IEEE Education Society Standards Committee Report IEEE

June 24 - 27, 2018, Salt Lake City, Utah.

RECALL

IEEE Education Society Standards Committee was established by IEEE Education Society AdCom in 2010 in Louisville, Kentucky. EdSoc going to Standards Business was presented by Rob Reilly, AdCom Secretary at that time and Hamadou Saliah-Hassane, member at large of EdSoc AdCom.

THE CURRENT APPOINTED STANDARDS COMMITTEE MEMBERS

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Education Society Standards Committee Member Meetings

In 2018, our committee had one online meeting on April 4th 2018. But almost all the committee members are already members of the P1876™ WG where most of our the meetings took place. Within the standards committee important decisions and information are shared via emails.

The agenda of the April 4th meeting is the following:
The P1876™ Working Group Activities (2017-2018)

The P1876™ acquired from IEEE-SA a Wordpress environment to increase visibility of our activities and ease access to secured and public document produced or got from IEEE-SA for our Standards development (Example other related standards upon requests).

Recall of the frequency of P1876 WG meetings since 2013
Since 2013, we had seven face to face meetings and then we started online meetings, which were held 20 times.
In person meetings (7 total):

2013 - 1 meeting (Berlin)
2014 - 2 meetings (Istanbul and Madrid)
2015 - 2 meetings (Azores and El Paso)
2016 - 1 meeting (Madrid)
2017 - 1 meeting (New York)

Attendance of meetings for the last 12 months. The numbers are as shown in Table 1, from the most recent to 12 months back:

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<th>Date</th>
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In addition to those dates listed, there were three earlier meetings: 5/08/17, 4/24/17 and 4/10/17. Two Editorial Board Meetings where also help respectively in Montreal (14th-17th October 2017) and at Florida Atlantic University (13th-16th May 2018)(Figure 3). Four subgroups meetings called “Pedagogical & Use Cases glue subgroup” where also held during the past 12th months.
The Working Group organized three Industry Connection Initiatives Meetings

During the last 3 years the working group has been doing activities with industries that are closely related with the topic of the online laboratories. Every year the working group has been organizing the “Industry Collaboration Initiative for Online Laboratories”.

The objectives of this Industry initiative are:

- Get feedback from industry on the IEEE Education Society standard P1876 - Networked Smart Learning Objects for Online Laboratories about online laboratories under development.
- Showcase industry and university demonstrations related to online Laboratories, specifically their innovations in online laboratories.
- Generate strategies for collaboration.

In 2016 the industry connection event was held during the LACCEI2016 conference in San Jose, Costa Rica and in 2017 the event was held during the LACCEI2017 conference in Boca Raton, Florida USA. This year the third event is planned in Lima Peru.

The event had the participation of some of the most representative industries of software, hardware, virtual platforms and learning systems. They have showed the state of the art and latest developments and follow the progress in the development of the standard, generate new collaborations between education institutions and technology industries.

The initiative had the participation of industries such as: Dassault Systèmes (3DS™), National Instruments™, Quanser™ and ARM™.
Some Useful comments and contributions to this report from the Working Group Participants

From Professor Juan Guillermo Lalinde Pulido (EAFIT – Colombia)

The participation of graduate students in the working group helps not only to have a wider view of the potential of online laboratories, but provides a dedicated group of researcher that can devote full time to help defining the standard. Having advisors and students as members of the working group achieve a good balance between experience, academic rigor and working hours to ensure the standards meet IEEE expectations. On the other hand, having professors and teachers, helps to keep the application in mind by providing real life scenarios for using online labs. Now, for the graduate student, their participation creates a learning scenario that promotes academic discussion where all opinions are valued, provided they are supported by rigorous arguments. By having graduate students and professors in the working group, the standard is enriched with real applications as well as student learning is enhanced.

In the Colombian case, we have a researcher, a PhD student and a professor. The PhD Student is working about ubiquitous learning, and using online labs is required in order to have quality education for engineers. Even though his PhD thesis is almost finished, when returning to his university, he will be responsible to incorporate online labs in engineering courses. On the other hand, the professor has an academic administration position as coordinator of engineering and sciences majors in her university. She is applying for a PhD scholarship at Universidad de la Rioja and she will be working in online learning for engineering. Her university, Politecnico Grancolombiano, has several online engineering programs and need to include online labs as an alternative to presental labs. Both have worked also with K-12 education in Colombia and have a clear view of the potential of online labs to promote STEM education specially in poorer neighborhoods and rural areas.

From Professor Miguel Rodriguez Artacho (UNED – Spain)

Other fruitful collaboration has been with researchers from UNED University in Spain. Thanks to a grant from "eMadrid Project" (S2013-ICE2715) a senior researcher stayed at TELUQ University in Montreal, CA as visiting professor collaborating with IEEE-SA P1876 Chair, Prof. Saliah-Hassane in the development of the first draft of P1876, and contributing with the results in talks and workshops organized by Montreal IEEE Education Society Chapter as invited talk at TELUQ and a conference paper presented in the Frontiers In Education Conference in El Paso, TX in 2015.
Standards have widely contributed the development of the e-learning industry. Major efforts of adapting tools and platforms to the market needs have been triggered by the standardization effort carried out mainly by professional associations like IEEE, International Organisations like ISO, and industrial consortiums like IMS or ADL. Digital education is currently a mature industry with a continuous need for innovation and adaptation to stakeholders generally led by standardization initiatives.

Special Comments from the Chair of the P1876™ Working Group and Chair of the Standards Committee

1. IEEE Education Society Standardization Business attracted students, postdoctoral students and teachers involved in Cyberphysical Systems studies. These participants contributed and had access to resources and enriched research collaborations. these three years (2016-2018) at least 10 students, members or supervised by P1876™ members graduated or are about to graduate in the field of cyberphysical Systems as PhD students at Laboratory at distance (L@d – TELUQ, Canada), Colombia (Politecnico Grancolombiano), Florida Atlantic University in US (FAU), UNED (Spain) and EPFL (Switzerland).

2. A number of papers in the field of Research on Online Laboratory are co-authored by some of the P1876™ WG participants and many other cite our standardization initiative with an increase visibility of EEE Education Society. One example of collaborative success involving students, teachers and researchers involved in the P1876™ WG is Dr Mohamed Tawfik’s paper under Professor Manuel Castro’s supervision during his thesis.

3. The Standards Committee Members contributed to the writing of the new Industry Connection Initiative of Learning Technology Standards Committee called ICICLE (www.ieeeicicle.org). Our IEEE Standard on Networked Smart Learning Objects for Online Laboratories WG (P1876) and some of our contributions were mentioned in the project submitted to IEEE-SA. IEEE Education Society is now member of ICICLE and some members of the P1876™ WG are taking part of the SIGs created.

4. The Chair of the P1876™ had an opportunity, as a guest speaker, to take part at the 2018 Computer Supported Education Conference in Madera. I was our pleasure to notice an increase interest of computer based and cyberphysical research and education communities.

Roadmap & Milestones

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1 Tawfik, Mohamed; Salzmann, Christophe; Gillet, Denis; Lowe, David; Saliah-Hassane, Hamadou; Sancristobal, Elio, & Castro, Manuel (2014). Laboratory as a Service (LaaS): a Model for Developing and Implementing Remote Laboratories as Modular Components. International Journal of Online Engineering (iJOE), 10 (4).
• On 7-Dec-2016 the IEEE-SA Standards Board accepted the updated Sponsor Policies & Procedures submitted for EDU/SC Standards Committee. These P&Ps are valid until 31-Dec-2021. The P&Ps have been labeled "Accepted" in myProject and are now posted at http://standards.ieee.org/about/sasb/audcom/pnp/EDU.pdf.

• For this past June 2017 IEEE-SA AudCom meeting, EDU/SC Working Group updated and submitted to IEEE-SA P&Ps were deemed without issue. That means that we are good to pursue for two more years. But the plan is to have the standard done next year (December 2018).

• Our technical editor is finalizing the draft to ballot the work done so far in October 2018 as mentioned in the last Standards Committee Report to EdSoc Board of Governors.

• Balloting procedure:

  • In July 2018 (next month) we will be ready to submit our draft for Mandatory Editorial Committee (MEC) and for the Sponsor Ballot Invitation. Both are 30 day processes and can be started on the same day. The MEC process is where IEEE-SA staff editors will look at our document, check template, references etc.

Special Thanks

On April 26th new Vice-Chair and a Secretary of the Working Group, respectively Luis Felipe Zapata Rivera and Janusz Zalewsky were elected. As the Chair of the WG, I congratulate both these candidates for their past contributions and dedicated future work we foresee. This report is also an opportunity to thank Prof. Miguel Artacho Rodriguez for his commitment as a Vice-Chair these past years. We also thank IEEE EdSoc for their financial support helping us to reach our goal.

This report is giving me the opportunity to thank and congratulate Dr Pablo Orduna, Vice-Chair of the Standards Committee, who just left, for his volunteer contribution to both the Standards Committee and the P1876 WG.

Hamadou Saliah-Hassane
Chair of EdSoc Standards Committee