

REV2013: 10th International Conference on Remote Engineering and Virtual Instrumentation

“Moving from design to innovation and impact”

REV2013 is being held in Sydney, Australia. Sydney is the largest and most dynamic city in Australia. Attending REV2013 will give you an opportunity to experience Sydney’s stunning harbour, wonderful climate, friendly people, and numerous other attractions, whilst participating in an exciting conference program.

REV 2013 is the tenth in a series of annual events concerning the area of remote engineering and virtual instrumentation. The REV conferences are the annual conferences of the International Association of Online Engineering (IAOE) (www.online-engineering.org). The general objective of this conference is to demonstrate and discuss fundamentals, applications and experiences in the field of remote engineering and virtual instrumentation. With the globalization of education the interest in and need of teleworking, remote services and collaborative working environments now increases rapidly. Another objective of the symposium is to discuss guidelines for education in university level courses for these topics. REV 2013 offers an exciting technical program as well as academic networking opportunities during the social events.

Proceedings

The proceedings will be published on CD by the International Association of Online Engineering (IAOE), and they will be indexed by IEEE Xplore.



Interesting papers may be published in the International Journal of Online Engineering (iJOE), www.online-journals.org/i-joe/.

.REVIEWING:

The "review-to-submit" model will be employed. At least one of the authors from each paper submitted will be expected to act as a reviewer of other submissions. This will equitably distribute the workload inherent in reviewing papers.

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Session 3B: Papers

Time: 1:30:00 PM - 3:00:00 PM

Chair: Franz Schauer, Tomas Bata University in Zlin, Faculty of Applied Informatics

Location: Darling 2

Presentations

127: Enabling Effective and Inclusive Learning Opportunities with Software-Based Remote Access Laboratories

Author(s): Basnet, Badri; Kist, Alexander A.

Affiliation(s): Faculty of Engineering and Surveying, University of Southern Queensland, Australia

Presenting author(s): Kist, Alexander A.

Abstract: Practical or laboratory-based learning activities are an important part of engineering and surveying education. Offering such activities to distance education students is both difficult and expensive. Remote Access Laboratory (RAL) concepts and systems are gaining popularity to provide students with access to on-campus rigs or hardware. Such RAL systems are equally versatile in providing on-campus software access to distance students. In the discipline of Surveying and Spatial Science, the RAL system is being used as an avenue for providing GIS software access to distance students. In this study, the effectiveness of RAL based software activities in supporting student learning is investigated as part of a larger study. This project investigates the research question whether RAL-based software activities can address the same learning outcomes as face-to-face practical classes. Data were collected from students' discussion forum and via interviews with teaching staff members. This project provides a clear case in which the use of RAL philosophy and technology has provided more inclusive educational opportunities more efficiently. The key outcomes include that scaffolding the learning journey is essential in the context of RAL activities. The general results that are presented in this paper are transferable to experiments that involve physical hardware.

Session 4: Papers - Award Shortlist

Time: 3:30:00 PM - 5:00:00 PM

Chair: Michael E. Auer, Carinthia University of Applied Sciences

Location: Darling 2

Presentations

130: Robot RAL-ly International – Promoting STEM in elementary school across international boundaries using remote access technology

Author(s): Maxwell, Andrew (1); Fogarty, Roderick (2); Gibbings, Peter (1); Noble, Karen (2); Kist, Alexander (1); Midgley, Warren (2)

Affiliation(s): 1: Faculty of Engineering and Surveying, University of Southern Queensland, Australia; 2: Faculty of Education, University of Southern Queensland, Australia

Presenting author(s): Maxwell, Andrew

Abstract: Engaging school children early in STEM activities plays an important role in their choice to study engineering in later years. This paper describes a pilot project where Remote Access Laboratory technology at a university is employed in an inquiry-based learning activity with elementary school children in Japan and Australia. Investigation into how RAL technology facilitated collaborative learning in the K-12 demographic was then examined. Children in Japan designed a track that was constructed by their peers in Australia. The Japanese students then navigated the track in Australia with remotely controlled robots using the RAL system. A number of camera feeds allowed the students to observe the robots and the track. Both groups of students, as well as the participant researchers, took part in co-constructed focus group discussions after the event. A thematic analysis indicates that these activities provide students with opportunities for rich learning experiences in science, math and technology. Engaging young children in STEM activities provides a strong pathway to a better understanding of science concepts and ultimately a career in engineering.



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