

# Summer School 2018

## High Performance & Parallel GPU Computing

July 15 - July 27, 2018

**Steger Center, Riva San Vitale, Ticino, Switzerland**

The program of the CSCS-USI Summer School 2018 will focus on the effective exploitation of hybrid High Performance Computing (HPC) systems, equipped with powerful CPUs, state-of-the-art GPUs, and fast and scalable networks.

Experts from **ETH Zurich**, **Università della Svizzera italiana**, and **NVIDIA** will present CUDA and OpenACC for GPU programming and MPI for inter-GPU/CPU communication. They will also introduce scientific libraries and machine learning frameworks, optimized for the GPU and for parallel applications.

Extensive practical and exercise lab sessions will help to clarify and consolidate the theoretical material.

The following topics will be covered:

- GPU architecture
- GPU programming with CUDA and OpenACC
- Message passing programming model, the MPI standard and the GPUDirect library
- Performance optimization
- Scientific libraries for parallel and GPU programming
- GPU optimized machine learning frameworks

The Summer School addresses **undergraduate students, Ph.D. students, Postdocs** and **other researchers**.

Students will be able to earn three ECT credit points for this course from Università della Svizzera italiana (subject to exam).

For additional information, application and fees: [www.cscs.ch](http://www.cscs.ch)

Deadline for application: **Sunday, April 15, 2018**

**The summer school is supported by:**

- *The Swiss Graduate School FOMICS - "Foundations in Mathematics and Informatics for Computer Simulations in Science and Engineering", which is located at the Institute of Computational Science ([www.ics.usi.ch](http://www.ics.usi.ch)) at USI in Lugano, Switzerland.*
- *The Swiss National Supercomputing Centre ([www.cscs.ch](http://www.cscs.ch)) in Lugano, Switzerland*

