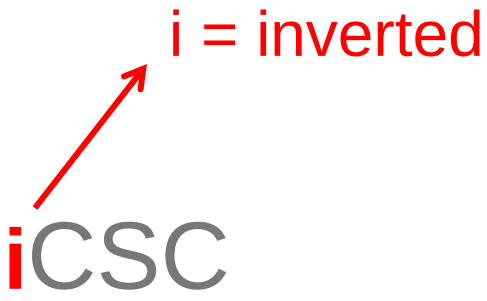
Welcome …

iCSC

Inverted CERN School of Computing, 23-24 February 2015



"Where students turn into teachers"

Involving former CSC participants to deliver advanced education

The CERN School of Computing

- **Aims at creating a common culture in scientific computing among young scientists and engineers involved in particle physics or other sciences, as a strategic direction to favor mobility and to facilitate the development of large computing-oriented transnational projects.**
  - http://cern.ch/csc
- **Participants come from worldwide laboratories and universities with typically of 15 to 30 different nationalities (60 different nationalities over the past 10 years).**
  - http://cern.ch/csc/alumni

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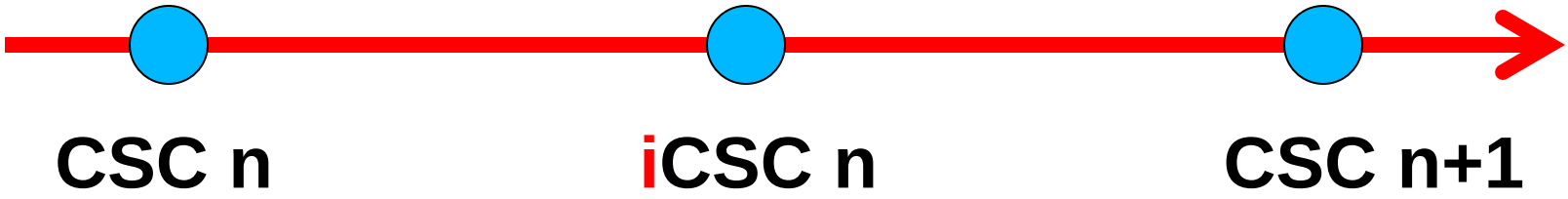
Why an inverted CSC ?

- **At regular CSCs, the sum of the knowledge of the students often exceeds the one of lecturer teaching, and that it is frequent to find in the room real experts on particular topics. This is the idea behind iCSC.**

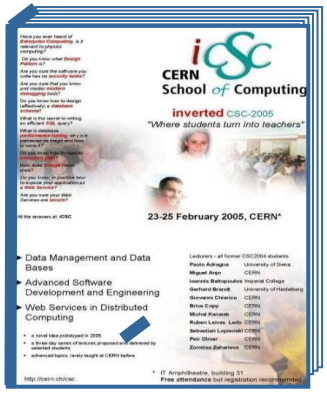
Reversing the roles



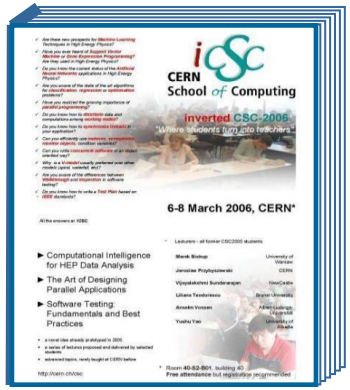
It is the 8th edition in 10 years …

CERN School of Computing

2005



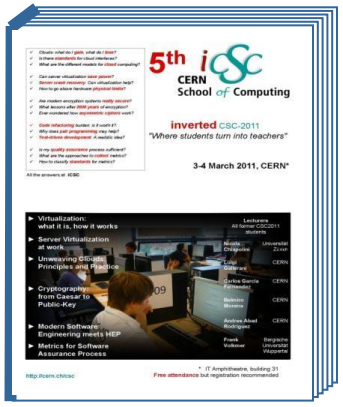
2006



2008

2010

2011



2013

2014

2015

The inverted CSC

- **At the end of each main school, we call students present to make proposals. When we receive sufficient proposals of appropriate quality, we organize an inverted school.**

- **The students combine their skills and elaborate on CSC related subjects.**

Lecturers at the iCSC

- **47 lectures so far … and 5 this year**
- **3 former iCSC lecturers have become lecturers at the main school**
  - (Sebastian – iCSC 2005, Andrzej – iCSC 2008, Benjamin – iCSC2010)
- **This year's speakers are from 4 different institutes:**
  - NIKHEF / RU-Nijmegen – Netherland
  - Frankfurt Institute for Advanced Studies – Germany
  - University of Minho/LIP - Portugal
  - CERN, Switzerland

This year programme

- **Topics**
  - Evolution of processor architectures
  - Exploratory Data Analysis, Clustering and Data Preprocessing
  - Bigger, Faster, High Perfomance, and Message Passing
  - High Performance Computing Across Heterogeneous Systems
  - Simulation of Longitudinal Beam Dynamics
- **Speakers from CSC 2014, Braga**
  - Pawel, Vince, Helvi, André, and Helga





Selection process for lectures

- **Discussion at the main school**
- **Lightning talks at the school**
- **Proposal after the main school**
- **Review by the CSC Advisory committee**
- **Lecture preparation and development with mentors**
  - (2 mentors for each lecturer)
- **Presentation at the school**

TODAY and TOMORROW

This year's mentors

- **Danilo Piparo and Sebastian Lopienski**
  - for Pawel Szostek
- **Ivica Puljak and Benedikt Henger**
  - for Vincent Croft
- **Andreas Peters and Giuseppe Lo Presti**
  - for Helvi Hartmann
- **Andreas Peters and Sebastian Lopienski**
  - for André Pereira
- **Danilo Piparo and Benedikt Henger**
  - for Helga Timko

Booklet

- **A printed booklet is available to all registered participants**
- **Few extra copies are available**

8th iCSC
CERN School of Computing

"Where students turn into teachers"

23-24 February 2015

Lecturers

Vincent CROFT	National Institute for Subatomic Physics (NIKHEF), RU-Nijmegen, Netherland
Helvi HARTMANN	Frankfurt Institute for Advanced Studies, Germany
Andre PEREIRA	LIP-Minho, Braga, Portugal
Pawel SZOSTEK	CERN, Geneva, Switzerland
Helga TIMKO	CERN, Geneva, Switzerland

- Why CPUs have multiple levels of cache?
- Differences between 32 and 64-bit architecture
- Exploring data and visualisations using R, Python and Hadoop
- Approaches for message passing in distributed computing
- Differences between various memory technologies: DRAM, SDRAM, NVRAM?
- Scalability of software in multicore architectures
- Using GPUs and CUDA in multicore environments
- Simulations in Acceleration been dynamics
- Understanding computing requirements in Accelerator been simulations

The next event

- **The thematic CSC 2015**
- **Split, Croatia**
- **Registration already closed**

The next Main School

- **The CSC 2015**
- **Kavala, Greece**
- **Registration will open next week**
- **http://cern.ch/csc**

CERN School of Computing 2015

14 - 25 September 2015, Kavala, Greece