

BSC hosts the PUMPS Summer School

BSC and UPC currently offer a number of courses covering CUDA architecture and programming languages for parallel computing.

Programming and Tuning Massively Parallel Systems



The third edition of the Programming and Tuning Massively Parallel Systems summer school (PUMPS) is aimed at enriching the skills of researchers, graduate students and teachers with cutting-edge technique and hands-on experience in developing applications for many-core processors with massively parallel computing resources like GPU accelerators.

Summer School Co-Directors: **Mateo Valero** (BSC and UPC) and **Wen-mei Hwu** (University of Illinois at Urbana-Champaign)

Organized by:

Barcelona Supercomputing Center ([BSC](#))

University of Illinois at Urbana-Champaign ([University of Illinois](#))

Universitat Politecnica de Catalunya ([UPC](#))

HiPEAC Network of Excellence ([HiPEAC](#))

PUMPS is part of this year [PRACE Advanced Training Centre program](#)

Date: Monday, 2 July, 2012 - 09:00 to Friday, 6 July, 2012 - 18:00

Objectives:

- Instructors Wen-mei Hwu (University of Illinois) and David B. Kirk (NVIDIA), co-authors of [“Programming Massively Parallel Processors, A Hands-on Approach”](#), will provide students with knowledge and hands-on experience in developing applications software for many-core processors, such as general purpose graphics processing units (GPUs).
- By the end of the summer school, participants will:
 - Be able to design algorithms that are suitable for accelerators.
 - Understand the most important architectural performance considerations for developing parallel applications.
 - Be exposed to computational thinking skills for accelerating applications in science and engineering.
 - Engage computing accelerators on science and engineering breakthroughs.

Agenda:

Topics:

- The following is a list of some of the topics that will be covered during the course. The updated full program will soon be available
 - CUDA Parallel Execution Model
 - CUDA Performance Considerations
 - CUDA Algorithmic Optimization Strategies
 - Data Locality Issues
 - Dealing with Sparse and Dynamic data
 - Efficiency in Large Data Traversal
 - Reducing Output Interference
 - Debugging and Profiling CUDA Code
 - GMAC Runtime
 - Multi-GPU Execution
 - Introduction to OmpSs
 - OmpSs: Leveraging GPU/CUDA Programming
 - Hands-on Labs: CUDA Optimizations and OmpSs Programming

The course materials are published on the [PUMPS website](#)

Programme [here](#)

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Source URL (retrieved on 13 Mar 2025 - 06:22): <https://www.bsc.es/ca/news/bsc-news/bsc-hosts-the-pumps-summer-school>