Introduction

Computers, communication systems and other IT infrastructure have been posing severe environmental problems by consuming significant amounts of electricity, increasing greenhouse gas emissions, and causing pollution during their production and disposal. To reduce these environmental problems and create a sustainable environment, new models, algorithms, methodologies, tools and systems are needed so we can generate green IT systems with high energy efficiency, low greenhouse gas emissions, less harmful materials and easily being reused and recycled. The goal of GreenCom 2011 is to provide a forum for scientists, engineers, and researchers to discuss and exchange their new ideas, novel results, work in progress and experiences on all aspects of green computing and communications, as well as to identify emerging research topics and define the future directions. Topics of particular interest include, but are not limited to:

A. Systems, Models and Algorithms
   A1 Green computing models, methodologies and paradigms
   A2 Green design, manufacture, use, disposal, and recycling of computers and communication systems
   A3 Green software engineering
   A4 Sustainable computing
   A5 Energy-aware computing
   A6 Energy-aware scheduling
   A7 Energy-aware software
   A8 Energy-efficient network services and operations
   A9 Carbon management policies and ecology-related issues with ICT

B. Design Methodologies and Tools
   B1 Green design for materials and devices
   B2 Green design for VLSI and micro-architecture
   B3 Energy-aware design for programming, algorithm and software architecture
   B4 Energy-aware design for system-level software, such as operating systems, compilers and programming environments
   B5 Energy-aware hardware/software co-design
   B6 Virtualization and thin client methods
   B7 DPM/DVFS
   B8 Thermal management and applications
   B9 Energy-efficient network infrastructures and protocols
   B10 Performance characterization and evaluation for green computing systems and applications
   B11 Standards and metrics for green computing and communications
   B12 Energy consumption simulation, optimization, management and evaluation tools

C. Applications and Interdisciplinary Topics
   C1 Relationship among energy consumption, speed, security, safety, availability, fault tolerance and reliability
   C2 Energy-aware high performance computing and applications
   C3 Energy-aware large scale distributed systems, such as Grids, Clouds and service computing
   C4 Energy-aware network equipments and applications
   C5 Energy-efficient mass data storage and processing
   C6 Green computing in multicore/manycore systems
   C7 Green computing in data centers, embedded systems and supply chains
   C8 Low-radiation in wireless devices and e-waste
   C9 Computer occupational diseases and INTERNET harmful information filtering
   C10 Ergonomics
   C11 Applications in environment protection, healthcare, creature conservation, mobile, avionics, aerospace, control, etc.
   C12 Education, experience, case studies, and lessons learned for green computing systems and applications

All papers must be written in English and submitted electronically through http://GreenCom2011.comp.polyu.edu.hk. Paper submissions should be 10 pages in two-column, single-space, 10pt format that describe original work not previously published and not concurrently submitted elsewhere. Submission of a paper should be regarded as an undertaking that, should the paper be accepted, at least one of the authors must attend the conference to present the work in order that the accepted papers can be put into the digital library of IEEE CS indexed by EI Compendex). Selected bested papers will be recommended for publication in special issues of several SCI-indexed journals, including Journal of System Architecture: Embedded Software Design (Elsevier).

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**Important Dates**

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deadline for submission</td>
<td>March 30, 2011</td>
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<tr>
<td>Notification of acceptance</td>
<td>April 30, 2011</td>
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<tr>
<td>Deadline for final version</td>
<td>May 15, 2011</td>
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<tr>
<td>Deadline for registration</td>
<td>May 30, 2011</td>
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