Introduction to Machine Learning
CWP-WG and Charge

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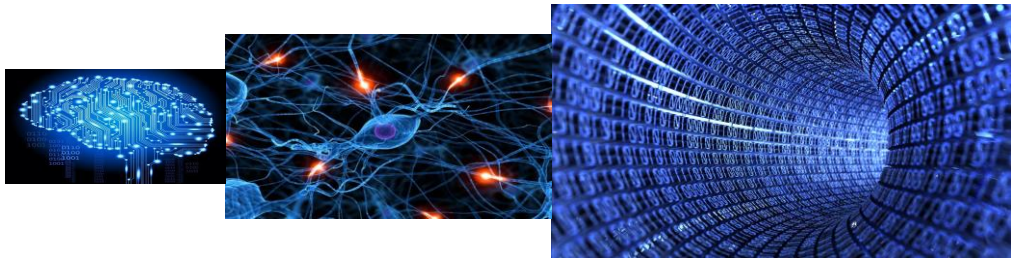

HEP Software Foundation Workshop

January 25, 2017

CWP

- HSF CWP Webpage
- HSF CWP-ML Google group
- HSF CWP-ML Google doc

Today's Goals

- Go over the charge
- Look at existing sections
- Think of questions to add
- Discuss roadmap to possible answers
  - Remember that this is for 5-10 years in the future

CWP-ML Timeline

- **Time-scale:**
  - six months
- **Part I:**
  - today
- **Part II:**
  - during IML topical workshop in CERN, March 20-22, 2017

WG Charge

Scope: Machine Learning algorithms play an important role in many facets of today's HEP data analysis, data-processing and detector applications. Machine-learning tools already form an important part of HEP software. To overcome the challenges related to data-processing and analysis of upcoming very large HEP data-sets, it is important to plan ahead for how HEP machine-learning software and tools develop. **This group will work on both identifying the challenges related to machine-learning software in HEP and proposing possible solutions and a community roadmap towards better HEP-ML software.**

CWP-ML Sections

1. Introduction

- Motivation
- Machine Learning and HEP

CWP-ML Sections

2. ML Software and Tools

- Status
- Software Methodology
- Programming Languages
- I/O
- Parallelization
- Interactivity
- Interfaces to acceleration hardware
- Sustainability

CWP-ML Sections

3. Computing Resources for ML

- Data Storage
- Training
- Application
- Data Availability

Today

- **Groups: Pods A, B, C, D**
- **Morning session:**
  - **Discuss charge and come up with questions**
- **Afternoon session:**
  - **Discuss roadmaps towards the answers**

CWP-ML

Let's begin!