The Fifth International School on Open Science Cloud (SOSC 2023)

The 5th edition of the international School on Open Science Cloud (SOSC 2023) will be held in **Perugia, from 23 to 27 October 2023**. The school is organized by INFN, Department of Physics and Astronomy "Augusto Righi" of the University of Bologna and the Departments of Physics and Geology of the University of Perugia.

Basic Requirements

The School is multi-disciplinary and targeted at postgraduate researchers including bachelor degree or equivalent in fields such as physics, statistics, computer science, computer vision, biology, medicine, bioinformatics, engineering, working at any research institute, with some experience and interest in data analysis, in computing or in related fields. Applications by university students (undergraduate) will be considered depending on availability and must be accompanied by a letter of reference from a university professor. We welcome applications from all nationalities, and encourage all qualified persons to apply.

Academic Program

The SOSC 2023 theme is **"Computing Models for Scientific Experiments"**. The school programme is organized in three main tracks:

Fundamentals
- Managing software and data
- Tools for Data Handling and Processing

Machine Learning
- Introduction to Machine and Deep Learning
- Data Science

Workflow Management
- Cloud Solutions for Advanced Big Data Workflows

The aim of the school is to provide theoretical and practical training to develop knowledge and skills on how to exploit data and computing resources for scientific applications, as well as use cloud-based infrastructures to implement workflows.

To this end, the first track will provide an overview of the main challenges related to the design of a scientific computing model, introducing concepts such as software management, containerization, application distribution and deployment.

After key tools for data handling and data processing are described, the second track will provide an introduction to Machine Learning, including some more advanced lectures aimed to improve skills on Data Science techniques and applications.

The third track will finally provide students with knowledge on how to organize workflows and pipelines in a distributed environment. Novel and effective approaches to interactive and quasi-interactive parallel processing of data sets will then be covered.

The school is structured in lectures and hands-on sessions. The hands-on sessions are designed to allow students to exercise with the most popular systems introduced in the lectures, taking tasks from real-world leading data-driven scientific communities as examples. The hands-on programme foresees the development of individual projects.

Prerequisites for the hands on are basic knowledge of NumPy, Pandas and Matplotlib. Familiarity with commonly used frameworks and libraries for ML/DL such as scikit-learn, Tensorflow, Pytorch is expected. A plus would be the knowledge of docker, docker-compose, Kubernetes, cloud storage such as S3.

The lectures and the hands-on sessions will be given by experts involved at the national and European level.

SOSC 2023 will also propose a special session on FPGA (Field Programmable Gate Array). Scientific computing is moving towards the exploitation of more and more heterogeneous resources. Hardware accelerators such as: GPU and TPU are nowadays very popular. The use of FPGA- based accelerators takes on an additional value, due to the intrinsic reprogrammability and high-performance characteristics of these devices.

SOSC Certificate and Diploma

An attendance certificate will be provided to the students attending the whole school programme.

The school will also issue an official "SOSC School of Computing Diploma" upon successful completion of a project that will be assigned during the school.

Fees and Enrollment

The registration fee includes morning & afternoon coffee breaks, the social dinner and participation in an evening Focus talk on FPGA, also with dinner. The **final application deadline for registrations is October 18, 2023**. Lunch, accommodation and transfer to/from the school location is not included in the fee.

The registration fee structure is as follows:
- **Early bird** (until September 15): **€200** -
- **Full ticket** (until October 6): **€300** -

Details about Registration and Payment Method can be found here

Support for a limited number of applications is possible and can be requested directly to the School secretariat.

If you have any questions related to the registration or the payment please contact sosc23-pc@lists.infn.it

Additional Information

Participation is limited to 30 participants. In case there are more than 30 registration requests, the organizing committee will make a selection based on the scientific CV of the applicants, informing the applicants of the results.

Venue

INFN Perugia, Via Alessandro Pascoli, 23c 06123 Perugia

Detailed information about the school, transportations, logistics and lectures are available at the following URL: [Travel & Accomodation](#)

School Contact

School On Open Science Cloud 2023 - October 23th - 27th 2022
SOSC23 URL: https://web.infn.it/SOSC23

The organizing committee

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