

Wednesday 23 January 2019 09:30 (15 minutes)

Presenter: GIRONE, Maria (CERN)

Contribution ID: **2** Type: **not specified**

Wrap up and best poster

Thursday 24 January 2019 15:00 (20 minutes)

Contribution ID: **3** Type: **not specified**

Intel big data

Session Classification: Computing architectures for machine learning, data acquisition and processing part 1

Contribution ID: **4** Type: **not specified**

Oracle data analytics

Session Classification: Computing architectures for machine learning, data acquisition and processing part 1

Contribution ID: **5** Type: **not specified**

Siemens data analytics for industrial controls

Session Classification: Computing architectures for machine learning, data acquisition and processing part 1

Contribution ID: **6** Type: **not specified**

Intel fast simulation

Wednesday 23 January 2019 11:35 (20 minutes)

Presenter: CARMINATI, Federico (CERN)

Session Classification: Computing architectures for machine learning, data acquisition and processing part 1

Contribution ID: **7** Type: **not specified**

IBM LHCb Simulation

Session Classification: Computing architectures for machine learning, data acquisition and processing part 1

Contribution ID: **8** Type: **not specified**

IBM CMS Simulation

Session Classification: Computing architectures for machine learning, data acquisition and processing part 1

Contribution ID: **9** Type: **not specified**

Lunch and poster session

Session Classification: Computing architectures for machine learning, data acquisition and processing part 1

Contribution ID: **10** Type: **not specified**

Intel big data analytics

Wednesday 23 January 2019 09:45 (20 minutes)

Presenter: MOTESNITSALIS, Vaggelis (CERN)

Session Classification: Computing architectures for machine learning, data acquisition and processing part 1

Contribution ID: **11** Type: **not specified**

Oracle Data Analytics and Autonomous Data Warehouse service on the Cloud

Wednesday 23 January 2019 10:05 (20 minutes)

Presenter: MARTIN MARQUEZ, Manuel (CERN)

Session Classification: Computing architectures for machine learning, data acquisition and processing part 1

Contribution ID: **12** Type: **not specified**

Siemens Data Analytics and SCADA evolution status report

Wednesday 23 January 2019 10:25 (20 minutes)

Presenter: TILARO, Filippo Maria (CERN)

Session Classification: Computing architectures for machine learning, data acquisition and processing part 1

Contribution ID: **13** Type: **not specified**

Micron: Exploring Accelerated Machine Learning for Experiment Data Analytics

Wednesday 23 January 2019 13:30 (20 minutes)

Presenters: MESCHI, Emilio (CERN); PIERINI, Maurizio (CERN)

Session Classification: Computing architectures for machine learning, data acquisition and processing part 2

Contribution ID: **14** Type: **not specified**

E4: A Testbed for GPU Accelerated Applications

Wednesday 23 January 2019 14:10 (20 minutes)

Presenter: PANTALEO, Felice (CERN)

Session Classification: Computing architectures for machine learning, data acquisition and processing part 2

Contribution ID: **15** Type: **not specified**

Intel: Fast deep neural network inference on FPGAs

Wednesday 23 January 2019 14:50 (20 minutes)

Presenter: NGADIUBA, Jennifer (CERN)

Session Classification: Computing architectures for machine learning, data acquisition and processing part 2

Contribution ID: **16** Type: **not specified**

Oracle Management Cloud: A unified monitoring platform

Wednesday 23 January 2019 16:30 (20 minutes)

Presenter: TSOUVELEKAKIS, Aimilios (Ministere des affaires etrangeres et europeennes (FR))

Session Classification: Data Center Technologies

Contribution ID: **17** Type: **not specified**

Oracle ADWS

Session Classification: Data Center Technologies

Contribution ID: **20** Type: **not specified**

Running JAVA application servers on Kubernetes

Wednesday 23 January 2019 16:50 (20 minutes)

Presenter: NAPPI, Antonio (CERN)

Session Classification: Data Center Technologies

Contribution ID: **21** Type: **not specified**

Comtrade EOS productization

Wednesday 23 January 2019 16:10 (20 minutes)

Presenter: MASCETTI, Luca (CERN)

Session Classification: Data Center Technologies

Contribution ID: **22** Type: **not specified**

Quantum computing and CERN openlab

Thursday 24 January 2019 14:00 (20 minutes)

Presenter: CARMINATI, Federico (CERN)

Session Classification: Quantum Computing

Contribution ID: **23** Type: **not specified**

Machine Learning in quantum computing

Thursday 24 January 2019 14:20 (20 minutes)

Presenter: Dr VALLECORSA, Sofia (Gangneung-Wonju National University (KR))

Session Classification: Quantum Computing

Contribution ID: **24** Type: **not specified**

Applying IBM quantum computing to LHC physics analysis Higgs coupling to two top quarks

Thursday 24 January 2019 14:40 (20 minutes)

Presenter: GUAN, Wen (University of Wisconsin (US))

Session Classification: Quantum Computing

Contribution ID: **25** Type: **not specified**

Partner talk Siemens: AI on the machine level in industrial automation

Wednesday 23 January 2019 11:15 (20 minutes)

Artificial intelligence, with all its different facets, makes a considerable contribution, especially in industry, toward reducing the usual expense of programming and engineering, making the control logic more agile and flexible with regard to changes in the ambient conditions and structuring production processes with greater flexibility and precision. With Future of Automation, Siemens is offering far-reaching insights into the future of automation and the role of artificial intelligence within the portfolio of Totally Integrated Automation. This means scalable solutions from the field level to the controller and edge level and all the way to the Cloud. This means that an AI solution can be scaled in terms of the environment and the target application: At the machine on the field level where fast, deterministic decisions are required, or across all machines or plants with a significantly higher quantity of data to be processed and a corresponding demand for computing power. To enable AI at the lowest level Siemens introduced a Technology module, the S7-1500 TM NPU (neural processing unit), which enables the efficient processing of neural networks. This allows to use machine-learning algorithms, for example, visual quality checks in production plants or image-guided robot system. This allows a considerably more efficient and more “human-like” behaviour possible.

Presenters: THON, Ingo (Siemens); SOLER GARRIDO, Jose (Siemens)

Session Classification: Computing architectures for machine learning, data acquisition and processing part 1

Contribution ID: **26** Type: **not specified**

Extreme Networks Flow optimizer

Thursday 24 January 2019 09:40 (20 minutes)

Presenter: STANCU, Stefan Nicolae (CERN)

Session Classification: Data Center Technologies

Contribution ID: **27** Type: **not specified**

Intel high performance cloud caching technologies

Thursday 24 January 2019 09:20 (20 minutes)

Presenter: CICALESE, Danilo (CERN)

Session Classification: Data Center Technologies

Contribution ID: **28** Type: **not specified**

Huawei OpenStack Cloud

Thursday 24 January 2019 10:00 (20 minutes)

Presenter: Ms SEETHARAMAN, Surya (CERN)

Session Classification: Data Center Technologies

Contribution ID: **29** Type: **not specified**

Rackspace: Cloud storage performance

Thursday 24 January 2019 10:20 (20 minutes)

Presenter: COLLET, Julien (CERN)

Session Classification: Data Center Technologies

Contribution ID: **30** Type: **not specified**

Biodynamo

Thursday 24 January 2019 11:40 (15 minutes)

Presenter: BREITWIESER, Lukas (openlab)

Session Classification: Multidisciplinary Knowledge Sharing Platforms

Contribution ID: **31** Type: **not specified**

Satellite Image Analysis for UNOSAT

Thursday 24 January 2019 12:10 (15 minutes)

Presenter: ALIYEV, Taghi (Universiteit Maastricht (NL))

Session Classification: Multidisciplinary Knowledge Sharing Platforms

Contribution ID: **32** Type: **not specified**

Medical Data Analysis

Thursday 24 January 2019 11:55 (15 minutes)

Presenter: DI MEGLIO, Alberto (CERN)

Session Classification: Multidisciplinary Knowledge Sharing Platforms

Contribution ID: **33** Type: **not specified**

Smart platforms for science

Thursday 24 January 2019 12:25 (15 minutes)

Presenter: ALIYEV, Taghi (Universiteit Maastricht (NL))

Session Classification: Multidisciplinary Knowledge Sharing Platforms

Contribution ID: **34** Type: **not specified**

Mobility

Thursday 24 January 2019 11:25 (15 minutes)

Presenter: RADEMAKERS, Fons (CERN)

Session Classification: Multidisciplinary Knowledge Sharing Platforms

Contribution ID: **35** Type: **not specified**

IBM Simulation

Session Classification: Computing architectures for machine learning, data acquisition and processing part 1

Contribution ID: **36** Type: **not specified**

IBM Evaluation of power architectures for machine learning

Wednesday 23 January 2019 11:55 (20 minutes)

Presenters: HESAM, Ahmad Siar (Technische Universiteit Delft (NL)); CAMPORA PEREZ, Daniel Hugo (Universidad de Sevilla (ES))

Session Classification: Computing architectures for machine learning, data acquisition and processing part 1

Contribution ID: **37** Type: **not specified**

Storage Services evolution at CERN

Wednesday 23 January 2019 15:50 (20 minutes)

Presenter: PACE, Alberto (CERN)

Session Classification: Data Center Technologies

Contribution ID: **38** Type: **not specified**

Welcome

Contribution ID: **39** Type: **not specified**

CMS applications to data quality and data certification

Session Classification: Computing architectures for machine learning, data acquisition and processing part 1

Contribution ID: **40** Type: **not specified**

Introduction to Multi-disciplinary Platforms for Science

Thursday 24 January 2019 11:10 (15 minutes)

Presenter: DI MEGLIO, Alberto (CERN)

Session Classification: Multidisciplinary Knowledge Sharing Platforms

Contribution ID: **41** Type: **not specified**

Status of the DEEP-EST project and outlook

Wednesday 23 January 2019 14:30 (20 minutes)

Presenter: KHRISTENKO, Viktor (CERN)

Session Classification: Computing architectures for machine learning, data acquisition and processing part 2

Contribution ID: **42** Type: **not specified**

Partner talk Micron: Advanced Computing Solutions

Wednesday 23 January 2019 13:50 (20 minutes)

Micron introduces machine learning products designed to accelerate deep learning algorithm in hardware.
Coupled with FWDNXT Inference Engine, the programmable logic products from Micron offer the ability to execute complex neural networks in hardware.
We present expertise in neural network design, compiler and hardware acceleration. We present FWDNXT SDK software as an alternative to graphic processors for deep learning acceleration.

Presenter: HUR, Mark (Micron)

Session Classification: Computing architectures for machine learning, data acquisition and processing part 2

Contribution ID: **43** Type: **not specified**

Oracle partner talk: Making databases smarter and faster: innovations enabled by engineering software and hardware together

Wednesday 23 January 2019 17:10 (20 minutes)

We present examples that illustrate how jointly designing a database and its underlying hardware enables innovations that overcome substantial technological challenges. Some are fundamental advances in the state of the art, and all yield reliability and performance improvements that discrete component ("converged") computer systems can rarely attain. For example, tailoring internal network protocols enables analytics queries to run without delaying OLTP commits; pushing computing into storage scales up throughput over limited bandwidth.

This talk is for anyone interested in infrastructure-grade computer systems —not just databases —and aims to reveal the thinking of the technical staff at a large-scale development organization with a reputation for building and delivering systems that are critical for IT infrastructure across all sectors of the global economy.

Presenter: PEDREGAL, Cris (Oracle)

Session Classification: Data Center Technologies

Contribution ID: **44** Type: **not specified**

Partner talk Intel: 2019 technology innovation

Thursday 24 January 2019 09:00 (20 minutes)

Presenters: LUISELLI, Andrea (Intel); PEREZ , Francisco (Intel)

Session Classification: Data Center Technologies

Contribution ID: **45** Type: **not specified**

Poster 1: Machine learning pipelines with Apache Spark and Intel Big DL

Wednesday 23 January 2019 17:35 (10 minutes)

Presenters: MIGLIORINI, Matteo (Universita e INFN, Padova (IT)); KHRISTENKO, Viktor (CERN)

Session Classification: Cocktail and poster session

Contribution ID: **46** Type: **not specified**

Poster 2: DAQDB: a Key-value store for data acquisition

Wednesday 23 January 2019 17:45 (10 minutes)

Presenter: CICALESE, Danilo (CERN)

Session Classification: Cocktail and poster session

Contribution ID: **47** Type: **not specified**

Poster 3: Monitoring JAVA application servers

Wednesday 23 January 2019 17:55 (10 minutes)

Successful operations require constant awareness about the system state. Time to time, different obstacles show up, which have to be resolved as fast as possible, because user satisfaction highly depends on time. The prompt problem resolution depends on two steps: localization of the malfunctioning component and the recovery action. Monitoring aims to strike down the exploration time and provide a detailed information about the case. This poster provides an overview of Java applications monitoring used by the CERN IT-DB group.

Presenter: KOZLOVSZKY, Viktor (CERN)

Session Classification: Cocktail and poster session

Contribution ID: **48** Type: **not specified**

Poster 4: Physics data analysis and data reduction at scale with Apache Spark

Wednesday 23 January 2019 18:05 (10 minutes)

Presenter: MOTESNITSALIS, Vaggelis (CERN)

Session Classification: Cocktail and poster session

Contribution ID: **49** Type: **not specified**

Poster 5: Physics data processing and machine learning in the Cloud

Wednesday 23 January 2019 18:15 (10 minutes)

Presenters: CANALI, Luca (CERN); CASTELLOTTI, Riccardo (CERN)

Session Classification: Cocktail and poster session