Call for Papers

This symposium is dedicated to the understanding and characterization of workloads that run on all types of computing systems. New applications and programming paradigms continue to emerge rapidly as the diversity and performance of computers increase. On one hand, improvements in computing technology are usually based on a solid understanding and analysis of existing workloads. On the other hand, computing workloads evolve and change with advances in microarchitecture, compilers, programming languages, and networking communication technologies. Whether they are smart phones and deeply embedded systems at the low end or massively parallel systems at the high end, the design of future computing machines can be significantly improved if we understand the characteristics of the workloads that are expected to run on them. This symposium will focus on characterizing and understanding emerging applications in consumer, commercial and scientific computing.

We solicit papers in all areas related to characterization of computing system workloads. Topics of interest include (but are not limited to):

Characterization of applications in areas including
- Search engines, e-commerce, web services, databases, file/application servers
- Embedded, mobile, multimedia, real-time, 3D-Graphics, gaming, telepresence
- Life sciences, bioinformatics, scientific computing, finance, forecasting
- Machine Learning, analytics, data mining
- Security, reliability, biometrics
- Grid and cloud computing
- Emerging big data applications

Characterization of OS, Virtual Machine, middleware and library behavior
- Virtual machines, Websphere, .NET, Java VM, databases
- Graphics libraries, scientific libraries

Characterization of system behavior, including
- Operating system and hypervisor effects and overheads
- Hardware accelerators (GPGPU, XML, crypto, etc)
- User behavior and system-user interaction
- Impacts of scale-up and scale-out of systems, applications, and inputs
- Instrumentation methodologies for workload verification and characterization
- Techniques for accurate analysis/measurement of production systems

Implications of workloads in design issues, such as
- Power management, reliability, security, performance
- Processors, memory hierarchy, I/O, and networks
- Design of accelerators, FPGAs, GPUs, etc.
- Novel architectures (non-Von-Neumann)

Benchmark creation, analysis, and evaluation issues, including
- Multithreaded benchmarks, benchmark cloning
- Profiling, trace collection, synthetic traces
- Validation of benchmarks

Analytical and abstract modeling of program behavior and systems

Emerging and future workloads
- Transactional memory workloads; workloads for multi/many-core systems
- Stream-based computing workloads; web2.0/internet workloads; cyber-physical workloads

Important Dates

- **Abstracts Due**: April 18, 2014
- **Papers Due**: April 25, 2014
- **Author Notification**: June 17, 2014

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