HEP Software Foundation Workshop

Monday, 2 May 2016 - Wednesday, 4 May 2016

LAL

Book of Abstracts

Contents

HSF Status . . . 1

Feedback from the Experiments . . . 1

SW Packaging: Spack Introduction and Coding Sprint . . . 1

Knowledge Base and Training: Bootstrapping Information Gathering . . . 1

Machine Learning . . . 1

Concurrency and New Architectures . . . 1

Project Incubator . . . 2

Licensing . . . 2

New Initiatives . . . 2

Wrap-Up . . . 2

Mini-Workshop/Hackaton Summaries . . . 2

Test . . . 2

Bioconductor: Open software for Bioinformatics . . . 3

Future Conditions DB . . . 3

AIDA2020 WP3 . . . 3

Introduction . . . 3

Report from openLab ML workshop . . . 3

TMVA, Root-R, Root SciKit-learn . . . 3

Experience with Theano/Keras . . . 3

Everware and yandex' rep . . . 4

Codalab, a challenge platform on MS Azure . . . 4

Challenges and beyond, RAMP (ML oriented hackathon platform) . . . 4

Open Data . . . 4

Open Sim : ACTS, A Common Tracking Software 4
Interexperiment Machine Learning group and HSF 4
Netherlands eScience Center 4
Community White Paper: a roadmap for the HSF? 5
DIANA/HEP 5
Depsy 5
Knowledge Base 5
WikiToLearn 5
Community Roadmap 5
Machine Learning Hackathon (RAMP) on Anomaly Detection 6
Deep Learning Implications for HEP Software & Computing 6
Challenges and beyond, RAMP (ML oriented hackathon platform) 6
Codalab, a challenge platform on MS Azure 6
Anomaly Detection : setting the stage 6
Anomaly Detection : hands on 7
Panel discussion 7
ATLAS 7
ALICE 7
CMS 7
LHCb 7
Root 8
Astro 8
Geant 8
Art/LArSoft 8
Introduction 8
Introduction 8
HSF Project Discussion Session 9

HSF Status / 0

HSF Status

Corresponding Author: pere.mato@cern.ch

Achievements since SLAC workshop

Summary:

1

Feedback from the Experiments

2

SW Packaging: Spack Introduction and Coding Sprint

Corresponding Authors: benedikt.hegner@cern.ch, sexton@fnal.gov

Spack has received an extremely enthusiastic reception in the HSF packaging group that has looked at 8 or so packaging systems over close to a year of meetings and studies. Spack accordingly could be a useful target for educating the community and bootstrapping tools around it in a focused session and coding sprint.

3

Knowledge Base and Training: Bootstrapping Information Gathering

Corresponding Authors: wenaus@gmail.com, dario.livio.menasce@cern.ch

After an intro/tutorial, in real time gather knowledge base and training content and populate hep-software.org knowledge base, and WikiToLearn training/tutorial site.

4

Machine Learning

Corresponding Author: rousseau@lal.in2p3.fr

5

Concurrency and New Architectures

6

Project Incubator

Discussion with projects on next step for the HSF project incubator

7

Licensing

Discussion around licensing after the release of the Technical Note first version: uncovered use cases, projects with concrete issues…

HSF Next Steps / 8

New Initiatives

Follow-up on workshop discussions/plans, community roadmap, SW&C journal…

Summary:

HSF Next Steps / 9

Wrap-Up

Summary:

Meeting at CHEP?

10

Mini-Workshop/Hackaton Summaries

11

Test

Learning from Other Communities / **12**

Bioconductor: Open software for Bioinformatics

News from Projects / **13**

Future Conditions DB

Corresponding Author: andrea.formica@cern.ch

News from Projects / **14**

AIDA2020 WP3

Corresponding Author: frank-dieter.gaede@cern.ch

Machine Learning / **16**

Introduction

Corresponding Authors: rousseau@lal.in2p3.fr, jean-roch.vlimant@cern.ch

Machine Learning / **17**

Report from openLab ML workshop

Corresponding Author: maria.girone@cern.ch

Machine Learning / **18**

TMVA, Root-R, Root SciKit-learn

Corresponding Author: lorenzo.moneta@cern.ch

Machine Learning / **19**

Experience with Theano/Keras

Corresponding Author: michela.paganini@cern.ch

Machine Learning / **20**

Everware and yandex' rep

Corresponding Author: andrey.ustyuzhanin@cern.ch

21

Codalab, a challenge platform on MS Azure

Corresponding Author: guyon@clopinet.com

22

Challenges and beyond, RAMP (ML oriented hackathon platform)

Corresponding Author: balazs.kegl@gmail.com

Machine Learning / **23**

Open Data

Corresponding Author: katri.lassila-perini@cern.ch

Machine Learning / **24**

Open Sim : ACTS, A Common Tracking Software

Corresponding Author: andreas.salzburger@cern.ch

Machine Learning / **25**

Interexperiment Machine Learning group and HSF

Corresponding Authors: steven.schramm@cern.ch, sergei.gleyzer@cern.ch, thead@fnal.gov, michele.floris@cern.ch

Summary:

Learning from Other Communities / **26**

Netherlands eScience Center

Corresponding Author: danielar@nikhef.nl

Summary:

HSF Status / **27**

Community White Paper: a roadmap for the HSF?

Corresponding Author: peter.elmer@cern.ch

News from Projects / **28**

DIANA/HEP

Corresponding Author: peter.elmer@cern.ch

Learning from Other Communities / **29**

Depsy

Author: Jason Priem[1]

[1] *Impactstory*

Corresponding Author: jason@impactstory.org

Summary:

News from Projects / **30**

Knowledge Base

Corresponding Author: wenaus@gmail.com

News from Projects / **31**

WikiToLearn

Corresponding Author: riccardo.iaconelli@cern.ch

HSF Next Steps / **32**

Community Roadmap

Discuss possibility and contents of a community roadmap reflecting our computing challenges and that could be used as a reference by projects and in discussion with Funding Agencies

33

Machine Learning Hackathon (RAMP) on Anomaly Detection

Corresponding Authors: rousseau@lal.in2p3.fr, balazs.kegl@gmail.com, jean-roch.vlimant@cern.ch

Summary:

Suppose you have two datasets which are supposed to be identical. For example MC production v1, MC production v2; data of yesterday, data of today. How to detect differences ? This is done typically by comparing rates, or manually defined histograms. How to do this in an automatized, Machine Learning way ? The objective will be to detect differences between two datasets, identical except for introduced manipulations. The RAMP platform allows participants to collaborate to achieve this goal.

Machine Learning / **34**

Deep Learning Implications for HEP Software & Computing

Corresponding Author: amir.farbin@cern.ch

RAMP / **35**

Challenges and beyond, RAMP (ML oriented hackathon platform)

Corresponding Author: balazs.kegl@gmail.com

RAMP / **36**

Codalab, a challenge platform on MS Azure

Corresponding Author: guyon@clopinet.com

RAMP / **37**

Anomaly Detection : setting the stage

Summary:

RAMP / **38**

Anomaly Detection : hands on

Software Performance / **39**

Panel discussion

Mail goal is to organize ourselves around activity areas with proto-working groups in these activity areas, with an early objective for these working groups to organize sessions at a follow-on dedicated (and more hands-on than this session can be) software concurrency/performance workshop in a few months.

Summary:

Software Performance / **40**

ATLAS

Corresponding Author: graeme.andrew.stewart@cern.ch

Summary:

Software Performance / **41**

ALICE

Corresponding Author: drohr@jwdt.org

Summary:

Software Performance / **42**

CMS

Corresponding Author: david.lange@cern.ch

Summary:

Software Performance / **43**

LHCb

Software Performance / **44**

Root

Corresponding Author: pere.mato@cern.ch

Summary:

Software Performance / **45**

Astro

Corresponding Author: olivier.iffrig@cea.fr

Summary:

Software Performance / **46**

Geant

Corresponding Author: john.apostolakis@cern.ch

Summary:

Software Performance / **47**

Art/LArSoft

Corresponding Authors: jbk@fnal.gov, marc.paterno@cern.ch, paterno@fnal.gov

Summary:

Packaging / **48**

Introduction

Corresponding Author: gartung@fnal.gov

49

Introduction

Project Support in HSF / 50

HSF Project Discussion Session

Corresponding Author: benedikt.hegner@cern.ch