

Special Event:
IEEE LTSC PRESENTATIONS



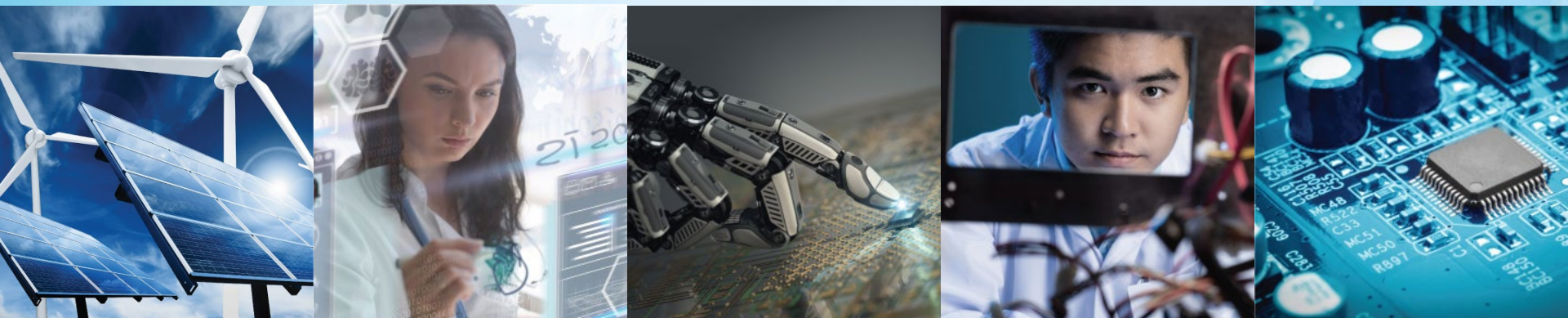
The IEEE Learning Technology Standards Committee (IEEE LTSC) Standards Program

Robby Robson, Ph.D.
Eduworks

Additional Authors:
Robert Sottolare, Ph.D., Jonathan Poltrack,
Jim Goodell & Avron Barr

Social: #ADLiFEST | WiFi: HILTON_MEETING / Password: ADLiFEST

iFEST



The IEEE Learning Technology Standards Committee (IEEE LTSC) Standards Program

Hosted by Robby Robson and Avron Barr

The Program for Today

- ▶ **The IEEE Standards Association (IEEE-SA) [5 minutes]**
Jonathan Goldberg, IEEE-SA staff liaison to the IEEE LTSC
- ▶ **The IEEE LTSC Portfolio [10 minutes]**
Robby Robson, IEEE-SA Board of Governors and Vice Chair (and former Chair) of the IEEE LTSC
- ▶ **Panel: ADL-Related Standards Projects [15 minutes]**
Jim Goodell, Chair P1484.20 (Competencies)
Bob Sottolare, Chair P2247 (Adaptive Instructional Systems)
Jono Poltrack, Chair P9274 (xAPI)
Andy Johnson, Chair P1484.12.4 (SCORM Renew)
Avron Barr, LTSC Chair representing P7919 (eBooks for Learning)
- ▶ **Questions for the Panel [30 minutes]**
The Audience

The IEEE Standards Association

Jonathan Goldberg

Global IEEE

The largest technical community in the world!

- ▣ Mission
 - Advancing Technology for the Benefit of Humanity
- ▣ Membership
 - 417,000 Members in 160 Countries
 - With 46 Societies and Technical Councils
 - 330 Sections in 10 Geographic Regions
- ▣ Activities
 - 1,800 conferences *per year* (average of 5 per day)
 - 200 transactions, journals, and magazines
 - 4 million documents in IEEE Xplore®



The IEEE Standards Association

Globally Recognized Standards

- ▶ Portfolio
 - 1200+ active standards
 - 700+ standards in development
- ▶ Membership
 - 7000+ Individual Members
 - 20,000+ Standards Developers
 - 300+ Corporate Members
- ▶ Activities
 - **Standards Development**
 - **Incubation (Industry Connections)**
 - IEEE Conformity Assessment Program (ICAP)
 - Registration Authority (e.g. MAC addresses)
 - Corporate Advisory Group
 - **Open Source (NEW!)**

Global Collaboration



- ▶ 100+ Smart Grid Standards
- ▶ Flagship WiFi and telecommunications (802)
- ▶ 400 – 500 standards in power & energy
- ▶ Ethical applications of technology

Standards Development

*Open, Transparent, Industry
Consensus Standards*

- ▶ Process governed by five imperatives:
 - Openness: Anyone can participate
 - Consensus: Decisions are consensus-driven
 - Balance: All stakeholders represented, no one interest can dominate
 - Due Process: Governed by visible procedures, entire process is transparent
 - Right of Appeal: Any decision may be appealed on procedural grounds
- ▶ Subscribes to Open Stand Principles of the IEEE, IETF, W3C, Internet Society, and IAB
 - Respectful cooperation among standards organizations
 - Adherence to principles (above)
 - Focus on technical merit and benefits
 - Free or Fair, Reasonable, and Non-Discriminatory (FRAND) terms
 - Standards are voluntarily adopted. Success is determined by the market

- ▶ Well-designed, well-honed process
- ▶ Supported by staff and tools
- ▶ With global reach
- ▶ And access to technical expertise

The IEEE LTSC Portfolio

Robby Robson

The IEEE LTSC

History and Scope

- ▶ 20+ Year History
 - Started in 1997
 - 14 Published Standards
 - 12 Approved Active Projects
 - Several Study Groups looking at new projects (including one joint project with the IEEE Education Society)

- ▶ Scope
 - **Accredited technical standards for learning technology¹ and the design methods and practices that facilitate its development, deployment, and maintenance.**



¹ software, hardware, tools, and technologies used to develop, deliver, disseminate, and analyze learning, education, and training

First Wave of Standards

Enabling Portability for Learning Content

- ▶ Learning Object Metadata (LOM – Joint with IMS Global – part of SCORM) [2002]
 - With XML Binding [2005]
- ▶ Learning Technology Systems Architecture (LTSA) [2003]
- ▶ Content Object Communication (SCORM Runtime communication) [2003 – 2005]
 - JavaScript API
 - XML Binding
- ▶ Reusable Competency Definitions (RCD - IMS Global version is RDCEO) [2007]
- ▶ Recommended Practice for Digital Rights Expression Language (DREL) [2007]
- ▶ Resource Aggregation Model for Learning, Education, and Training (RAMLET) [2012 – 2016]
 - Conceptual model plus five mappings from other standards to the conceptual model

Current Portfolio

Focused on Data Collection, Analysis, and Governance

- ▶ SCORM Renew (10-year expiration)
 - Maintain content object communication standards used in SCORM as active standards
- ▶ Competency Definitions
 - Standardizing “ecosystem mapping” work that found commonalities among standards for competencies and competency frameworks
- ▶ xAPI
 - JSON Data Model and RESTful Web Service
 - Implementation
- ▶ Adaptive Instructional Systems
 - Classification
 - Interoperability
 - Evaluation
- ▶ eBooks and eReaders for Learning
 - Requirements to support learning applications
- ▶ Augmented Reality Learning Experience Model
 - Conceptual and data models for portability of AR-enhanced learning activities
- ▶ Digital Intelligence (DQ)
 - Framework for Digital Literacy, Skills, and Readiness originating in the DQ institute
- ▶ Federated Machine Learning
 - ML on data sets that cannot be combined
- ▶ Child and Student Data Governance
 - Help users certify how they approach accessing, collecting, storing, utilizing, sharing, and destroying child and student data.

But Wait ... There's More

Related and Future Activities

- ▶ Industry Connections Industry Consortium on Learning Engineering (ICICLE)
 - Defining and promoting Learning Engineering as a new profession and an academic discipline
 - 600+ members
 - Successful conference (May 2019)
 - Future as IEEE community / council / society
- ▶ New joint project with the IEEE Education Society on Secure and Trusted Learning Systems
- ▶ New Study Group on defining the architectural framework of the modern learning ecosystem
- ▶ Collaboration with ISO/IEC JTC1 SC36 (Information Technology for Learning, Education, & Training)

Panel on ADL-related Standards Projects

Short statements followed by audience questions

Each panelist has been asked to

- ▶ State their name and affiliation
- ▶ State the name of the standards project they Chair or represent
- ▶ State the ***problem*** the standard is intended to solve in one sentence
- ▶ State the ***technical approach*** being taken in two or three sentences
- ▶ State the ***current status*** of the project

Wrap-up

And contact information

How to get involved

Requirements, contact information, and meeting times

- ▶ You do not need to be an IEEE member to participate in standards development
 - You do need to be a member of the IEEE-SA to vote on approval of a draft standard after it is developed by and submitted by a working group
 - Each WG has its own meeting times, typically weekly, bi-weekly, or monthly
- ▶ To get involved:
 - Go to <https://sagroups.ieee.org/ltsc/>
 - Sign up to get notifications of our meetings
- ▶ Contact one of us:
 - Robby, robby@ieee.org
(Please use this email address for standards.)
 - Avron, avron@ieee.org
 - Bob, bob.sottolare@soartech.com
 - Jim, jimgoodell@qi-partners.com
 - Andy, andy.johnson.ctr@adlnet.gov
 - Jono, jono@veracity.it
 - Jonathan, goldberg.j@ieee.org