Agenda

- Overview of IEEE
- IEEE-SA and Augmented Reality
- IEEE Standards Assessment
  - IEEE 3333
  - IEEE 802.15
  - IEEE 1588
  - IEEE 11073
  - IEEE 2200
- IEEE-SA AR Marketing Activities
Overview of IEEE
IEEE: World’s Largest Professional Association
Advancing Technology for Humanity

Our Global Reach

- **430,000+ Members**
- **45 Technical Societies**
- **190+ Countries**

Our Technical Breadth

- **1,300+ Annual Conferences**
- **3,600,000+ Technical Documents**
- **160+ Top-cited Periodicals**
IEEE Technical Societies/Councils

- Aerospace & Electronic Systems
- Antennas & Propagation
- Broadcast Technology
- Circuits & Systems
- Communications
- Components, Packaging, & Manufacturing Technology
- Computer
- Computational Intelligence
- Consumer Electronics
- Control Systems
- Council on Electronic Design Automation
- Council on Superconductivity
- Dielectrics & Electrical Insulation
- Education
- Electromagnetic Compatibility
- Electron Devices
- Engineering in Medicine & Biology
- Geosciences & Remote Sensing
- Industrial Electronics
- Industry Applications
- Information Theory
- Intelligent Transportation Systems
- Instrumentation & Measurement
- Lasers & Electro-Optics
- Magnetics
- Microwave Theory & Techniques
- Nanotechnology Council
- Nuclear & Plasma Sciences
- Oceanic Engineering
- Power Electronics
- Power & Energy
- Product Safety Engineering
- Professional Communication
- Reliability
- Robotics & Automation
- Sensors Council
- Signal Processing
- Social Implications of Technology
- Solid-State Circuits
- Systems Council
- Systems, Man, & Cybernetics
- Technology Management Council
- Ultrasonics, Ferroelectrics, & Frequency Control
- Vehicular Technology
IEEE Standards

Span a broad spectrum of technologies

Examples:

- Aerospace Electronics
- Broadband Over Power Lines
- Broadcast Technology
- Clean Technology
- Cognitive Radio
- Design Automation
- Electromagnetic Compatibility
- Green Technology
- LAN/MAN
- Medical Device Communications
- Nanotechnology
- National Electrical Safety Code
- Organic Components
- Portable Battery Technology
- Power Electronics
- Power & Energy
- Radiation/Nuclear
- Reliability
- Transportation Technology
- Test Technology
Collaboration is our Foundation

IEEE brings people and technology together for mutual benefit
IEEE-SA Standards Drive Markets

Evolution of traditional country-based models for standards development to **market-driven models**

<table>
<thead>
<tr>
<th>Open Process</th>
<th>Consensus-based</th>
<th>eTools</th>
<th>Global Community</th>
</tr>
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<tbody>
<tr>
<td>- Open membership</td>
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<tr>
<td>- Open participation</td>
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<td></td>
<td></td>
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<tr>
<td>- Based on WTO and OpenStand principles</td>
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<tr>
<td>- Collaboration</td>
<td></td>
<td></td>
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<tr>
<td>- Facilitate remote participation, lessening travel costs</td>
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<td></td>
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<tr>
<td>- Participation from around the world</td>
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</tbody>
</table>

**Standardization is borderless:**

Global standards sustain products and services for implementation and use by customers in a globalized world
Different Paths: Standards Development

**Individual Method**
- Participants are individual technical experts
- Individuals represent themselves
- Each individual participant has 1 vote
- Ballot groups are made up of a minimum of 10 individuals
- Ballot group participants must be IEEE-SA individual members

**Entity (Corporate) Method**
- Participants are “entities,” i.e., companies, universities, government bodies, etc.
- Designated representative and alternate represent the entity
- Each entity has one vote
- Requires 3 entities
- Entity sends representatives to meetings

- Open membership, participation, and governance
- No restrictions
- Any individual or organization
- Includes academia
- Any industry or size of company
IEEE Standards

The IEEE-SA supports the full life cycle from incubation to market acceptance to provide industry with a venue for innovation.
IEEE-SA and Augmented Reality
IEEE-SA and AR

IEEE Standards Association offers a platform for developers and users worldwide to innovate for open and interoperable AR

IEEE-SA is working to stimulate innovation of emerging AR technology

- Educating stakeholder communities
- Monitoring research
- Studying open AR user/buyer requirements

IEEE-SA is partnering with leaders to foster and grow the global AR market

Creating AR standards will allow for widespread market adoption and implementation
New IEEE AR program

Augmented Reality Directions and Standards

A program of IEEE-SA Industry Connections

- Approved in March 2014 by SASB
- Starting activities Summer 2014

The central goals of this project are to

- Identify needs and propose projects for new standards and best practices for AR technologies
- Create and maintain an online forum for solicitation of concepts related to the above for the lifetime of the IC program
- Gather (collect and document) the requirements of the AR users, managers and developers
- Establish how requirements can be met with tools based on existing and emerging IEEE-SA standards
- Identify interoperability obstacles or gaps that can be filled with new specifications and standards developed within the IEEE-SA
- Develop recommended practices for the use of IEEE-SA standards in AR deployments

Other SA AR activities

Developing assets for market education and awareness programs

Engaging with IEEE working group chairs to increase the support for AR in existing and future IEEE standards
  • Focusing on standards and technical areas that need to add definition of AR to their scope of work

Driving AR awareness across IEEE societies and members
  • Aiming to serve as a lead for all of IEEE
  • Disseminating information about how IEEE standards can advance AR
  • Demonstrating domain-specific uses for AR
  • Organizing information and demonstration events, as well as community and expert discussions
### IEEE Vertical Market/Industry Areas Relevant to AR

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Medical</strong></td>
<td>• Health&lt;br&gt;• Quantified self&lt;br&gt;• Human/workplace safety</td>
</tr>
<tr>
<td><strong>Emergency management</strong></td>
<td>• Homeland security (e.g., radiation monitoring)</td>
</tr>
<tr>
<td><strong>Power and electrical system operation</strong></td>
<td>• How to detect and use?</td>
</tr>
<tr>
<td><strong>Transportation (vehicular)</strong></td>
<td>• Transportation electrification</td>
</tr>
<tr>
<td><strong>Learning technologies</strong></td>
<td>• Training tool</td>
</tr>
</tbody>
</table>
Web Presence

Created new web presence for AR in 2014

Part of Innovation Spaces area

Covers future possibilities in AR (AR in 2020)

Hub location for information on the AR webinar series

Includes list of current IEEE-SA projects and standards relevant to AR

Expanding with FAQ and white papers in near future
AR in Your Future

A virtual event series

Features monthly presentations followed by a moderated expert panel discussion, sharing insights into large opportunities and obstacles in AR

Provides value to both those who are new to AR and those who are familiar with the technologies and their uses

Preparing analysis of participants to date (available later this summer)

Intend to survey participants for their input
AR in Your Future

Past events

• Introduction to Augmented Reality
• The Role of Trust in the Future of AR
• AR and Privacy
• AR Today
• AR & Wearable Technology
• Urban AR
• AR and the City
• The Business of AR
• Generating New Revenues with AR

New webinars planned for Fall 2014!

• AR Scenarios for 2020
• And more to come

Links to all webinars at http://standards.ieee.org/innovate/ar/future.html
AR in 2020

- The result of two workshops held in London and Barcelona in early 2014
- A group of invited authors and futurists discussed a few of the most likely scenarios for AR in the year 2020
  - Used the scenario planning approach developed and led by Woody Wade, author of the award-winning *Scenario Planning: A Field Guide to the Future* and CEO of 11 Changes
- White paper allows readers to consider how they might contribute to and adjust their strategies in order to excel in future that includes AR
Assessment of IEEE-SA Standards

IEEE-SA examined its existing standards and projects for their relevance to AR

Used the impact areas listed to the right

The next two slides identify key standards and projects with a strong relevance to AR

Establishes a platform to build additional AR work in IEEE

Six Potential Impact Areas

- AR Publishing & Delivery Workflow
- Describes Digital Assets
- Personalizes User Experience
- Enables User Communication
- Describes Physical Assets/Attributes
- Uses or Defines Time
## Top IEEE Standards Relevant to AR

<table>
<thead>
<tr>
<th>Standard Number</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>P1907.1</td>
<td>Standard for Network-Adaptive Quality of Experience (QoE) Management Scheme for Real-Time Mobile Video Communications</td>
</tr>
<tr>
<td>P2200</td>
<td>IEEE Standard Protocol for Stream Management in Media Client Devices</td>
</tr>
<tr>
<td>P3333.2</td>
<td>3D model imaging/display based on medical data</td>
</tr>
<tr>
<td>1516</td>
<td>IEEE Standard for Modeling and Simulation (M&amp;S) High Level Architecture (HLA)--Framework and Rules</td>
</tr>
<tr>
<td>1278.2</td>
<td>IEEE Standard for Distributed Interactive Simulation--Communication Services and Profiles</td>
</tr>
<tr>
<td>802.15</td>
<td>Personal area networks and body area networks family of standards</td>
</tr>
<tr>
<td>1828</td>
<td>Standard for systems with virtual components (VR)</td>
</tr>
<tr>
<td>1484</td>
<td>Learning technology data model for content object communications family of standards</td>
</tr>
<tr>
<td>1722-2011</td>
<td>IEEE Standard for Layer 2 Transport Protocol for Time Sensitive Applications in a Bridged Local Area Network</td>
</tr>
<tr>
<td>Standard</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>11073</td>
<td>Health informatics--Medical/health device communication family of standards</td>
</tr>
<tr>
<td>P3333.1.1</td>
<td>Standard for Quality assessment of Three-Dimensional (3D) Contents Based on Psychophysical Studies</td>
</tr>
<tr>
<td>1636</td>
<td>Family of standards that defines software interfaces for standard maintenance information collection and analysis</td>
</tr>
<tr>
<td>1224.2</td>
<td>IEEE Standard for Directory services API</td>
</tr>
<tr>
<td>802.1</td>
<td>High-level interfaces (network communications with time stamp) family of standards</td>
</tr>
<tr>
<td>1725-2011</td>
<td>IEEE Standard for Rechargeable Batteries for Cellular Telephones--Portable power for AR-enhanced devices and wearable computing</td>
</tr>
<tr>
<td>1873</td>
<td>Standard for Robot Map Data Representation for Navigation</td>
</tr>
<tr>
<td>1588</td>
<td>IEEE Standard for a Precision Clock Synchronization Protocol for Networked Measurement and Control Systems</td>
</tr>
</tbody>
</table>
IEEE P3333.1.1 and P3333.1.2

P3333.1.1

- **Standard for the Quality of Experience (QoE) and Visual Comfort Assessments of Three Dimensional (3D) Contents based on Psychophysical Studies**
  - Visual saliency prediction method
  - Visual contents analysis method
    - Spatial characteristics of 3D contents
    - Temporal characteristics of 3D contents
  - **Subjective assessment method**
    - Continuous assessment methodology
    - Paired comparison methodology

P3333.1.2

- **Standard for the Perceptual Quality Assessment of Three Dimensional (3D) Contents based on Physiological Mechanisms**
  - Saliency variation according to the 3D distortions
  - Quality assessment based on stereopsis, binocular rivalry and suppression
Contents of 3333.1.1

Visual saliency prediction method
- General
- Human visual system
- Saliency prediction method

Visual contents analysis method
- General
- Human visual system
- Spatial characteristics of 3D contents
- Temporal characteristics of 3D contents

Subjective assessment method
- General
- Display device for subjective assessment
- Continuous assessment methodology
- Paired comparison methodology
Roadmap (C/SAB/P3333.1_WG)

2013
- Subjective 3D test methodology
- 3D Discomfort Assessment of Stereo Images
- 3D Discomfort Assessment of Stereo Videos

2014
- Objective Visual Discomfort Model Evaluation using IEEE-SA Stereo Video Database I (Visual Discomfort)

2015
- Objective Perceptual Quality Model Evaluation Using IEEE-SA Stereo Video Database II (Perceptual Distortion)

* WD : Working Draft
* SB : Sponsor Ballot Request
* AP : IEEE-SASB(RevCom) Approval
* MT : Standards Maintenance
* CFP : Call for Proposal
3D Video Database Construction

Database Server

- [http://grouper.ieee.org/groups/3dhf/](http://grouper.ieee.org/groups/3dhf/)

Please click on the ‘Stereoscopic (3-D imaging) Database’ link.
The motivation behind 3333.2

1. 3D Reconstruction Engine
2. Rendering, Texturing
3. 3D Big data Platform
4. Data format, compression and Transfer

Digital Video
Data

TCP/IP
Transfer

Standard Medical 3D Platform

Viewer
AR

Diagnosis
Simulator
Medical 3D Standard

Basic steps for 3D - IT Convergence

Scope

- Data format
- Economic, uniform quality and safety
- IEEE-SA Medical 3D Standard WG
# Medical 3D Standards

<table>
<thead>
<tr>
<th>P3333.2.1</th>
<th>Modeling</th>
</tr>
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<tbody>
<tr>
<td>P3333.2.2</td>
<td>Visualization</td>
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<tr>
<td>P3333.2.3</td>
<td>Data Management</td>
</tr>
<tr>
<td>P3333.2.4</td>
<td>Motion &amp; Kinematics</td>
</tr>
<tr>
<td>P3333.2.5</td>
<td>Terminology</td>
</tr>
<tr>
<td>P3333.2.6</td>
<td>Data File Format</td>
</tr>
<tr>
<td>P3333.2.7</td>
<td>Simulation</td>
</tr>
<tr>
<td>P3333.2.8</td>
<td>Dental</td>
</tr>
</tbody>
</table>
What its current status is...

P3333.2.1™ Standard_for_3D_Medical_Modeling

DIS

P3333.2.2™ Standard_for_3D_Medical_Visualization

Working Draft

P3333.2.3™ Standard_for_3D_Medical_Data Management

P3333.2.4™ Standard_for_3D_Medical_Simulation
802.15 Scope and Purpose

- Initial activities focused on wearable devices hence “personal area networks”

- Activities have proven to be much more diverse and varied
  - Data rates from 2kbps to 2gbs
  - Ranges from meters to kilometers
  - Frequencies from 400MHz to 800THz
  - Predominantly non TCP/IP applications

- Focus is on “specialty”, typically short range, communications. If it is wireless and not a LAN, MAN, RAN, or WAN, odds are its 802.15

- Only 802 Working Group with multiple MACs
802.15.4r Amendment for a Common Distance Measurement Technique (DMT)
802.15.4r (DMT)

This Task Group is drafting an amendment to IEEE 802.15.4 focusing on developing a consistent standardized protocol for wireless-based distance measurement.
802.15.8 (PAC)
Peer Aware Communications
802.15.8 (PAC)

SCOPE:

- Standard optimized for peer to peer and infrastructure-less communications with fully distributed coordination

- Features to include
  - Discovery for peer information without association
  - Discovery signaling rate typically greater than 100 kbps
  - Discovery of the number of devices in the network
  - Scalable data transmission rates, typically up to 10 Mbps
  - Group communications with simultaneous membership in multiple groups, typically up to 10
  - Relative positioning, multihop relay, and security

- Operation in selected globally available unlicensed or licensed bands below 11 GHz capable of supporting these requirements.
802.15.8 (PAC)

Purpose/Need:

- Provide a global standard for scalable, low power, and highly reliable wireless communications for emerging services such as social networking, advertising, gaming, streaming, and emergency services.

- Existing standards may be able to provide parts of the envisioned PAC services, but -

- No single standard provides infrastructure-less peer-aware communications with fully distributed coordination.
802.15.10- Layer 2 Routing

[Diagram showing three PANs (PAN1, PAN2, PAN3) connected to Concentrators 1, 2, and 3.]
Motivation for L2R

- Growing use of 802.15 in large mesh network applications such as Utility and more generally in Field Area Networks
- Need to address general requirements for L2 routing in Field Area Networks utilizing newer 15.4g and 15.4e amendments
- Support and use in higher layer protocols – the Internet of Things
Some Example FANs

- Smart Metering (HAN and NAN)
- Smart City - Street Lighting/Parking/Meters...
- Environmental Monitoring
- Smart Home
Network support for the Internet of Things

- Aim to connect many billions of devices to the internet and each other
  - Enables finer control of processes
  - Enable new synergies between systems
  - Enable new applications and improve old ones
  - Its really cool to be able to control things from my phone, tablet, laptop...

- Enabling communications to devices on this scale must be small fraction of overall cost to be viable
  - Wireless device eg 802.15.4, Bluetooth etc

- But we still want to use the tried and tested protocols used on the Internet

- Specifically, need to use IPv6 to cope with the expected volume of devices

Anticipated Completion: March 2016
802.15 Projects under Consideration

- 15.7 PHY Amendment for Optical Camera Communications
Study Group: 15.7 PHY Amendment for Optical Camera Communications

- This Study Group will draft a PAR and 5C for a PHY amendment to 15.7 implementing Optical Camera Communications with:
  - Scalable data rate
  - Positioning/localization
  - Message broadcasting
  - Goal is to use existing mobile device hardware using the flash, display and image sensors as the transmitting and receiving devices.
IEEE 1588
Uses of IEEE 1588-2008

- IEEE 1588-2008 is also known as PTP (precision time protocol)
- PTP is used to transfer time from a source (the grandmaster) over a network to one or more sink devices.
- The time source can be TAI (related to UTC by leap seconds) if the grandmaster gets its time from GPS or a similar source
- The most common network used for PTP is Ethernet
- Time transfer accuracy is typically <1 microsecond, although with care 50ns is readily achieved over LAN and with techniques developed at CERN 100 picosecond over distances from local to a few tens of kilometers
- PTP permits profiles that allow industries to select PTP options and attribute values to meet specific applications
Uses of IEEE 1588-2008 (continued)

- Profiles have been developed by:
  - IEEE 802.1AS targeted at audio-visual, automotive and industrial automation
  - IETF targeted at enterprise level applications
  - IEC and IEEE Power Engineering Society targeted at substation automation and transmission
  - General-purpose profiles are given in IEEE 1588-2008

- ITU-T has written 3 profiles specifying the use of 1588 for cellular backhaul synchronization. This is being used worldwide

- GE uses 1588 in their distribute control system for wind farms, power plants and the like

- Audio-visual uses the 802.1AS profile

- Industrial automation uses 1588 in machine control

- Military (particularly foreign) beginning to use 1588 in sonar applications,

- Machine condition monitoring vendors and general data acquisition using to sync measurements

- Financial industry using 1588 to timestamp financial transactions.
P1588 Working Group

- Currently in the process of revising 1588-2008
- Objectives are to introduce a layering model, fix known problems, bring profiles into closer alignment, add security measures, add CERN high accuracy technology
- 1 year into the project, probably 2-3 years to completion
- Big unknown- exactly what security requirements are.
- About 50 active participants: telecom, industrial, power participants
IEEE 11073
IEEE 11073 Medical Device Standards: Motivation and Use

- **interoperability**: Idealized scheme where medical devices of differing types, models, or manufacturers are capable of working with each other, whether connected to each other directly or through a communication system$^1$.
  - One of the biggest challenges in healthcare is device and data interoperability. IEEE 11073 addresses this issue.

- **Use**
  - Manufacturers, Medical Providers, and Patents
  - To reduce cost on implementation and product integration

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$^1$Definition out of the IEEE 11073 standard and endorsed by US FDA
Improving Personal Health Device Communications Through Consensus Building

Insulin Pump
IEEE 11073-10410™

Glucose Meter
IEEE 11073-10417™

Weigh Scale
IEEE 11073-10415™

Blood Pressure Monitor
IEEE 11073-10407™

Cardiovascular Fitness & Activity Monitor
IEEE 11073-10441™

Body Composition Analyzer
IEEE 11073-10420™

Sleep Monitor
IEEE 11073-10423™

Electrocardiograph (ECG)
IEEE 11073-10406™

Sleep Apnea Breathing Therapy Equipment
IEEE 11073-10424™

Connectivity Transports

IEEE 802.3™
(Often referred to as Ethernet)

IEEE 802.11™
(Often referred to as WiFi®)

IEEE 802.15.1™
(Often referred to as Bluetooth®)

IEEE 802.15.4™
(Often referred to as Zigbee®)

IEEE 11073-30300™
(Often referred to as Infrared Communications)

IEEE 11073-30400™
Near Field Communications

Cloud
IEEE P2301™
IEEE P2302™

Health Care Manager

Physician

World Wide Web
Completed Standards (17)

- IEEE Std 11073-10404 Dev specialization – Pulse oximeter
- IEEE Std 11073-10406 Dev specialization – Basic ECG
- IEEE Std 11073-10407 Dev specialization – Blood pressure monitor
- IEEE Std 11073-10408 Dev specialization – Thermometer
- IEEE Std 11073-10415 Dev specialization – Weighing scale
- IEEE Std 11073-10417 Dev specialization – Glucose meter + Revision
- IEEE Std 11073-10418 Dev specialization – INR (blood coagulation)
- IEEE Std 11073-10420 Dev specialization – Body composition analyzer
- IEEE Std 11073-10421 Dev specialization – Peak flow
- IEEE Std 11073-10424 Dev specialization – Sleep Aponea Breathing Therapy Equipment
- IEEE Std 11073-10425 Dev specialization – Continuous Glucose Meter

- IEEE Std 11073-10441 Dev specialization – Cardiovascular + Revision
- IEEE Std 11073-10442 Dev specialization – Strength

- IEEE Std 11073-10471 Dev specialization – Activity hub
- IEEE Std 11073-10472 Dev specialization – Medication monitor

- IEEE Std 11073-20601 Optimized exchange protocol + Amendment
- IEEE Std 11073-00103 Guide for Health informatics - Personal health device communication - Overview
Projects Underway (16)

- Other work being drafted
  - **IEEE Std 11073-20601 Optimized exchange protocol (Revision)**
  - IEEE P11073-10404 Dev specialization – Pulse oximeter (Revision)
  - IEEE P11073-10413 Dev specialization – Respiration rate
  - IEEE P11073-10419 Dev specialization – Insulin pump
  - IEEE P11073-10422 Dev specialization – Urine analyzer
  - IEEE P11073-10423 Dev specialization – Sleep Quality Monitor
  - IEEE P11073-10424 Dev specialization – Sleep Apnea Breathing Therapy Equipment
  - IEEE P11073-10425 Dev specialization – Continuous Glucose Meter
  - IEEE P11073-10417a Dev specialization – Glucose meter (Amendment)
  - IEEE P11073-10406a Dev specialization – Basic ECG (Amendment)
  - IEEE P11073-10471a Dev specialization – AI Living Hub (Amendment)
  - IEEE P11073-10407 Dev specialization – Blood Pressure Monitor (Corrigendum)
  - IEEE P11073-10408 Dev specialization – Thermometer (Corrigendum)
  - IEEE P11073-10415 Dev specialization – Weighing Scale (Corrigendum)
  - IEEE P11073-10420 Dev specialization – Body composition analyzer (Corrigendum)
  - IEEE P11073-10418 Dev specialization – INR monitor (Corrigendum)
IEEE P2200: The Challenge

- Improve the mobile/tablet user experience for consuming content
  - Video
  - Audio
  - Any other large/complex collections of data
- Reduce congestion on cellular networks caused by streaming or peak-usage issues
The Solution: IEEE P2200

- IEEE working group chartered to standardize off-peak caching of content to mobile devices
- Includes mobile network operators, hardware manufacturers, storage providers, software companies and regulators
- Version 1.0 is a published IEEE standard
- Version 2.0 is now under development
  - Support Intermediate Devices
  - Simplify APIs (eliminate WebIDL definitions)
  - Enhance ability to uniquely identify networks/devices
IEEE P2200 Strengths -- Content Owner Perspective

- 1. Premium quality content
  - practical, cost-effective HD and better content delivery

- 2. Lower delivery costs
  - off-peak capacity utilization
  - scheduled delivery of content

- 3. Platform-independent technology
  - non-proprietary, published international standard (IEEE Std. 2200)
  - works with any device
  - works with any DRM implementation
IEEE-SA AR Marketing Activities
Emerging Technologies: Augmented Reality
SXSW Interactive: Driskill Hotel Takeover, Austin, March 2013

+ Created an interactive digital takeover of the Driskill Hotel to promote OpenStand
+ Designed and installed the **largest interactive, AR mural in the world** @ 84’ x 32’

+ Mural and digital application dealt with concepts of production, advertising, and consumption

+ As user “consumed” the art by interacting with it, the creators collected anonymous touch event data to **better understand how individuals interact with public space**
Marketing Programs
(for AR, and using AR as a tool)

In 2014, IEEE-SA Marketing added AR as a tool to its official mix

• Engagement and excitement: to deliver persuasive messages to a technological minded audience

Tell “Connected Person” and “Bring Standards to Life” stories

Help promote IEEE-SA AR activities
Bring Standards to Life (BSTL) AR Project
(Multi-Phase)

Experience
- When holding a tablet up to the City Visions composite, the user becomes the “connected person”
- Can move through the “city” and will see, in AR, how IEEE standards create the underlying framework of the connected city and impact people’s daily lives

Deliverables
- A teaser video
- Android and IoS app
BSTL AR Project Event Roadmap 2014 -2015

I. **AWE:** Santa Clara, CA May, 27-29, 2014

II. **IEEE Sections Congress:** Amsterdam, NL, August 22-24, 2014

III. **M-Health Summit:** Washington DC, Dec. 7-11, 2014

IV. **CES:** Las Vegas, NV, January 6-9, 2015

V. **Mobile World Congress:** Barcelona, Spain, March 2-5, 2015

VI. **SXSW Interactive:** Austin, TX, March 13-22, 2015

VII. **HIMSS:** Chicago, IL, April 12-16, 2015
Augmented Marketing Materials For AR

Bringing useful information into your user experience with Augmented Reality (AR)

Forget “information at your fingertips” — the next generation of augmented reality devices will integrate valuable information directly with your environment, so that it’s part of your experience as you interact with the world. Many emerging and existing technologies will be involved in bringing about an augmented reality future, and the standards process offers a path for realizing AR’s full potential.

IEEE-SA Industry Connections (IC) is leading campaigns and projects to ensure that AR reaches its full potential as an enhancement to human life and information use. While advertising and other commercial uses will be obvious drivers of early AR adoption, the educational, artistic, and socio-political aspects of AR should be nurtured equally.

Learn more about IC’s augmented reality projects, visit standards.ieee.org/develop/indscomm/ar

What Is Augmented Reality?

Augmented reality (AR) is the combination of digital information with a person, place or thing in the physical world in a manner that appears tightly integrated.

Applications for AR

Augmented reality has many applications, and many areas can benefit from the use of AR technology. AR was first used for military, industrial, and medical applications, but was soon applied to commercial and entertainment areas.

Most of the tasks and entertaining or commercial materials can be identified and software with context will trigger AR experiences.

Among the thousands of applications, we can use AR for:

- Learning in school, in the world and on the job.
- Diagnosing problems in our machines and maybe even our bodies.
- Getting instructions.
- Navigating indoors and outside.

Learn more about IEEE Standards Association’s AR activities standards.ieee.org/innovate/ar/
IEEE-SA information & materials

IEEE-SA Web site
http://standards.ieee.org/

IEEE AR information
http://standards.ieee.org/innovate/ar/

Mary Lynne Nielsen
m.nielsen@ieee.org
QUESTIONS?

Thank You!