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2012 ACM International Conference on Computing Frontiers

May 15-17, 2012, Cagliari, Italy

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The increasing complexity, performance, and energy efficiency needs of current and future applications require novel and innovative approaches for the design of computing systems. Boundaries between state of the art and revolutionary innovation constitute the computing frontiers that must be pushed forward to provide the support required for the advancement of science, engineering, and information technology. The *Computing Frontiers* conference focuses on a wide spectrum of advanced technologies and radically new solutions relevant to the development of computer systems.

Authors are invited to submit full papers to the main conference and **Ph.D. students are invited to submit an extended abstract for a special Ph.D. forum and poster session.** We seek contributions on novel computing paradigms, computational models, application paradigms, computer architecture, development environments, compilers, or operating environments. Papers are solicited in, but not limited to, the following areas:

• Applications, programming, and performance analysis of advanced architectures
• Next-generation high performance computing systems
• Accelerators: many-core, GPU, custom, reconfigurable, embedded, and hybrid
• Defect- and variability-tolerant designs for dependable computing
• Power and energy efficiency: architectures, compilers, and algorithms
• Virtualization and virtual machines
• Cloud-, internet-scale, service-oriented and smart infrastructure computing
• Compilers and operating systems: adaptive, run-time, and auto-tuning
• System management and security
• Impact of novel technology (NV memory, silicon photonics, quantum computing)
• Computational neuroscience, neuromorphic, and biologically-inspired architectures
• Computational aspects of intelligent systems and robotics
• Reconfigurable, autonomic, organic, and self-organizing computation and systems
• Interfaces and visualization for emerging applications and systems
• Novel frontiers in computational science and scientific data repositories
• Storing, managing, analyzing, and searching large data sets ("big data")
• Sensors and sensor networks

Two Special Sessions

This year Computing Frontiers will have two special sessions of invited talks on DARPA's Ubiquitous High Performance Computing Program and artificial intelligence for games.

All papers must be submitted through the conference web site. Full papers cannot exceed 10 double-column pages and extended abstracts cannot exceed 4 double-column pages in standard ACM conference format, including figures, tables, and references. As per ACM conference guidelines at least one author must register for the conference. Additional submission guidelines are available on the conference web site.

Selected papers will be invited for a special issue of the Springer International Journal of Parallel Programming (IJPP). Pacific Northwest National Laboratory and Delft University of Technology will present best paper awards dedicated to the memory of Jarek Nieplocha and Stamatis Vassiliadis.

Important Dates (EXTENDED DEADLINES)

Paper Submission Deadline	Ph.D. Forum Deadline	Author Notification
January 15, 2012	January 15, 2012	March 1, 2012