

CERN School of Computing 2022



Sunday, September 4, 2022 - Saturday, September 17, 2022

AGH University of Science and Technology

Academic programme

The complete programme will offer over 50 hours of lectures and hands-on exercises. The programme is organized over three distinct tracks: Physics Computing, Software Engineering, and Data Technologies. In addition, guest lectures, student presentations and special evening talks will be organised. Finally, AGH (the hosting university) plans to offer an optional, half-day CUDA training.

(Please note that this programme may be subject to minor changes.)

Physics Computing

Introduction to Physics Computing

by Arnulf Quadt (University of Göttingen)

2h lectures

Data Science and Interactive Data Exploration

by Bob Jacobsen (UC Berkeley)

2h lectures + 2h exercises

Data Analysis

by Toni Šćulac (University of Split)

4h lectures + 3h exercises

Introduction to Machine Learning

by Tomasz Szumlak (AGH) and Kamila Kalecinska (AGH)

3h lectures + 3h exercises

Software Engineering

Tools and Techniques

by Bob Jacobsen (UC Berkeley)

2h lectures + 3h exercises

Software Design in the Many-Cores Era

by Andrei Gheata (CERN) and Stephan Hageboeck (CERN)

4h lectures + 3h exercises

Creating Secure Software

by Sebastian Lopienski (CERN)

3h lectures + 3h exercises

Data Technologies

Data Management

by Alberto Pace (CERN)

5h lectures

Data and Storage Technologies*by Andreas J. Peters (CERN)*

1h lecture + 3h exercises

Data Visualization*by Eamonn Maguire (Proton, Switzerland)*

2h lectures + 2h exercises

Additional lectures

Student lightning talks session

Guest lecture

Heterogeneous computing*by Tomasz Szumlak (AGH)*

Special Evening talk

When Internet history meets philosophy*by Francois Fluckiger (CERN)*

(Optional) CUDA training

Fundamentals of Accelerated Computing with CUDA C/C++

This optional half-day course will allow you to learn how to accelerate and optimise existing C/C++ CPU-only applications to leverage the power of GPUs using innovative and modern CUDA techniques. It is also an excellent way to start working with highly optimised professional tools like Nsight integrated development environment with a graphical profiler. To start your journey with the massively parallel world, you are going to need a basic C/C++ competency, including familiarity with variable types, loops, functions, arrays, etc.

This course, kindly organized by AGH University of Science and Technology (the hosting university), is offered to the participants of CSC 2022 for free (the usual fee is approximately 100 USD per person with a non-profit academic background). The promotion code which unlocks the materials and computation time in NVIDIA cloud will be given to you at the beginning of the course. The materials can be accessed and run in the cloud for approximately six months after the course. **It is possible to get an official Certificate of Competency (CoC)** issued by the NVIDIA after completing the exam session (at the end of the course day, or at any convenient time up to six months after the CSC 2022).