1st Real Time Analysis Workshop

Report of Contributions

https://indico.cern.ch/e/793125

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

Introduction and summary of first week

Monday, July 22, 2019 10:30 AM (30 minutes)

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

Session Classification: Plenary

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

Efficient programming for x86 architectures

Session Classification: Plenary

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

Discussion

Monday, July 22, 2019 11:00 AM (1 hour)

Session Classification: Plenary

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

Discussion

Session Classification: Plenary

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

Introduction to Allen (efficient programming for GPU architectures)

Session Classification: Plenary

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

(Auto)-translating code between architectures

Monday, July 22, 2019 12:00 PM (30 minutes)

Presenters: CAMPORA PEREZ, Daniel Hugo (Universidad de Sevilla (ES)); KUMAR, Pradeep

Session Classification: Plenary

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

Package & release management: why should you care and how can we distribute the workload?

Tuesday, July 23, 2019 9:00 AM (45 minutes)

Presenter: COUTURIER, Ben (CERN)

Session Classification: Plenary

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

Discussion

Tuesday, July 23, 2019 9:45 AM (15 minutes)

Session Classification: Plenary

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

How do we commission a new detector and its reconstruction?

Wednesday, July 24, 2019 9:00 AM (45 minutes)

Presenter: HANSMANN-MENZEMER, Stephanie (Ruprecht Karls Universitaet Heidelberg (DE))

Session Classification: Plenary

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

Discussion

Wednesday, July 24, 2019 9:45 AM (15 minutes)

Session Classification: Plenary

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

Machine Learning for Gravitational Waves search

Wednesday, July 17, 2019 9:00 AM (1 hour)

Presenter: CUOCO, Elena (European Gravitational Observatory)

Session Classification: Plenary

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

Examples and tutorial on ML for Gravitational Waves

Wednesday, July 17, 2019 10:00 AM (2h 30m)

Primary author: MORAWSKI, Filip

Co-author: CUOCO, Elena (European Gravitational Observatory)

Presenters: MORAWSKI, Filip; CUOCO, Elena (European Gravitational Observatory)

Session Classification: Real-time machine learning

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

Efficiently exploit multicore architecture - the LHCb experience

Monday, July 15, 2019 2:00 PM (30 minutes)

Presenter: PONCE, Sebastien (CERN)

Session Classification: Plenary

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

Conceptual Overview of ML for real-time analysis

Tuesday, July 16, 2019 9:00 AM (50 minutes)

Presenter: SCHRAMM, Steven (Universite de Geneve (CH))

Session Classification: Plenary

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

Optic-based ML with LightOn.ai

Friday, July 19, 2019 9:00 AM (1 hour)

Presenter: Prof. DAUDET, Laurent

Session Classification: Plenary

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

Cross-architecture Kalman Filter Investigations

Thursday, July 18, 2019 9:00 AM (30 minutes)

Presenter: Prof. IVAN, Kisel

Session Classification: Plenary

Contribution ID: **18** Type: **not specified**

Discussion

Thursday, July 18, 2019 9:30 AM (30 minutes)

Session Classification: Plenary

Contribution ID: **19** Type: **not specified**

Deep learning on FPGA tutorial

Tuesday, July 16, 2019 10:00 AM (2h 30m)

Presenter: DUARTE, Javier Mauricio (Fermi National Accelerator Lab. (US))

Session Classification: Real-time machine learning

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

Deep learning on FPGA tutorial

Tuesday, July 16, 2019 2:00 PM (3 hours)

Presenter: DUARTE, Javier Mauricio (Fermi National Accelerator Lab. (US))

Session Classification: Real-time machine learning

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

Introduction to the Institut Pascal

Monday, July 15, 2019 10:30 AM (10 minutes)

Presenter: Prof. ULLMO, Denis

Session Classification: Plenary

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

Introduction to the real-time analysis workshop

Monday, July 15, 2019 10:40 AM (20 minutes)

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

Session Classification: Plenary

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

Discussion on selective persistency / partial event building (joint with HEP Software Foundation)

Wednesday, July 17, 2019 4:00 PM (1 hour)

The Real-time analysis workshop in the Institute Pascal "Learning To Discover" series (https://www.universite-paris-saclay.fr/fr/real-time-workshop) will have a discussion on what LHCb calls "selective persistence" (and others call "partial event reconstruction/building").

The idea is that if one doesn't need the entire event, they can choose what additional objects (primary vertices, secondary vertices, tracks, calorimeter information…) to keep within the event. This allows for a middle ground between the full event and only the triggered objects.

This is an informal discussion (no talks but rather a series of discussion points) and there is a Vidyo connection for remote participation.

Agenda: https://indico.cern.ch/event/835074/

Session Classification: Partial event building and persistency

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

Heterogenous computing with GPUs

Monday, July 15, 2019 2:30 PM (30 minutes)

Presenter: VOM BRUCH, Dorothea (LPNHE Paris, CNRS)

Session Classification: Plenary

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

Heterogeneous computing hands on session

Monday, July 15, 2019 3:10 PM (2h 50m)

Presenters: VOM BRUCH, Dorothea (LPNHE Paris, CNRS); PANTALEO, Felice (CERN); PONCE, Sebastien (CERN)

Session Classification: Efficient use of modern CPU architectures, vectorization, and cross-architecture real-time programming

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

Participant introductions

Monday, July 15, 2019 11:00 AM (1 hour)

Session Classification: Plenary

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

Selective persistency / partial event building in different experiments

Wednesday, July 17, 2019 11:00 AM (1h 30m)

This session will be used to understand the various needs of non-LHC experiments and work towards a “common language”.

Session Classification: Partial event building and persistency

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

Tracking challenge

Presenter: COBBLEDICK, John Leslie (University of Manchester (GB))

Session Classification: Plenary

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

Velo Tracking Challenge

Tuesday, July 16, 2019 9:50 AM (10 minutes)

Presenters: COBBLEDICK, John Leslie (University of Manchester (GB)); TANEJA, Shantam (University of Manchester (GB))

Session Classification: Plenary

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

track 4 roundtable

Monday, July 15, 2019 3:00 PM (10 minutes)

Presenter: PANTALEO, Felice (CERN)

Session Classification: Efficient use of modern CPU architectures, vectorization, and cross-architecture real-time programming

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

Allen introduction

Presenter: VOM BRUCH, Dorothea (LPNHE Paris, CNRS)

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

Heterogeneous computing hands on session

Wednesday, July 17, 2019 2:30 PM (2h 30m)

Presenters: VOM BRUCH, Dorothea (LPNHE Paris, CNRS); PANTALEO, Felice (CERN); PONCE, Sebastien (CERN)

Session Classification: Efficient use of modern CPU architectures, vectorization, and cross-architecture real-time programming

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

Allen introduction

Wednesday, July 17, 2019 2:00 PM (30 minutes)

Presenter: VOM BRUCH, Dorothea (LPNHE Paris, CNRS)

Session Classification: Efficient use of modern CPU architectures, vectorization, and cross-architecture real-time programming

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

Learning a real-time calibration for the CMS calorimeter

Wednesday, July 17, 2019 2:00 PM (3 hours)

Session Classification: Real-time alignment and calibration

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

Autoencoders for Jet Physics

Thursday, July 18, 2019 10:00 AM (50 minutes)

Presenters: PIERINI, Maurizio (CERN); NGUYEN, Thong (California Institute of Technology (US))

Session Classification: Real-time machine learning

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

C++ Course

Friday, July 19, 2019 10:00 AM (2h 30m)

Presenter: PONCE, Sebastien (CERN)

Session Classification: Efficient use of modern CPU architectures, vectorization, and cross-architecture real-time programming

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

Summary of various tracks

Friday, July 19, 2019 3:30 PM (1 hour)

Presenters: HABIG, Alec; HABIG, Alec Thomas (University of Minnesota (US)); DOGLIONI, Caterina (Lund University (SE)); FITZPATRICK, Conor (CERN); TOLLEY, Emma Elizabeth (Ohio State University (US)); PANTALEO, Felice (CERN); COELHO, Joao (LAL); PIERINI, Maurizio (CERN); PONCE, Sebastien (CERN); NGUYEN, Thong (California Institute of Technology (US)); KALDERON, William (Lund University (SE))

Session Classification: Plenary

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

WP3 meeting

Tuesday, July 23, 2019 10:00 AM (1 hour)

Session Classification: Plenary

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

Selections in Run 3

Monday, July 22, 2019 2:00 PM (30 minutes)

Session Classification: Plenary