Welcome to

CERN School of Computing

Inverted CERN School of Computing 2020

From 28 September to 2 October 2020 - ONLINE SCHOOL

Lectures:

Programming Paradigms and Design Patterns
Heterogeneous Programming with OpenCL
Computational Fluid Dynamics

Reconstruction and Imaging
Modern C++ features
Big Data processing with SQL

Photo: A. Grossir - CERN

http://indico.cern.ch/e/iCSC-2020

Sebastian Lopienski

CERN School of Computing director

Three CERN Schools of Computing

iCSC 2020

Inverted school

16 Mar - 19 Mar 2020

CERN | Geneva | Switzerland

POSTPONED

Online school in September

tCSC 2020

Thematic school

7 Jun - 13 Jun 2020

MedILS⌗ | Split | Croatia

POSTPONED

CANCELLED

CSC 2020

Main school

23 Aug - 5 Sep 2020

University of Science and Technology (AGH), and Institute of Nuclear Physics (IFJ PAN)⌗ | Kraków | Poland

CANCELLED

Back in 2005…

✓ Have you ever heard of **Enterprise Computing**, is it relevant to physics computing?

✓ Do you know what **Design Pattern** is?

✓ Are you sure the software you write has no **security holes**?

✓ Are you sure that you know and master modern **debugging** tools?

✓ Do you know how to design (effectively) a **database schema**?

✓ What is the secret to writing an efficient **SQL** query?

✓ What is database **performance tuning**, why is it perceived as magic and how to tame it?

✓ Do you know how to read an **execution plan**?

✓ How does **Google** News work?

✓ Do you know, in practice how to expose your application as a **Web Service**?

✓ Are you sure your Web Services are **secure**?

All the answers at **iCSC**

CERN School of Computing

inverted CSC-2005
"Where students turn into teachers"

23-25 February 2005, CERN*

► Data Management and Data Bases

► Advanced Software Development and Engineering

► Web Services in Distributed Computing

- a novel idea prototyped in 2005
- a three-day series of lectures proposed and delivered by selected students
- advanced topics, rarely taught at CERN before

Lecturers - all former CSC2004 students

Paolo Adragna	University of Siena
Miguel Anjo	CERN
Ioannis Baltopoulos	Imperial College
Gerhard Brandt	University of Heidelberg
Giovanni Chierico	CERN
Brice Copy	CERN,
Michal Kwiatek	CERN
Ruben Leivas Ledo	CERN
Sebastian Lopienski	CERN
Petr Olmer	CERN
Zornitsa Zaharieva	CERN

http://cern.ch/csc

* IT Amphitheatre, building 31
Free attendance but registration recommended

"Where students turn into teachers"

2020: the 13th edition of the iCSC

2005 **2006** **2008** **2010** **2011** **2013** **2014**

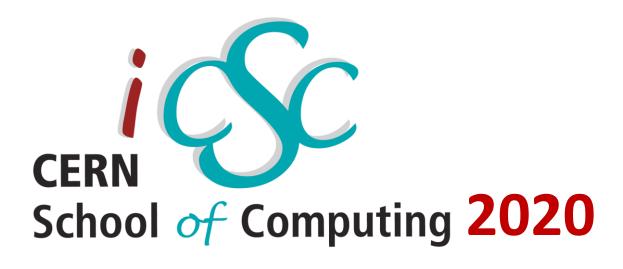**2015** **2016** **2017** **2018** **2019** **2020**

Academic topics
(iCSC is not a conference!)

Programming Paradigms and Design Patterns

Heterogeneous Programming with OpenCL

Computational Fluid Dynamics

Reconstruction and Imaging

Modern C++ features

Big Data processing with SQL

Speakers

Miguel Astrain
Universidad Politécnica de Madrid (Spain)

Emil Kleszcz
CERN

Kilian Lieret
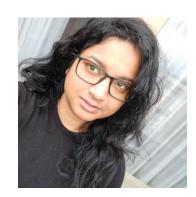*Ludwig Maximilian University of Munich (Germany)*

Nis Meinert
DLR - German Aerospace Center (Germany)

Ruchi Mishra
Nicolaus Copernicus Astronomical Center (Poland)

Rita Roque
University of Coimbra (Portugal)

Mentors (providing advice and feedback to speakers)

https://indico.cern.ch/event/853710/page/18538-mentors
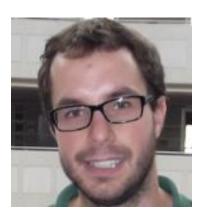

Nikos Kasioumis   Sebastian Lopienski   Arnulf Quadt   Alberto Pace

Danilo Piparo   Sebastien Ponce   Ivica Puljak   Are Strandlie   Enric Tejedor

CSC Organizers

Joelma Tolomeo
Administrative Manager

Nikos Kasioumis
Technical Manager
(until 2019)

Jarek Polok
Technical Manager
(from 2020)

Schedule

Monday, 28 September 2020	Tuesday, 29 September 2020	Wednesday, 30 September 2020	Thursday, 1 October 2020	Friday, 2 October 2020
14:00 A word from the IT De…	14:00 Software Design Patterns (lecture)	14:00 Computational fluid dynamics for physicists and engineers (lecture)	14:00 Heterogeneous computing: Introduction to OpenCL for FP…	14:00 Heterogeneous computing: Introduction to OpenCL for FPGAs…
14:10 Introduction to the Inv…				
14:15 Programming Paradigms (lecture)				
15:25 From the electric pulse to image quality - the analysis chain of ima…	15:10 Modern C++: Everything you (n)ever wanted to know about C++'s Lambdas (lecture)	15:10 Big Data technologies and distributed data processing with SQL …	15:10 Modern C++: Demystifying Value Categories in C++ (l…	15:10 Modern C++: Demystifying Value Categories in C++ (l…
16:35 Modern C++ vs. its le…	16:35 From the electric pul…	16:20 Modern C++: Everything you (n)ever wanted to know about C++'s L…	16:20 Big Data technologies…	16:20 Heterogeneous c…
			17:00 Programming Parad…	

Lectures

Hands-on exercises   no scheduled time, self-guided

Exercise consultation   "office hours" - an opportunity to ask questions and discuss with the speaker

Demo session

Online school guide

- Connect via Zoom (link sent to registered participants)
  - stay muted
  - to ask a question, *Raise Hand* ✋ or write on the chat
- If 500-person limit is reached, connect via webcast

- Use Mattermost for longer discussions
  - also after the school

- Get a Certificate of Attendance

- See recordings

Enjoy the School!