The 2014 International Conference on Field-Programmable Technology

ICFPT 2014

http://www.icfpt2014.org/

Parkyard Hotel, Zhangjiang High-Tech Park, Shanghai, China, Dec. 10-12, 2014

ICFPT is the premier conference in the Asia-Pacific region on field-programmable technologies including reconfigurable computing devices and systems containing such components. Field-programmable devices promise the flexibility of software with the performance of hardware. The development and application of field-programmable technology have become important topics of research and development. Field-programmable technology is widely applied, in high-performance computing systems, embedded and low-power control instruments, mobile communications, rapid prototyping and product emulation, among other areas.

Topics of interest:

The areas of interest include (but are not limited to):

- **Tools and Design techniques** for field-programmable technology: placement, routing, synthesis, verification, debugging, run-time support, technology mapping, partitioning, parallelization, timing optimization, design and run-time environments, languages and modeling techniques, provably-correct development, intellectual property core-based design, domain-specific development, hardware/software co-design.
- **Architectures** for field-programmable technology: field-programmable gate arrays, complex programmable logic devices, coarse-grained reconfigurable arrays, field-programmable interconnect, field-programmable analogue arrays, field-programmable arithmetic arrays, memory architectures, interface technologies, low-power techniques, adaptive devices, reconfigurable computing systems, high-performance reconfigurable systems, evolvable hardware and adaptive computing, fault tolerance and avoidance.
- **Device technology** for field-programmable technology: programmable memories such as non-volatile, dynamic and static memory cells and arrays, interconnect devices, circuits and switches, and emerging VLSI device technologies.
- **Applications** of field-programmable technology: biomedical and scientific computation accelerators, network processors, real-time systems, rapid prototyping, hardware emulation, digital signal processing, interactive multimedia, machine vision, computer graphics, cryptography, robotics, manufacturing systems, embedded applications, evolvable and biologically-inspired hardware, financial application, big data management, aerospace and extreme environment applications.
- **Education** for field-programmable technology: courses, teaching and training experience, experiment equipment, design and applications.

Special Session 1: Hardware Security on FPGA

The special session on Hardware Security in FPT 2014 aims to bring together the academic scientists, researchers and scholars to exchange and share their experiences and research results in the leading technologies and applications related to the hardware security on FPGAs. The topics include (but are not limited to):

- The security-attacking techniques, including the Trojan design, side channel techniques, reverse engineering and hacking techniques (e.g. to encryption, license, etc.).
- The security-defending techniques, including the Trojan defense (detection and Trojan-preventing design), intellectual property protection (prevention from the overbuilding, counterfeit, replay, license-cracking, piracy, reverse engineering, side channel, etc.), reliability enhancement against the external attacks (e.g. the fault attacks) and secure hardware authentication (e.g. IC identification, tracing and Trojan detection).

- The security-related applications on FPGAs, including the security-centric applications on FPGAs and the security attacking/defending implementations on FPGAs.

The program committee solicits papers describing original research or high quality tutorial expositions in field programmable technology, including, but not limited to, the areas of interest indicated above. Papers should be submitted electronically via the conference website in PDF format, following the IEEE style. Only full papers are accepted and the papers should not exceed 8 pages in length. FPT2014 uses a blind reviewing system. Manuscripts must not identify authors or their affiliations. Self-reference should be blanked out.

Special Session 2: Prognostic and Health Management (PHM) with FPGA

The special session on PHM with FPGA in FPT 2014 aims to bring together the academic scientists, researchers and scholars to exchange and share their experiences and research results in the leading technologies and applications related to the PHM with FPGA. The data-driven methodologies gradually become the hot issues in Prognostics of complex systems, in which condition monitoring, anomaly detection, diagnostics, remaining useful life estimation based on popular machine learning algorithms are involving. The topics include (but are not limited to):

- System monitoring with FPGA, including sensing technologies, instruments design, preprocessing, anomaly detection, and trends analysis.
- Prognostics with FPGA, including machine learning, model-based methods, hybrid approaches and other related methods.
- Reliable computing with FPGA technology, including SEU simulation, anti SEU tech, and spatial application of FPGA.
- PHM Applications with FPGA and other embedded platform.

The program committee solicits papers describing original research or high quality tutorial expositions in field programmable technology, including, but not limited to, the areas of interest indicated above. High quality posters are also solicited. Manuscripts should be submitted electronically via the conference website in PDF format, following the IEEE style. Full papers should not exceed 8 pages in length. FPT2014 uses a blind reviewing system. Manuscripts must not identify authors or their affiliations. Self-reference should be blanked out.

Submission Guidelines

The program committee solicits papers describing original research or high quality tutorial expositions in field programmable technology, including, but not limited to, the areas of interest indicated above. High quality posters are also solicited. Current postgraduate research students are invited to submit a short paper detailing their proposed research to be presented in a poster based Ph.D. forum. Papers should be submitted electronically via the conference website in PDF format, following the IEEE style. Full papers should not exceed 8 pages in length, while posters should not exceed 4 pages in length. Ph.D. forum papers are limited to 2 pages. FPT2014 uses a blind reviewing system. Manuscripts must not identify authors or their affiliations. Self-reference should be blanked out. Papers that identify authors will NOT be considered. Proposal for half and full day tutorials in the areas of interest are also sought.

Important Dates:

Technical Program: Submission Due Date: June 16, 2014
Demo Session: Submission Due Date: Sep. 12, 2014, **Notification:** Sep. 26, 2014
Ph.D. Forum Paper: Submission Due Date: Sep. 12, 2014, **Notification:** Sep. 26, 2014
Design Competition Registration and Paper Submission:
Entry of design competition: Sep. 2, 2014
Submission of design competition papers: Sep. 12, 2014, **Notification:** Oct. 26, 2014