

CERN School of Computing 2015

Report of Contributions

Contribution ID : 1

Type : **not specified**

Introduction to Physics Computing L1

Monday, 14 September 2015 11:15 (60)

Summary

Presenter(s) : QUADT, Arnulf (Georg-August-Universitaet Goettingen (DE))

Session Classification : Physics Computing

Contribution ID : 2

Type : **not specified**

Tools and Techniques L1

Monday, 14 September 2015 13:45 (60)

Summary

Presenter(s) : JACOBSEN, Robert (Lawrence Berkeley National Lab. (US))

Session Classification : Physics Computing

Contribution ID : 3

Type : **not specified**

Tools and Techniques L2

Monday, 14 September 2015 14:45 (60)

Summary

Presenter(s) : JACOBSEN, Robert (Lawrence Berkeley National Lab. (US))

Session Classification : Physics Computing

Contribution ID : 4

Type : **not specified**

Tools and Techniques E1

Monday, 14 September 2015 16:15 (60)

Summary

Presenter(s) : JACOBSEN, Robert (Lawrence Berkeley National Lab. (US))

Session Classification : Physics Computing

Contribution ID : 5

Type : **not specified**

Tools and Techniques E2

Monday, 14 September 2015 17:15 (60)

Summary

Presenter(s) : JACOBSEN, Robert (Lawrence Berkeley National Lab. (US))

Session Classification : Physics Computing

Contribution ID : 6

Type : **not specified**

Tools and Techniques E3

Monday, 14 September 2015 18:15 (60)

Summary

Presenter(s) : JACOBSEN, Robert (Lawrence Berkeley National Lab. (US))

Session Classification : Physics Computing

Contribution ID : 7

Type : **not specified**

Introduction to Physics Computing L2

Tuesday, 15 September 2015 08:45 (60)

Summary

Presenter(s) : QUADT, Arnulf (Georg-August-Universitaet Goettingen (DE))

Session Classification : Physics Computing

Contribution ID : 8

Type : **not specified**

Computer Architecture & Performance Tuning L1

Tuesday, 15 September 2015 09:45 (60)

Summary

Presenter(s) : NOWAK, Andrzej (CERN)

Session Classification : Base Technologies

Contribution ID : 9

Type : **not specified**

Computer Architecture & Performance Tuning L2

Tuesday, 15 September 2015 11:30 (60)

Summary

Presenter(s) : NOWAK, Andrzej (CERN)

Session Classification : Base Technologies

Contribution ID : **10**

Type : **not specified**

E4

Tuesday, 15 September 2015 13:45 (60)

Summary

Presenter(s) : JACOBSEN, Robert (Lawrence Berkeley National Lab. (US))

Session Classification : Physics Computing

Contribution ID : 11

Type : **not specified**

E5

Tuesday, 15 September 2015 14:45 (55)

Summary

Presenter(s) : JACOBSEN, Robert (Lawrence Berkeley National Lab. (US))

Session Classification : Physics Computing

Contribution ID : **12**

Type : **not specified**

E6

Tuesday, 15 September 2015 16:15 (60)

Summary

Presenter(s) : JACOBSEN, Robert (Lawrence Berkeley National Lab. (US))

Session Classification : Physics Computing

Contribution ID : 14

Type : **not specified**

Software Design in Many-Cores era E3

Monday, 21 September 2015 13:45 (60)

Summary

Presenter(s) : HEGNER, Benedikt (CERN); PIPARO, Danilo (CERN)

Session Classification : Base Technologies

Contribution ID : 15

Type : **not specified**

Secure Software L1

Wednesday, 16 September 2015 08:45 (60)

Summary

Presenter(s) : LOPIENSKI, Sebastian (CERN)

Session Classification : Base Technologies

Contribution ID : 16

Type : **not specified**

Secure Software L2

Wednesday, 16 September 2015 09:45 (60)

Summary

Presenter(s) : LOPIENSKI, Sebastian (CERN)

Session Classification : Base Technologies

Contribution ID : 17

Type : **not specified**

Secure Software E1

Wednesday, 16 September 2015 13:45 (60)

Summary

Presenter(s) : LO PRESTI, Giuseppe (CERN); LOPIENSKI, Sebastian (CERN)

Session Classification : Base Technologies

Contribution ID : **18**

Type : **not specified**

Secure Software E2

Wednesday, 16 September 2015 14:45 (60)

Summary

Presenter(s) : LO PRESTI, Giuseppe (CERN); LOPIENSKI, Sebastian (CERN)

Session Classification : Base Technologies

Contribution ID : **19**

Type : **not specified**

Secure Software E3

Wednesday, 16 September 2015 16:15 (60)

Summary

Presenter(s) : LOPIENSKI, Sebastian (CERN)

Session Classification : Base Technologies

Contribution ID : **20**

Type : **not specified**

Software Design in Many-Cores era L1

Thursday, 17 September 2015 08:45 (60)

Summary

Presenter(s) : HEGNER, Benedikt (CERN); PIPARO, Danilo (CERN)

Session Classification : Base Technologies

Contribution ID : 21

Type : **not specified**

Software Design in Many-Cores era L2

Thursday, 17 September 2015 09:45 (60)

Summary

Presenter(s) : HEGNER, Benedikt (CERN); PIPARO, Danilo (CERN)

Session Classification : Base Technologies

Contribution ID : **22**

Type : **not specified**

Secure Software L3

Thursday, 17 September 2015 11:30 (60)

Summary

Presenter(s) : LOPIENSKI, Sebastian (CERN)

Session Classification : Base Technologies

Contribution ID : 23

Type : **not specified**

Software Design in Many-Cores era L3

Friday, 18 September 2015 08:45 (60)

Summary

Presenter(s) : HEGNER, Benedikt (CERN); PIPARO, Danilo (CERN)

Session Classification : Base Technologies

Contribution ID : 24

Type : **not specified**

Software Design in Many-Cores era L4

Friday, 18 September 2015 09:45 (60)

Summary

Presenter(s) : HEGNER, Benedikt (CERN); PIPARO, Danilo (CERN)

Session Classification : Base Technologies

Contribution ID : 25

Type : **not specified**

Software Design in Many-Cores era E1

Friday, 18 September 2015 11:30 (60)

Summary

Presenter(s) : HEGNER, Benedikt (CERN); PIPARO, Danilo (CERN)

Session Classification : Base Technologies

Contribution ID : 26

Type : **not specified**

Software Design in Many-Cores era E2

Friday, 18 September 2015 13:45 (60)

Summary

Presenter(s) : HEGNER, Benedikt (CERN); PIPARO, Danilo (CERN)

Session Classification : Base Technologies

Contribution ID : 27

Type : **not specified**

Computer Architecture & Performance Tuning E2

Friday, 18 September 2015 14:45 (60)

Summary

Presenter(s) : NOWAK, Andrzej (CERN)

Session Classification : Base Technologies

Contribution ID : 28

Type : **not specified**

Computer Architecture & Performance Tuning E3

Friday, 18 September 2015 16:15 (60)

Summary

Presenter(s) : NOWAK, Andrzej (CERN)

Session Classification : Base Technologies

Contribution ID : 29

Type : **not specified**

Data Analysis L1

Saturday, 19 September 2015 08:45 (60)

Summary

Presenter(s) : PULJAK, Ivica (University of Split. Fac.of Elect. Eng., Mech. Eng. and Nav.Arc)

Session Classification : Physics Computing

Contribution ID : **30**

Type : **not specified**

Data Analysis L2

Saturday, 19 September 2015 09:45 (60)

Summary

Presenter(s) : PULJAK, Ivica (University of Split. Fac.of Elect. Eng., Mech. Eng. and Nav.Arc)

Session Classification : Physics Computing

Contribution ID : 31

Type : **not specified**

Data Analysis L3

Saturday, 19 September 2015 11:30 (60)

Summary

Presenter(s) : PULJAK, Ivica (University of Split. Fac.of Elect. Eng., Mech. Eng. and Nav.Arc)

Session Classification : Physics Computing

Contribution ID : **32**

Type : **not specified**

Data Technologies L1

Monday, 21 September 2015 08:45 (60)

Summary

Presenter(s) : PACE, Alberto (CERN)

Session Classification : Data Technologies

Contribution ID : **33**

Type : **not specified**

Data Technologies L2

Monday, 21 September 2015 09:45 (60)

Summary

Presenter(s) : PACE, Alberto (CERN)

Session Classification : Data Technologies

Contribution ID : 35

Type : **not specified**

Networking Performance L1

Monday, 21 September 2015 11:30 (60)

Summary

Presenter(s) : Mr FLUCKIGER, Francois (CERN)

Session Classification : Base Technologies

Contribution ID : 36

Type : **not specified**

Data Analysis E2

Tuesday, 22 September 2015 13:45 (60)

Summary

Presenter(s) : RADBURN-SMITH, Benjamin (Purdue University (US)); PULJAK, Ivica (University of Split. Fac.of Elect. Eng., Mech. Eng. and Nav.Arc)

Session Classification : Physics Computing

Contribution ID : 37

Type : **not specified**

Data Analysis E1

Monday, 21 September 2015 14:45 (60)

Summary

Presenter(s) : RADBURN-SMITH, Benjamin (Purdue University (US)); PULJAK, Ivica (University of Split. Fac.of Elect. Eng., Mech. Eng. and Nav.Arc)

Session Classification : Physics Computing

Contribution ID : **38**

Type : **not specified**

Data Analysis L4

Monday, 21 September 2015 16:15 (60)

Summary

Presenter(s) : PULJAK, Ivica (University of Split. Fac.of Elect. Eng., Mech. Eng. and Nav.Arc)

Session Classification : Physics Computing

Contribution ID : **39**

Type : **not specified**

Data Technologies L3

Tuesday, 22 September 2015 08:45 (60)

Summary

Presenter(s) : PACE, Alberto (CERN)

Session Classification : Data Technologies

Contribution ID : **40**

Type : **not specified**

Data Technologies L4

Tuesday, 22 September 2015 09:45 (60)

Summary

Presenter(s) : PACE, Alberto (CERN)

Session Classification : Data Technologies

Contribution ID : 41

Type : **not specified**

Networking Performance L2

Tuesday, 22 September 2015 11:30 (60)

Summary

Presenter(s) : Mr FLUCKIGER, Francois (CERN)

Session Classification : Base Technologies

Contribution ID : 42

Type : **not specified**

Data Technologies E1

Tuesday, 22 September 2015 14:45 (60)

Summary

Presenter(s) : PACE, Alberto (CERN); Mr PETERS, Andreas Joachim (CERN)

Session Classification : Data Technologies

Contribution ID : 43

Type : **not specified**

Data Technologies E2

Tuesday, 22 September 2015 16:15 (60)

Summary

Presenter(s) : PACE, Alberto (CERN); Mr PETERS, Andreas Joachim (CERN)

Session Classification : Data Technologies

Contribution ID : 44

Type : **not specified**

Data Technologies E5

Thursday, 24 September 2015 11:30 (60)

Summary

Presenter(s) : PACE, Alberto (CERN); Mr PETERS, Andreas Joachim (CERN)

Session Classification : Data Technologies

Contribution ID : 45

Type : **not specified**

Data Analysis L5

Wednesday, 23 September 2015 08:45 (60)

Summary

Presenter(s) : PULJAK, Ivica (University of Split. Fac.of Elect. Eng., Mech. Eng. and Nav.Arc)

Session Classification : Physics Computing

Contribution ID : 46

Type : **not specified**

Multivariate Visualisation L1

Wednesday, 23 September 2015 09:45 (60)

Summary

Presenter(s) : RADBURN-SMITH, Benjamin (Purdue University (US))

Session Classification : Physics Computing

Contribution ID : 47

Type : **not specified**

Data Technologies L5

Wednesday, 23 September 2015 11:30 (60)

Summary

Presenter(s) : PACE, Alberto (CERN)

Session Classification : Data Technologies

Contribution ID : 48

Type : **not specified**

Data Analysis E3

Wednesday, 23 September 2015 13:30 (60)

Summary

Presenter(s) : PULJAK, Ivica (University of Split. Fac.of Elect. Eng., Mech. Eng. and Nav.Arc)

Session Classification : Physics Computing

Contribution ID : 49

Type : **not specified**

Data Technologies E3

Thursday, 24 September 2015 08:45 (60)

Summary

Presenter(s) : PACE, Alberto (CERN); Mr PETERS, Andreas Joachim (CERN)

Session Classification : Data Technologies

Contribution ID : **50**

Type : **not specified**

Data Technologies E4

Thursday, 24 September 2015 09:45 (60)

Summary

Presenter(s) : PACE, Alberto (CERN); Mr PETERS, Andreas Joachim (CERN)

Session Classification : Data Technologies

Contribution ID : 51

Type : **not specified**

Data Analysis E5

Thursday, 24 September 2015 14:30 (60)

Summary

Presenter(s) : RADBURN-SMITH, Benjamin (Purdue University (US)); PULJAK, Ivica (University of Split. Fac.of Elect. Eng., Mech. Eng. and Nav.Arc)

Session Classification : Physics Computing

Contribution ID : 52

Type : **not specified**

Data Analysis E4

Thursday, 24 September 2015 13:30 (60)

Summary

Presenter(s) : RADBURN-SMITH, Benjamin (Purdue University (US)); PULJAK, Ivica (University of Split. Fac.of Elect. Eng., Mech. Eng. and Nav.Arc)

Session Classification : Physics Computing

Contribution ID : 53

Type : **not specified**

Computer Architecture & Performance Tuning E1

Wednesday, 16 September 2015 11:30 (60)

Summary

Presenter(s) : NOWAK, Andrzej

Session Classification : Base Technologies

Contribution ID : 54

Type : **not specified**

Opening Ceremony (Part 1)

Monday, 14 September 2015 08:45 (60)

Prof. D. Bandekas - Vice-President of TEI AMΘ (5')

Prof. A. Mitropoulos - President of EMATTECH (5')

Mr. T. Markopoulos - Vice-Governor of EMTH (5')

Ms D. Tsanaka - Mayor of Kavala - (5')

Mr. P. Soukoulis - President of Innovation Committee of EMTH (10')

Prof Samaras Stavros - President of the Union of Greek Physicists (10')

Prof. L. Magafas - President of Organisation Committee (15')

Summary

Contribution ID : 55

Type : **not specified**

Opening Ceremony (part 2)

Monday, 14 September 2015 09:45 (60)

Dr. F. Hemmer - CERN IT Department Head

Introduction to CERN and upcoming challenges in scientific computing (20')

Prof. E. Gazis - Professor of Particle Physics at CERN

CERN and Greece, a long standing collaboration (20')

Mr. A. Pace - CSC director

The CERN School of Computing (20')

Summary

Primary author(s): PACE, Alberto (CERN); GAZIS, Evangelos (National Technical Univ. of Athens (GR)); HEMMER, Frederic (CERN)

Contribution ID : 56

Type : **not specified**

Introduction to the CERN School of Computing

Summary

Presenter(s) : PACE, Alberto (CERN)

Contribution ID : 57

Type : **not specified**

Closing session

Summary

Contribution ID : 58

Type : **not specified**

Introduction

Friday, 25 September 2015 13:30 (5)

Summary

Presenter(s) : PACE, Alberto (CERN)

Session Classification : Closing session

Contribution ID : 59

Type : **not specified**

Linear Accelerators, Principle of Operation

Friday, 25 September 2015 14:20 (25)

Summary

Presenter(s) : GAZIS, Evangelos (National Technical Univ. of Athens (GR))

Session Classification : Closing session

Contribution ID : **60**

Type : **not specified**

Collider Physics from the LHC upgrades to Future Collider: Physics, Technology and Computing

Friday, 25 September 2015 13:35 (45)

Summary

Presenter(s) : Mr BATTAGLIA

Session Classification : Closing session

Contribution ID : 61

Type : **not specified**

Graduation ceremony

Friday, 25 September 2015 15:40 (50)

Summary

Session Classification : Closing session

Contribution ID : **62**

Type : **not specified**

Closing

Friday, 25 September 2015 16:30 (45)

Summary

Session Classification : Closing session

Contribution ID : 63

Type : **not specified**

What is EconoPhysics

Friday, 25 September 2015 14:45 (25)

Summary

Presenter(s) : Prof. MAGAFAS, Lykourgos (Eastern Macedonia and Thrace Institute of Technology)

Session Classification : Closing session

Contribution ID : 64

Type : **not specified**

Presentations by students

Summary

Contribution ID : 65

Type : **not specified**

Presentation by students

Summary

Contribution ID : 66

Type : **not specified**

Blindstore, a Private Information Retrieval database

Friday, 25 September 2015 09:45 (10)

Blindstore is a database that ensures confidentiality of information retrieval. I'll cover what Private Information Retrieval is, how it is different from current privacy schemes and how the magic happens.

Summary

Presenter(s) : AVILES DEL MORAL, Alejandro

Session Classification : Presentations by students

Contribution ID : 67

Type : **not specified**

Towards the 2nd Generation Accelerator Transient Data Analysis Framework

Friday, 25 September 2015 10:00 (10)

During the last two years, CERNs Large Hadron Collider (LHC) and most of its equipment systems were upgraded to collide particles at an energy level twice higher compared to previous operational limits. System upgrades and the increased machine energy pose new challenges for the analysis of transient data recordings, which have to be both dependable and fast. With the LHC having operated for many years already, statistical and trend analysis across the collected data sets is a growing requirement, highlighting several constraints and limitations imposed by the current software and data storage ecosystem. Based on several analysis use-cases, this paper highlights the most important aspects and ideas towards an improved, 2nd generation data analysis framework to serve a large variety of equipment experts and operation crews in their daily work.

Summary

Presenter(s) : BOYCHENKO, Serhiy (Universidade de Coimbra (PT))

Session Classification : Presentations by students

Contribution ID : 68

Type : **not specified**

Achieving dependable software through Continuous Delivery and Quality Monitoring

Friday, 25 September 2015 10:15 (10)

During the short presentation i would like to highlight the importance of Continuous Delivery processes which facilitate software development. As i have only 5-10 minutes, it will have a form of a simple story from software developer life. Official abstract for “1st developers @ CERN”: The TE-MPE-MS Software team is a small group of people responsible for developing software for machine protection. Main projects include mostly software for the equipment supervision and testing. The usage of the Scrum methodology involves getting clients’ feedback as soon as possible which pushed the requirement to integrate all the time and deliver software in small chunks. To meet these requirements the team successfully implemented Continuous Integration and Delivery processes using multiple open source and proprietary products including: Gradle, Flyway, JUnit+Mockito, SonarQube and Bamboo. The idea for the presentation is to present our implementation of the CI/CD paradigms and explain on real live examples advantages and drawbacks of the current solution. During the presentation we will try to cover all the required steps which should automatically triggered by a developer’s commit. The presentation should give users a good hands-on experience on basic CI/CD principles and allow them to design and implement simple software delivery platform.

Summary

Presenter(s) : KROL, Kamil Henryk (CERN)

Session Classification : Presentations by students

Contribution ID : 69

Type : **not specified**

Density-based Outlier Detection

Friday, 25 September 2015 10:30 (10)

Often we have a dataset where most of the data is produced by a known mechanism (or several mechanisms) which we understand, but some data is produced by a different process. In such cases we can consider the known processes as background to detect the signal. However, what about the case where we do not have knowledge about the underlying processes, but want to detect which part of our dataset is unusual or anomalous? One method that can be used in this case is density-based outlier detection, where each data point is considered in relation to its local neighbourhood.

Summary

Presenter(s) : DAVIS, Michael (CERN)

Session Classification : Presentations by students

Contribution ID : **70**

Type : **not specified**

Socket Programming

Friday, 25 September 2015 11:30 (10)

Overview of issues, debugging, performance and tuning in applications using sockets.

Summary

Presenter(s) : WEGRZYNEK, Adam Tadeusz (Warsaw University of Technology (PL))

Session Classification : Presentations by students

Contribution ID : 71

Type : **not specified**

Searches for charged Higgs bosons in the CMS experiment

Friday, 25 September 2015 11:40 (10)

The search methods, latest results and future prospects in the search for electrically charged Higgs bosons in the CMS Experiment are shortly presented.

Summary

Presenter(s) : LAURILA, Santeri Henrikki (Helsinki Institute of Physics (FI))

Session Classification : Presentations by students

Contribution ID : 72

Type : **not specified**

Applications of Timepix detectors

Friday, 25 September 2015 11:50 (10)

Timepix is a hybrid pixel semiconductor detector of the Medipix family, derived from the pixel detector developments at CERN and originally designed for X-ray imaging. This presentation makes an illustrative look at the current applications of these detector from medicine to outer space, and back to particle physics' experiments.

Summary

Presenter(s) : CAICEDO SIERRA, Ivan Dario (Czech Technical University (CZ))

Session Classification : Presentations by students

Contribution ID : 73

Type : **not specified**

A proposal for a C++ framework for writing highly-readable code with automatic multi-level paralelism

Friday, 25 September 2015 12:00 (10)

Using C++ template metaprogramming and assumptions about typical workloads in plasma physics computing, a framework is proposed to facilitate writing massively parallel programs in C++ in such a way, that the code written by the user closely resembles whatever would be seen in a paper, while the framework effectively hides the implementation details of the parallelization structures. The ideas are demonstrated on a proof-of-concept Particle-in-Cell code used for simulations of interactions of high power ultrashort laser pulses with plasmas.

Summary

Presenter(s) : VYSKOČIL, Jiří (Czech Technical University in Prague)

Session Classification : Presentations by students

Contribution ID : 74

Type : **not specified**

From Community Detection to Emergence

Friday, 25 September 2015 12:10 (10)

We are going to have a small trip through the simple ideas of finding patterns in graphs, what a community means, define complex systems and then wonder ourselves on what emergence means for us.

Summary

Presenter(s) : ANDRONIDIS, Anastasios (University of Ioannina (GR))

Session Classification : Presentations by students