



ICEER 2017

The 4th International Conference on Energy
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Keynote Lecture by

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Remote labs in Higher Education: building multicultural and sustainable learning environments

In Higher Education, students are expected to conduct many experiments while taking a degree in science and engineering areas. With the recent contribution of Information and Communication Technologies, these experiments may be done in remote labs, in addition to traditional hands-on labs and computer simulations. While there have been discussions around the effective educational value of remote experiments in comparison with hands-on experiments and computer simulations, in this keynote we will focus our attention on two additional aspects, i.e.: how remote labs promote the creation of multicultural learning environments and how they address sustainability. In particular, we will consider the three major aspects associated with sustainability: economic practice, social integration, and environmental protection.

This presentation will sustain some of its claims with evidence obtained from on-going collaboration projects related to a particular remote lab, namely:

- The VISIR+ project, which aims to install the Virtual Instruments Systems in Reality (VISIR) remote lab in 5 Institutions of Higher Education located in Argentina and Brazil
- The PILAR project, which aims to federate 5 VISIR nodes installed in 5 European Institutions of Higher Educations.

Interested attendees are invited to visit the following web sites and prepare themselves for the forthcoming presentation. The presenter wishes to do a sort of flipped keynote where a few questions will be posed to the audience, in order to assess if the keynote goal has been achieved.

- <http://www.go-lab-project.eu>
- <http://www.labshare.edu.au>
- <http://vlab.co.in>



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About the author



Gustavo R. Alves graduated in 1991 and obtained an MSc and a PhD degree in Computers and Electrical Engineering in 1995 and 1999, respectively, from the University of Porto, Portugal. He is a professor at the Polytechnic of Porto - School of Engineering, since 1994. He has authored or co-authored +180 conference and journal papers with referee process, 7 book chapters, and co-edited a book, (with Javier García-Zubía, University of Deusto, Spain), about "Using Remote Labs in Education". He has also been involved in 19 national & international research projects. His research interests include engineering education, remote experimentation, and design for debug & test. He served as program co-chair of the 1st and 2nd International Conferences of the Portuguese Society for Engineering

Education (CISPEE2013 and CISPEE2016), as general chair of the 11th Remote Engineering and Virtual Instrumentation (REV2014) conference and of the 3rd Technological Ecosystems for Enhancing Multiculturality (TEEM2015) conference, and also as a Program Committee member of several international conferences. Dr. Alves is a member of the Portuguese Society for Engineering Education (SPEE), the Global Online Laboratory Consortium (GOLC), the Portuguese Engineers Association (OE), the Institute of Electrical and Electronics Engineers (IEEE), the Association for Computing Machinery (ACM), and of the Virtual Instrumentation Systems in Reality - Special Interest Group (VISIR-SIG). He has served as guest editor at the international Journal of Online Engineering (iJOE), the international Journal of Engineering Pedagogy (iJEP), the IEEE Latin-American Learning Technologies Journal (IEEE-RITA), the European Journal of Engineering Education (EJEE), and Computers in Human Behavior (CHB). He currently serves as an Associated Editor for the IEEE Transactions on Learning Technologies.