Workshop: Planetary-scale Computing and Cyberinfrastructure for Engineering and Science Education

ICEE 2007 Coimbra, Portugal
September 4th – Afternoon Parallel Sessions
2:00 – 6:00 pm
Room: TBC

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Information technology (IT) tools and services have an important impact on the practice of science and engineering research and education and as a fundamental pillar to develop knowledge-based economies worldwide. These systems, tools and services can revolutionize who can participate, what they can do, and how they do it [NSF]. To harness the full power of cyberinfrastructure, and the promise it portends for discovery, learning and innovation across and within all areas of science and engineering, requires focused investments in the preparation of a science and engineering workforce with the knowledge and skills needed to create, advance and take advantage of cyberinfrastructure over the long-term. The purpose of this workshop is to share the state of the art, challenges and opportunities, and discuss ways in which the science and engineering education community can engage in research and education activities promoting and leveraging cyberinfrastructure. Speakers are from both industry and university.

This workshop will introduce the topic of Cyberinfrastructure, As part of the hands-on aspect of the workshop, participants will be introduced to wide-area distribution platforms and shared virtual-world collaboration systems. Discussion leaders will show a demonstration of a virtual learning environment, and discuss the open-source development efforts to build a collection of interoperable, collaborative, shared platforms. Participants will be invited to share their ideas on building and using such a platform, and will also discuss how they can leverage these efforts in their own classrooms.

Shared collaborative spaces such as Second Life have excited our imaginations: the question is, how can we use such shared collaborative spaces for educational and research applications, particularly cross-institution and trans-national applications? Croquet, one of the platforms that will be presented during the workshop, is a powerful open source software development environment for the creation and large-scale distributed deployment of multi-user virtual 3D applications (1) persistent (2) deeply collaborative, (3) interconnected and (4) interoperable. The Croquet architecture supports synchronous communication, collaboration, resource sharing and computation among large numbers of users on multiple platforms and multiple devices. Relevant examples from actual classroom implementations will be presented.

Time	Topic	Speaker/Facilitator
2:00 – 2:15	Welcome, Introductions	David Chang & Rick McGeer
2:15 – 2:45	Context Setting: Cyberinfrastructure and Global Collaborations…	Julian Lombardi Duke University
2:45 – 3:15	PlanetLab: A Deployment Platform for research and engineering environments	Rick McGeer
3:15 – 3:45	Qwaq Forums: A Distributed Collaboration Environment	David Smith, Qwaq

3:45 – 4:15	Building an Open-Source Virtual Worlds Collaboration Environment	McGeer, Lombardi, Smith
4:15-4:30	Coffee Break and break into smaller groups for discussion	
4:30 – 5:30	Discussion in 3 smaller groups with facilitators	Chang, Smith, Lombardi
5:30-5:45	Report back from discussion groups: best practices, next steps in your own university	David Chang