

CONFERENCE PROGRAM



RESNA 2017

ANNUAL CONFERENCE

AT Innovation Across the Lifespan

June 26-30, 2017

June 26-27: Pre-Conference

June 28-30: Conference

Hilton New Orleans Riverside
New Orleans, LA



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Welcome from the Conference Chair and Vice Chair

Welcome to New Orleans and RESNA 2017! Whether it's your first RESNA conference or your 30th, you will find a rich environment filled with new insights, new inspirations, and new relationships. We worked hard to refresh the conference - Shortening workshops, bringing new CEU opportunities, and establishing dedicated time with our exhibitors.

It's going to be three very exciting and busy days where you'll be inspired by examples of excellence: A rich and insightful aging content track, featuring AGE-WELL NCE and RERC-TechSAGE, aligned with this year's theme, "AT Innovation across the Lifespan." Explore what's new and discuss products, services, delivery, and training supports. Meet innovators - from clinicians to researchers and engineers. Pay special attention to events featuring some of our newest and brightest thought producers, our students. This group is one of the most innovative our industry has to offer.

Tuesday evening, our AT Exhibit Hall opens with a welcoming reception. This is the place to meet innovators and discuss possibilities with numerous exhibitors. Maybe you'll solve that interesting problem from work, examine new ideas from a workshop earlier in the day, or find inspiration from scientific poster presentations.

Wednesday is when our conference begins. This includes workshops, the Student Design Competition, and a RESNA business meeting. That evening, join our fundraising Riverboat Cruise on the Creole Queen, featuring food, drinks, and entertainment. Boarding near the hotel, this event will raise money for our Founders Fund. This fund supports student competitions at the conference. We were among the first to sign up and encourage you to do the same. This event will forge relationships and support the profession.

Thursday morning, prepare to engage with thought-provoking debates. Workshops will continue throughout the day. Additionally, save Thursday evening to attend a reimagined Developers Showcase and Networking Event made with you in mind.

For us, the conference has always been special because it is small enough that we know each other. It's unique among all conferences, because you find a multi-disciplinary, diverse group of people who are generous with their time, knowledge, and ideas. This is sure to be an unforgettable conference.

New Orleans! *Laissez les bon temps roulez!*



John Anschutz, ATP, RET
2017 Conference Chair
Shepherd Center, Atlanta, GA
john_anschutz@shepherd.org



Rajesh Pagadala, MSBME, ATP, RET
2017 Conference Co-Chair
Georgia Vocational Rehab Agency, Macon, GA
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Welcome from the RESNA President



Thank you for choosing to participate in a very special event this year! Our conference chairs John Anschutz and Raj Pagadala along with our Local New Orleans chairs John Schweitzer and Frank Puckett have designed a stellar conference with extraordinary events!

RESNA 2017 in New Orleans is special for many reasons.

- 1) The assistive technology and rehabilitation engineering professions have knowledge base and mechanisms for quality instruction to monitor and denote quality educational programs. We are launching our Accreditation of Curricular programs this year with our first reviews of applications. RESNA's CoA-RATE (Committee on Accreditation - Rehabilitation Engineering and Assistive Technology Education) Board runs this.
- 2) We reinvented our Developers Forum into a Developers Showcase. This joins the Networking Reception for a more dynamic event.
- 3) SIGs (Special Interest Groups) and PSGs (Professional Specialty Groups) are instrumental to RESNA's planning and discussions. Scheduled to increase attendance - Be RESNA.
- 4) Join us at the Colin McLaurin Distinguished Lecture as Dr. Clifford Brubaker presents a formal treatise on our past and ideas for the future our field of assistive technology and rehabilitation engineering.

Students, ATP certified professionals, industry members, and visitors from North America and beyond, welcome to RESNA 2017. You are a truly impressive group.

Join the festivities, planning meetings, and discussions. Participate and network - this is an excellent opportunity. Please come say hi to me in New Orleans. I'd like to welcome you personally!

Roger O. Smith, Ph.D., OT, FAOTA, RESNA Fellow
President, RESNA
Professor, Department of Occupational Science & Technology,
College of Health Sciences
Director, Rehabilitation Research Design & Disability (R2D2)
Center

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Volunteer Opportunities at RESNA

RESNA is a membership-led organization with numerous volunteer opportunities for you to help build our organization and the field.

Special Interest Groups and Professional Specialty Groups

- Take the lead or join in developing a webinar, conference presentation, or position paper.
- Volunteer to be a Chair, Co-chair or Vice-Chair.

Committees

- Volunteer to lead projects.
- Consider offering to serve as a committee chair or vice chair.

Specialty Boards

- Specialty boards are often looking for new participants and have work groups that need volunteers.

Board of Directors

- Consider being a candidate for the Board.

COMMITTEES

- Special Interest Groups (SIGs)*
- Professional Specialty Groups (PSGs)*
- Education
- Government Affairs
- Meetings/Conference
- Membership, Marketing and Communications
- Research

*Visit www.resna.org for details.

SPECIALTY BOARDS

- Assistive Technology Standards Board
- AT Journal Editorial Board
- Development Board (Founders Fund)
- Professional Standards Board
- CoA RATE (Accreditation)

E-mail volunteer@resna.org if you want to learn more about volunteer leadership opportunities at RESNA.



www.resna.org

Exhibit Hall Activities



■ Opening Ceremony • Churchill, 2nd Floor

Tuesday, June 27 • 7:00pm – 9:00pm

■ Exhibitor Hall Coffee Break – Sponsored by NMEDA

Wednesday, June 28 • 10:30am – 12:30pm

■ Walkabout Lunch

Wednesday, June 28 • 12:15pm – 1:15pm

■ Exhibitor Hall Coffee Break – Sponsored by Permobil

Thursday, June 29 • 10:30am – 11:00am



New Orleans Bourbon



RESNA 2017

Thank You to the People Behind the Conference

Conference Planning Committee

John Anschutz, ATP/RET, *Chair*
 Rajesh Pagadala, MSBME, ATP, RET, *Conference Co-Chair*
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 Doug Gayton, ATP
 Alex Mihailidis, PhD, P.Eng
 Ray Grott, ME, ATP, RET

Scientific Papers Chair

Yih-Kuen Jan, PT, PhD

Student Scientific Paper Competition

Jennifer Boger, PhD, P.Eng
 Ed Giesbrecht, PhD

Student Design Competition

Emma Smith, MScOT, ATP/SMS

Local Host Committee

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 John Schweitzer, PhD, ATP

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Michael Brogioli, *Executive Director*
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 Yvonne Meding, *Secretary, Standards*
 Stacey Singleton, *Certification Program Coordinator*
 Julien Williams, *Manager of Membership, Marketing, and Communications*
 Corinne Weible, *Deputy Director, PEAT*

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Schedule-at-a-Glance

Monday, June 26 — Pre-Conference

8:30am – 5:30pm	Committee/Specialty Board meetings
8:30am – 5:30pm	Fundamentals Course Day 1
8:30am – 5:30pm	Wheelchairs Standards Committee
9:00am – 5:00pm	ISO/TC 173WG10 Committee

Tuesday, June 27 — Pre-Conference

7:00am – 11:30am	Decorator Set up (Exhibit Hall)
7:30am – 7:00pm	Registration Open
8:00am – 5:00pm	Wheelchairs and Transportation Standards Committee
8:00am – 6:00pm	Standards Committee and other meetings
8:30am – 5:30pm	Fundamentals Course Day 2
8:30am – 5:30pm	Instructional Courses
8:30am – 5:30pm	Wheelchairs Standards Committee
9:00am – 5:00pm	ISO/TC 173/WG10 Committee
10:30am – 5:00pm	Board Meeting
12:00pm – 5:30pm	Exhibitor Move-In
1:00pm – 3:00pm	Cognitive Accessibility Standards Committee
4:00pm – 6:00pm	Wheelchair and Related Seating Standards Committee
5:30pm – 6:30pm	First Timers Orientation
7:00pm – 9:00pm	Opening Ceremony and Welcome to New Orleans Party! (Exhibit Hall, 2nd Floor)

Wednesday, June 28 — Conference

7:30am – 6:00pm	Registration Open
8:00am – 9:00am	PSG Meetings
9:00am – 5:00pm	ISO/TC 173 Standards Committee
10:00am – 5:00pm	Exhibit Hall Open
9:00am – 10:30am	Opening Plenary Session: Alex Mihailidis, Keynote Speaker
10:30am – 12:30pm	Student Design Competition
10:30am – 11:00am	Coffee Break in Exhibit Hall <i>Sponsored by NMEDA</i>
11:00am – 12:00pm	Workshops

12:15pm – 1:15pm	Walkabout Lunch in Exhibit Hall
1:15pm – 2:15pm	Workshops
2:15pm – 4:00pm	Exhibit Hall dedicated/unopposed time and posters
4:00pm – 5:00pm	Workshops
5:30pm – 6:30pm	RESNA Business Meeting (with cash bar, snacks provided)
7:00pm – 9:00pm	Founders Fund Riverboat Cruise

Thursday, June 29 — Conference

7:30am – 5:00pm	Registration Open
9:00am – 10:30am	Plenary Session: The RESNA Debate
10:00am – 5:00pm	Exhibit Hall Open
10:30am – 11:00am	Coffee Break in Exhibit Hall <i>Sponsored by Permobil</i>
11:00am – 12:00pm	Workshops
12:00pm – 1:20pm	Awards Luncheon (exhibit hall closed)
1:30pm – 2:30pm	Workshops
2:45pm – 3:45pm	Workshops
3:45pm – 5:15pm	Exhibit Hall dedicated/unopposed time with posters
5:15pm – 6:15pm	SIG Meetings
5:15pm	Exhibit Hall closes
5:30pm	Exhibit Hall tear down begins
6:30pm – 9:30pm	Developers Showcase and Networking Reception

Friday, June 30 — Conference

7:30am – 10:00am	Registration Open
8:00am – 9:00am	Workshops
9:00am – 9:30am	Coffee Break
9:30am – 10:30am	Workshops
10:30am – 12:00pm	Closing Plenary: Colin McLaurin Lecture with Cliff Brubaker, PhD, RESNA Fellow and Remarks from RESNA's President, Roger Smith, PhD, OT, FAOTA, RESNA Fellow

General Information

Registration — Plaza Registration Office

The registration desk provides conference badges and receipts. Staff is also available to answer questions about the conference and RESNA.

Registration Desk Hours

Tuesday, June 27	7:30am – 7:00pm
Wednesday, June 28	7:30am – 6:00pm
Thursday, June 29	7:30am – 5:00pm
Friday, June 30	7:30am – 10:00am

Exhibit Hall Hours – Churchill Ballroom, 2nd Floor

Tuesday, June 27	7:00pm - 9:00pm
Wednesday, June 28	10:00am - 5:00pm
Thursday, June 29	10:00am - 5:00pm

The Exhibit Hall is open for free to the public on Wednesday and Thursday.

Emergency Contact Info

If there is an emergency, call 911. If at any time you need to contact a RESNA person on-site, stop by the registration desk.

Computer Tech Lab

The tech lab in Jackson Meeting Room, 3rd Floor, is equipped with a number of computers, WIFI, and loaded with demonstration software and alternative access technologies offering attendees opportunities for hands-on exploration and product comparisons. It is managed by Denis Anson, MS, OTR. Since some sessions take place in the tech lab, use of computers may be limited during those times.

Accessibility Services

Interpreting Services

RESNA makes arrangements for those requiring interpreting services based on requests received prior to the conference. There will be computer-assisted real-time translation (CART) services for the RESNA plenary sessions.

Alternative Formats

The final program, handouts received in advance from presenters, and conference proceedings are available for download from the RESNA website at www.resna.org.

Service Dog Walk Area

Individuals with guide or service dogs should inquire at the Hotel Registration Desk for the dog walking area.

Continuing Education Units – CEUs

RESNA is pleased to offer Continuing Education Units (CEUs) for registered attendees to all scientific and educational programs. RESNA will provide CEUs for conference educational programs: 0.1 CEU earned at the RESNA Conference is equivalent to 1.0 contact hour.

RESNA 2017 PROGRAM

	CEUs	(Contact Hour Equivalent):
Half-Day Instructional Course	.375	(3.75)
Full-Day Instructional Course	.75	(7.5)
Fundamentals Course (2 days)	1.4	(14.0)
Plenary Sessions	.15	(1.5)
Workshop Session	.1	(1)
Platform Session	.15	(1.5)

Computing Total CEUs for Conference

The formula for computing CEUs includes summing all of the minutes for all educational sessions attended, dividing by 60 minutes and dividing again by 10 hours, with the fraction for the last few minutes rounded off to the nearest tenth. If the resulting computation ends in 0.5 or higher, then we will round up to the nearest whole number. **Please see instructions provided on the CEU flyer in your conference bag for how to obtain your CEUs.**

Note: CEUs are not offered for the following segments of the conference program: meetings, receptions, and time spent visiting exhibits.

Consent to Use Photographic Images

By attending conference meetings and activities, attendees give the organizers permission to use the attendees' images or voices in photographs, videotapes, electronic reproductions, and audiotapes of such events and activities, both now and in the future.



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How the Sessions are Structured

Workshops

Each 60 minute session offers practical and cutting-edge information on contemporary issues in AT service delivery, research and policy. Sessions are interactive with time for participant input and discussion. See daily schedule for details of each workshop being presented.

Platform Sessions

Platform sessions feature 4-5 scientific papers that are grouped by topic and related subject to make a 60-minute presentation. Presenters of the papers include both professionals and students.

Interactive Poster Sessions

The poster format is a key vehicle for presenting the scientific papers accepted for the conference. Papers cover research, practical applications, and policy across a wide spectrum of topics. The format is designed to promote informal dialogue between attendees and presenters.

Student Design Competition

Sponsored by the National Science Foundation (NSF), the Center for the Translation of Rehabilitation Engineering Advances and Technology (TREAT), and ARM University, the competition features entries from potential future AT professionals. Chosen from a pool of entries, the semi-finalists will present their work in a platform session during the conference. They will also showcase their designs at the Developers Forum. TREAT will present one finalist team with an award, "Technology Most Likely to become Commercially Available," at the Awards Luncheon.

Student Scientific Paper Competition

Finalist student papers will be presented in a platform session during the conference. This competition is made possible by the generous support of the RESNA Founders Fund. Other papers receiving honorable mentions will be presented via poster presentations.

Note: Papers presented in the Platform and Poster Sessions are included in the Conference Proceedings that are posted on the RESNA website.

Instructional Courses

Experienced and knowledgeable individuals in their fields teach half and full-day courses on topics of interest and importance in assistive technology and rehabilitation engineering. These courses provide in-depth, intensive treatment of the topic being addressed combined with some hands-on training and lots of interaction. On-site registrations are accepted as space permits. There is a separate cost to attend the instructional courses.

RESNA Meetings

Monday, June 26

Newberry/Ascot, 3rd Floor Accreditation Committee Meeting

Tuesday, June 27

8:00am - 9:00am

Magazine, 3rd Floor PSG - Suppliers and Manufacturers

Royal, 3rd Floor PSG - Physical Therapists

Parish, 3rd Floor PSG - Occupational Therapists

Tech Lab Jackson, 3rd Floor PSG - Engineers and Technologists

Canal, 3rd Floor PSG - Vocational Rehabilitation

Commerce, 3rd Floor PSG - SLP's and Audiologists

Camp, 3rd Floor PSG - Educators

Marlborough B, 2nd Floor RERC Technology Transfer Plan Review Meeting

Wednesday, June 28

3:00pm - 5:00pm

Prince of Wales, 2nd Floor AT Journal Editorial Board Mtg,

5:30pm - 6:30pm

St. James Ballroom, 3rd Floor RESNA Business Meeting

Thursday, June 29

5:15pm - 6:15pm

Magazine 3rd Floor SIG - Accommodations

Royal, 3rd Floor SIG - Cognition and Sensory Loss

Parish, 3rd Floor SIG - Communication Technologies and Computer Access

Tech Lab Jackson 3rd Floor SIG - Consumer Access, Priorities, and Benefits over the Lifespan

Canal 3rd Floor SIG - Emerging Technologies (NEW)

Commerce 3rd Floor SIG - International

Camp 3rd Floor SIG Wheeled Mobility and Seating

Newberry/Ascot 3rd Floor SIG - Delivery Outcomes & Policy

Developers Showcase & Networking Reception

Thursday, June 29 • 6:30pm – 9:30pm

Location: Jefferson Ballroom 3rd Floor

Sponsored by TREAT, Center on Knowledge Translation for Technology Transfer - University at Buffalo (SUNY), and ARM University

A unique, interactive opportunity to provide feedback on new and upcoming products and a chance to view the Student Design Competition projects.

Pre-conference Instructional Sessions

Tuesday, June 27 • Full-day and Half-day Courses

Full-day Courses • 8:30am - 5:30pm

■ IC2 Full Day: Becoming An Assistive Technology “Maker” – A Hands-on Fabrication Workshop

Primary Subject Area: JEA Job & Environmental Accommodation- Including Ergonomics

3rd Floor Meeting Room: Canal

The “Makers Movement” continues to gain momentum nationally. Local, state and regional “maker spaces” are popping up across the country in order to fabricate devices and products in a timely fashion. This workshop embraces rapid fabrication techniques using an assortment of sustainable and reusable materials for creation of assistive technology devices that can be used in multiple ways to maximize independence at home, work, school, and play. This hands-on fabrication workshop will discuss, demonstrate and provide participants with new tools, materials, and techniques for fabricating hundreds of assistive technology devices in minutes. In addition, participants will fabricate six different multi-use devices.

■ IC3 Full Day: The essence of the WHO Wheelchair Service Training Package - Basic Level

Primary Subject Area: INT Internationally Appropriate Technology

3rd Floor Meeting Room: Commerce

The International Society of Wheelchair Professionals developed a combined online and in-person training, the Hybrid Course, based on the World Health Organization (WHO) Wheelchair Service Training Package - Basic Level. The purpose of the Hybrid is to decrease the cost of training and increase the number of people trained worldwide. The Hybrid was piloted in India, Mexico, Colombia, and the USA and proved to be an effective approach in increasing knowledge on basic wheelchair provision. This instructional course was designed to be suitable for pre-conferences and reach participants interested in updating their skills and knowledge according to the WHO guidelines.

Half-day Morning Courses • 8:30am - 12:30pm

■ IC5 Half Day Morning: The EADL Experience

Primary Subject Area: OUT Service Delivery and Outcomes

3rd Floor Meeting Room: Parish

Electronic Aids to Daily Living (EADL) offer Patients enhanced independence, quality of life, and safety. Unfortunately these systems can be expensive, involve a complex installation, and are not covered by insurance. For these reasons it can be difficult to trial and recommend the most appropriate EADL systems for Patients. This Instructional course will provide a detailed overview of traditional EADL systems and consumer electronic solutions. Additionally, participants will be given the opportunity for hands on setup and usage of various EADL systems related to specific case studies.

■ IC6 Half Day Morning: Speech Recognition as AT for Writing: A Guide for K12 Education

Primary Subject Area: COG Cognitive and Sensory Impairments

3rd Floor Meeting Room: Magazine

While the technological challenges of speech recognition (SR) have been overcome in the last ten years through the power of cloud computing, the pedagogical challenge of teaching K-12 students to use SR for writing has not been adequately addressed. A scaffolded teaching approach is needed. This intensive course unpacks SR through the lens of the AT process. Our motto is “You don’t know until you try it!” Consideration leads directly to 8 scaffolded steps for teaching SR to children. Assessment strategies are embedded in each teaching step to document effectiveness. Implementation and progress monitoring strategies round out the AT process.

Half-day Afternoon Courses • 12:30pm - 5:30pm

■ IC7 Half Day Afternoon: Measurement Approaches and Tools for the Accessibility of the Built Environment

Primary Subject Area: JEA

3rd Floor Meeting Room: Magazine

Numerous assessments exist to measure accessibility of built environments, both residential and public. Comprehensive assessment is a complex process integrating how space is used along with design elements for optimal function. This instructional course provides a history of accessibility assessment, a review of current and developing assessments, and hands-on opportunities to trial current tools and preview state-of-the-science products designed for mobile devices. A group of experts in accessibility and universal design assessment will lead discussions around practical implications of inter-professional teams and collaborations with different stakeholders. Take home materials specifically designed for this course will be provided.

■ IC8 Half Day Afternoon: Hands-On With 3D Design and Printing for Assistive Technology: Learn From 4 Expert Users in The Field

Primary Subject Area: New Emerging Technology

3rd Floor Meeting Room: Parish

This instructional course provides a hands-on introduction to 3D design & printing with examples from AT for ADLs, seating, toys and prosthetics. Low cost options for design software, 3D scanning and 3D printing will be discussed and a large hands-on period will allow trialing of this technology. Attendees will be able to describe how 3D printing works, list use cases in ADL tech, seating, adaptive toys & prosthetics, justifications for using 3D printing and low cost ways to access 3D design & printing.

Opening Reception

Tuesday, June 27 • 7:00pm – 9:00pm • Exhibit Hall, Churchill, 2nd Floor



Spend quality, one-on-one time with our wonderful exhibitors.

RESNA Standards Committee Meetings

Monday, June 26

8:30 am – 5:30 pm

Chequers, 2nd Floor

Wheelchairs (WCS)

9:00 am – 5:00 pm

Eglinton Winton, 2nd Floor

ISO/TC 173/WG10 Assistive products for cognitive disabilities

Tuesday, June 27

8:00 am – 5:00 pm

Cambridge, 2nd Floor

Wheelchairs and Transportation (COWHAT)

8:30 am – 5:30 pm

Prince of Wales, 2nd Floor

Wheelchairs (WCS)

9:00 am – 5:00 pm

Eglinton Winton, 2nd Floor

ISO/TC 173/WG10 Assistive products for cognitive disabilities

1:00 pm – 3:00 pm

Eglinton Winton, 2nd Floor

Cognitive Accessibilities (CA)*

4:00 pm – 6:00 pm

Marlborough A, 2nd Floor

Wheelchair and Related Seating (WRS)

Wednesday June 28

9:00 pm – 5:00 pm

Eglinton Winton, 2nd Floor

ISO/TC 173/WG10 Assistive products for cognitive disabilities



First Timers Orientation

Tuesday, June 27 • 5:30pm – 6:30pm

Jefferson Ballroom

Get the most out of your first RESNA conference experience!

Plenary Sessions

Opening Plenary Session: Disrupting the AT and Aging Landscape

Wednesday, June 28 • 9:00am – 10:30am • St. Charles Ballroom, 3rd Floor

Opening Plenary: Disrupting the AT and Aging Landscape

There has been significant research completed on the development of assistive and consumer technologies to support the wellness of older adults. However, the majority of these devices have not made it to market and suffer from various limitations that make them inappropriate for an older adult to operate efficiently and effectively. In order to ensure that future technologies for aging are useful, new ways of thinking in their designs is required. Disruption in the current technology landscape is needed that will force the way that we think about the design of these technology to change. This presentation will discuss the notion of disruptive technologies and how we are currently applying this concept is the design of our next generation of technologies for older adults.

Alex Mihailidis, Ph.D., P.Eng., is the Barbara G. Stymiest Research Chair in Rehabilitation Technology at the University of Toronto and Toronto Rehab Institute. He is also the Scientific Director of the AGE-WELL Network of Centres of Excellence, which focuses on the development of new technologies and services for older adults. He is an Associate Professor in the Department of Occupational Science and Occupational Therapy (U of T) and in the Institute of Biomaterials and Biomedical Engineering (U of T), with a cross appointment in the Department of Computer Science (U of T). He has been conducting research in the field of pervasive computing and intelligent systems in health for the past 15 years, having published over 150 journal papers, conference papers, and abstracts in this field. He has specifically focused on the development of intelligent home systems for elder care and wellness, technology for children with autism, and adaptive tools for nurses and clinical applications. His research has been completed through collaborations with other researchers in this field from Canada, the United Kingdom, and the United States, and with various industrial partners. Dr. Mihailidis has also co-edited two books: one from CRC Press entitled "Pervasive Computing in Healthcare", and the other from IOS Press entitled "Technology and Aging", which resulted from him being the conference chair for the 2nd International Conference on Technology and Aging.

Plenary Session 2: The RESNA Debate

Thursday, June 29 • 9:00am – 10:30am • St. Charles Ballroom, 3rd Floor

The RESNA Debate offers an opportunity to explore two sides of potentially controversial topics in the field of Assistive Technology and Rehabilitation Engineering. Two statements have been prepared which will be debated by experts in the field. A moderator will maintain timings and order of debaters.

Debate #1: Technology for Aging

Statement: Be it resolved that the future of assistive technology is in addressing functional limitations associated with aging rather than development of products addressing the needs of individuals with disabilities.

Moderator: Emma Smith, OT, ATP/SMS, University of British Columbia

Debaters: *For:* Jennifer Boger, BSc, MSc, PhD, PEng, University of Waterloo
Against: Daniel Cochrane, MA, MS, ATP, CUSD 200 Wheaton-Warrenville

Debate #2: Universal Design

Resolution: Be it resolved that universal design is critical to assistive technology product development.

Moderator: David Jaffe, MS, Stanford University

Debaters: *For:* Dianne Goodwin, MS, Blue Sky Designs
Against: Jim Lenker, PhD, OTR/L, ATP, University of Buffalo

Closing Plenary Session: The Colin A. McLaurin Lecture

Friday, June 30 • 10:20am – 12:00pm • St. Charles Ballroom, 3rd Floor

Reflections on a Career and the Privilege of Association with Rehabilitation Engineering and RESNA, by Cliff Brubaker, PhD, RESNA Fellow

This presentation of the McLaurin Distinguished Lecture will be the last significant professional event in the course of a 52 year career in Higher education at three noteworthy Institutions.

In addition to serving as a tribute to Colin McLaurin, whom I regarded, not only as a dear friend, but also my most significant mentor, I will present an annotated account of relevant rehabilitation engineering activities and events and other hopefully relevant and experiences in the course of my 52-year in higher education. First, at the University of Oregon 1964 – 1973 (faculty '66 – '73); followed by a substantial commitment to the years at the University of Virginia (1973 -1991), particularly '76 – '91, the period that began with the arrival of Colin McLaurin, which accounts for most of my engagement in research and rehabilitation engineering activity. I will conclude the presentation with an account of some relevant events and activities in rehabilitation engineering at the University of Pittsburgh where I shall officially conclude my academic career on Sept. 30, 2017.

Smith's Not So Mundane View of the Future of Assistive Technology and Rehabilitation Engineering, by RESNA's President Roger O. Smith, PhD, OT, FAOTA, RESNA Fellow

WORKSHOPS AND OTHER EVENTS

Every workshop is listed in the order in which it is scheduled, by day and time. Each description includes the name and affiliation of the presenter(s) and a short description.

Workshops are identified with these topic area codes:

CAC	Computer Applications & Communication
COG	Cognitive and Sensory Impairments
CRT	Seating and Mobility, Including Complex Rehab Technology
INT	Internationally Appropriate Technology
JEA	Job & Environmental Accommodation, Including Ergonomics
NEW	Emerging Technology
OUT	Service Delivery and Outcomes
OTH	Other (Please describe)
PP	Public Policy and Advocacy
SSPC	Student Scientific Paper Competition

Wednesday, June 28 • 10:30am - 11:00 am

Exhibit Hall: Coffee Break Sponsored by NMEDA

Wednesday, June 28 • 11:00am - 12:00 pm

■ **WS01: Analysis of Mobility Outcomes: What the Data Says**

Mark Schmeler

(OUT) Service Deliver Outcomes
Magazine, 3rd Floor

Standardized outcome measures and associated datasets are necessary to improve evidence and accountability in the field of mobility assistive equipment. This session will present updated developments in the Functional Mobility Assessment (FMA) registry along with the development of accompanied Uniform Data Set (UDS). Challenges and strategies associated with the implementation of standardized measures in clinical routine and associated data collection, aggregation, and analyses will be discussed from previous work and current collaborations with VGM/U.S. Rehab.

■ **WS02: ATP Ethics Survey Results - Preliminary Results**

Noel Estrada-Hernandez

(OUT) Service Deliver Outcomes
Royal, 3rd Floor

Evaluating the usability of assistive technology products presents unique challenges to researchers and practitioners who are working with product developers. This workshop will discuss common obstacles and suggest tactics for all aspects of the evaluation process, including: creating focused evaluation goals, participant recruitment, choosing or creating evaluation tools, data analysis, and synthesis of information. The discussion segment will give audience members the opportunity to share challenges they have encountered and strategies used to overcome them.

■ **WS03: Introduction to EEG-BCI, Neurofeedback Systems**

Qussai M Obiedat

(CAC) Computer Applications & Communications
Parish, 3rd Floor

This workshop introduces attendees to EEG and neurofeedback systems and describes a range of current applications. Discussions will highlight future applications and potentials of this technology. An EEG-BCI (brain computer interface) system will be available for live presentation, demonstration, and attendee participation. Four EEG-BCI systems will be described and compared. Two research applications specific to enabling 1) Functional Electrical Stimulation and 2) switch control for people with disabilities will be described.

■ **WS04: "Is there an Echo in Here?" Using Amazon Echo for Smart Home Control**

Charles Sammartino

(NEW) Emerging Technology
Tech Lab Jackson, 3rd Floor

The purpose of this presentation is to give attendees an introduction into Amazon's Voice-controlled personal assistant, the Amazon Echo. After 2 years on the market Echo is becoming a viable AT solution to support the needs of individuals with disabilities in our community. Using a live demonstration, learn how Smart Home technology functions and its interoperability with Echo using voice control. Want to take your skills further? Find out how to personalize Echo based on user needs/abilities using IFTTT (If This, Then That). Not enough? Get the tools you need to create your very own custom skill with Amazon's developer program!

■ **WS05: ATSB Report: New AT Standards During 2016-2017**

Patricia Karg, William Ammer, Seanna Kingen, Peter Axelson

(CRT) Seating, and Mobility, including Complex Rehab Technology
Commerce, 3rd Floor

RESNA's Assistive Technology Standards Board and individual RESNA Standards Committees produce performance standards across a wide range of Assistive Technology devices. These standards are used by many stakeholders, including consumers, policymakers, and third-party payers. Each year, new standards are introduced, as well as significant revisions to existing standards. This year, the ATSB will highlight standards in the areas of Adaptive Sports Equipment, Wheelchairs, Cognitive Accessibility, Inclusive Fitness, and a new proposed committee on Air Travel.

■ **WS06: Look what we did!! Accommodations Show and Tell**

Cindi L. Pichler

(JEA) Job & Environmental Accommodations, including Ergonomics
Camp, 3rd Floor

This session provides RESNA participants with a chance to share worksite accommodations or home modifications that they have fabricated, modified, or obtained. This session will feature six to eight presenters who use photos, video, and/or working models to show examples of recent projects. Worksite accommodations may range from agricultural to industrial to home office settings. The presenters will be encouraged to share information about relevant tools, materials, or informational resources that the audience might find useful. The presenters will also share key factors associated with successful accommodations.

Student Design Competition

Wednesday June 28 • 10:30 am - 12:30 pm • Location: Canal, 3rd Floor

An important way for students to participate in the conference is through the Student Scientific Paper Competition, sponsored by National Science Foundation, Center for Translation of Rehabilitation Engineering Advances and Technology (TREAT), and ARM University.

The finalists present a platform session during the conference while other qualifying student papers are included in the interactive poster sessions.

The purpose of the Student Scientific Paper Competition is to promote high quality scientific and engineering research in the field of rehabilitation engineering and assistive technology. The competition encourages students from a variety of disciplines to address contemporary issues in these fields through research and submit their papers for presentation at the RESNA Annual Conference. It focuses on the rigorous use of research methods in the field of rehabilitation engineering and assistive technology and is based on the scientific and engineering merit of the research.

Finalists

- **“Adjustable Grab Bar: A Height Adjustable Grab Bar Using A Hand Crank For Public Accessible Washrooms”**
Bradley Zakaib, Colin Goodman, Kristyn Zoschke
- **“AXIS: Portable Folding Wheelchair Transfer Board”**
Sherrie Yang, Elliot Davis, Bogdan Dimitriu, Mary Boyajian
- **“Evaluation Software for Computer Application Methods”**
Cody Dapper, Kevin Brennan, Jacob Colega, Cody Dapper, James Nixon, Trevor Reed, Phil Mongiat
- **“tÜthbrush: the U-shaped toothbrush”**
Zoe Lauters, Steven Erickson, Dylan DeBerardine, Justin Deithorn, Derrando Baez, Carlos Gonzales, Jon Carlos Brezina
- **“ChairStairs: An Assistive Technology Device For Independent Wheelchair-To-Ground Transfers”**
Abilee J. Kellett, Justin Turner
- **“FLICO: The Upper Limb Exercise Device for Home Based Rehabilitation of People with Post-Stroke”**
Won Hoe Gu, Hong-joong Jeong, Ye-Rin Cha, Youn-Kyung Kang, Min-sung Lee, Jung-Yeon, Kim



ARM University
Worldwide Education Program

RESNA wishes to thank the National Science Foundation, the Center for Translation of Rehabilitation Engineering Advances and Technology (TREAT), and ARM University Worldwide Education Program for their continued support.

Thank you to TREAT for sponsorship of the “Technology Most Likely to Become Commercially Available” award and to ARM University Worldwide Education Program for sponsoring this year’s cash prizes. The winner will be announced at the RESNA Awards Luncheon on Thursday, June 29.

Looking for the perfect candidate?

Post on the RESNA Job Board

Target a focused audience of qualified assistive technology professionals. Post your jobs, search résumés and promote your company online.

All job postings are also promoted on RESNA’s social media channels: Twitter, Google Plus, LinkedIn, and Facebook.

<http://careers.resna.org>



Wednesday, June 28 • 11:00am - 12:00 pm, cont.

■ **WS07: RERC on Technologies to Support Successful Aging with Disability**

Elena T. Gonzalez

(NEW) Emerging Technology
Newberry/Ascot, 3rd Floor

In large part due to advances in rehabilitation, individuals with long-term, and even congenital, impairments are living longer than ever before and are aging into the senior population. The RERC TechSAge a multidisciplinary research center dedicated to understanding the needs of, and developing supportive technologies for, individuals aging with long-term impairments. This workshop will highlight some of the RERC's current research, development and training projects, from mobile apps to robotic assistants. Presenters will discuss implications for future directions in technologies to support successful aging with disability.

Walkabout Lunch in the Exhibit Hall

Wednesday, June 28 • 12:15pm - 1:15pm



Wednesday, June 28 • 1:15pm - 2:15 pm

■ **WS08: Wheelchair Skills Training - a Practical Workshop on Popping Over Obstacles**

R. Lee Kirby and Cher Smith

(INT) International Appropriate Technology
Magazine, 3rd Floor

The Wheelchair Skills Program (WSP) (www.wheelchairskillsprogram.caExternal Links icon) is designed to help practitioners optimize the safety and maneuverability challenges that face wheelchair users and their caregivers. Although we will briefly review the background of the WSP and the available research evidence about the popping skills, the majority of the workshop will consist of practical skills training. This will include popping the casters on the level and over a threshold, over a gap and to ascend a small curb. On completion of the course, attendees will be able to implement such training in their own settings.

■ **WS09: Enhancing Engineering and Health Professional Education through Collaboration to Create AT**

Emma M. Smith

(OTH) Other
Royal, 3rd Floor

The development of assistive technologies requires expertise from a range of professionals to ensure devices are relevant, usable, and sustainable. While there are often efforts made to collaborate across disci-

plines, these are often fragmented and insufficient. Limited collaboration between users, engineers, and health professionals, may result in devices which are limited in their potential application, or do not adequately address the needs of the target population. For students in engineering and the health professions, we must provide meaningful opportunities for meaningful collaboration within the educational experience. In this workshop, we will explore the benefits of collaboration across disciplines, risks associated with fragmented or insufficient collaboration, and educational models to guide collaboration across disciplines. Participants will engage in focused problem solving to address structural challenges in curriculum delivery which currently hinder collaborative learning.

■ **WS10: Overcoming Barriers to Best Practice: Keep the Client First**

Ginger Walls

(OUT) Service Delivery and Outcomes
Parish, 3rd Floor

Clinicians and providers are challenged to find their way to 2017 best practice when innovations in technology are far outpacing advances in funding. Clients' independence is on the line! Clinicians and providers must understand how to empower their clients with choices of the best rehab technology solutions for clients' long term health, function and participation - as well as to keep their practice current with today's technology. This presentation will apply evidence and case studies in an interactive format to illustrate and discuss steps to best outcomes.

■ **WS11: Utilizing Telerehabilitation and Virtual Reality Approaches for Motor and Cognitive Treatment Through the Lifespan**

Sara E. Benham, Rachel Proffitt

(CAC) Computer Applications & Communication
Canal 3rd Floor

Telerehabilitation specifies virtual service deliveries, which decreases the geographic constraints individuals with disabilities may experience by allowing them to remain in their environments to receive therapeutic services. Telerehabilitation may be used to improve services and follow-up care, which reduces travel or cognitive barriers to self-initiate programs. These applications benefit the client as an adjunct to therapy or as a "home exercise program" after receiving therapy services. The speakers and participants will demonstrate three different cognitive and motor telerehabilitation or virtual reality applications, for use with a standard computer or Microsoft® Kinect™, with the pediatric, adult, or older adult client.

■ **WS12: Role of Focus Groups and Surveys in New Assistive Technology Product Development**

James A Leahy

(NEW) Emerging Technology
Commerce, 3rd Floor

This workshop will explore and discuss the role of consumer focus groups and surveys in new product development and provide a basic methodology for their administration. Focus group structure along with purposive sampling, recruitment screens, and state of the art product and feature demonstrations and their role in Concept Definition focus groups will be discussed. Techniques for constructing survey questions, survey response formats, and a comparison of survey response structures, will be addressed. Use of primary market research tools allow product developers to obtain specific design function and features directly from the product's targeted end users for products under development.

Paper Platform Session #1: Computer Applications and Communication

Moderator: Heidi Koester, Koester Performance Research

Wednesday, June 28 • 1:15pm - 2:15pm

Tech Lab Jackson, 3rd Floor

- **Developing an Accessible Archival Website**
Drew Williams, Colleen Regan, Jack Skelton-Miller, Jessica McCall, Caitlin Dobson, Dennis Tomashak, Sheikh Iqbal Ahamed, Roger O. Smith, University of Wisconsin-Milwaukee
- **Integrating a Participatory Design Approach: Developing Hestia with Multidisciplinary Perspectives**
Suzanne Perea Burns, Roger O. Smith, Rochelle Mendonca, & Noralyn Davel Pickens, Texas Woman's University- Dallas
- **Bimanual Multimodal image Substitution Perception: A comparison study**
Ting Zhang, Juan P. Wachs, Bradley S. Duerstock, Purdue University
- **EEG-BASED Brain-Computer Interface Access to Tobii Dynavox communicator 5**
Kamilya A. Gosmanova, Charles S. Carmack, David Goldberg, Kelly Fitzpatrick, Bart Zoltan, Debra M. Zeitlin, Jonathan R. Wolpaw, Ole Alexander Maehle, Anders Borge, Theresa M. Vaughan, National Center for Adaptive Neurotechnologies, Wadsworth Center

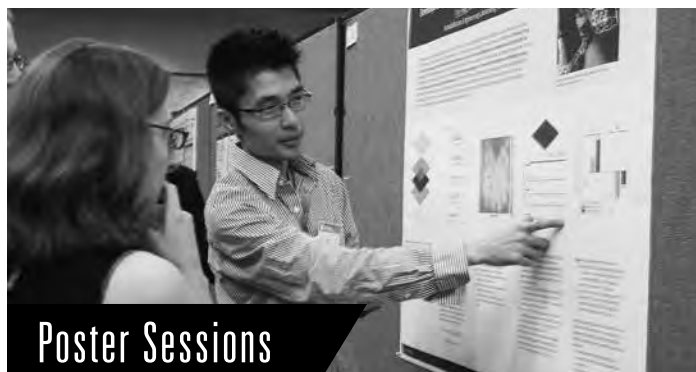
■ WS13: Aging Track: Meeting Users' Needs Through Technology: Guidance From Policy And Research

Wendy Rogers, Tanya Gallagher

(OTH) Other

Newberry/Ascot, 3rd Floor

Meeting users needs is the hallmark of rehabilitation engineering and should be informed by policy goals set by international organizations and through assessments of individuals. This workshop will focus on older adults aging with a long-term impairment, specifically with respect to the potential for technology support. Dr. Tanya Gallagher will provide an overview of policy guidelines from the World Report on Disability. Dr. Wendy Rogers will discuss the World Report on Ageing and Health as well as interview data from individuals aging with sensory and mobility impairment. Together they will lead a panel discussion regarding experiences and lessons learned.



Poster Sessions

Wednesday, June 28 • 2:15pm – 4:00pm

Thursday, June 29 • 3:45pm - 5:15pm

Location: Exhibit Hall (Churchill, 2nd Floor)

Scientific, practice-based, and policy-oriented papers are a key part of the RESNA Conference. Interact with the poster authors during unopposed time on Friday and Saturday.

Paper Platform Session #2: Wheelchair and Mobility

Moderator: Barbara Crane, University of Hartford

Wednesday, June 28 • 4:00pm - 5:00pm

Magazine, 3rd Floor

- **The Extent to Which Caregivers Enhance The Wheelchair Skills of Powered Wheelchair Users: A Cross-Sectional Study**
R. Lee Kirby, Paula W. Rushton, Francois Routhier, Louise Demers, Laura Titus, Jan Miller-Polgar, William C. Miller, Cher Smith, Bonita Sawatzky, Delphine Labbé, Mike McAllister, Chris Theriault, Kara Matheson, Kim Parker, Dalhousie University, Canada
- **Using Data Loggers to Describe Seasonal Patterns of Community Participation and Mobility of Wheelchair Users Over an Entire Year**
Jaimie Borisoff, Jacquie Ripat, Franco Chan, British Columbia Institute of Technology, Canada
- **Effect of Providing Powered Mobility on Infants' Social Behavior and Vocalization: Two Case Studies**
Carole W. Dennis, Sharon Stansfield, Hélène M. Larin, Ithaca College
- **Propulsive Work Cost and Shoulder Movement during Lightweight and Ultra Lightweight Manual Wheelchair Propulsion in Pediatrics**
Nuno Oliveira, Sheila Blochlinger, Naphtaly Ehrenberg, Theresa Defosse, Gail Forrest, Trevor Dyson-Hudson, Peter Barrance, Children Specialized Hospital

Wednesday, June 28 • 4:00pm - 5:00pm

■ WS14: Leadership and Mentorship in Assistive Technology and Rehabilitation Education

Carmen DiGiovine

(PP) Public Policy and Advocacy

Royal, 3rd Floor

Leadership and mentorship skills are critical in the development and advancement of individuals, programs, and organizations. These skills are developed and cultivated through personal and professional experiences. Leadership skills are not innate to the individual, but are developed through knowledge accumulation and experience. Emotional Intelligence includes self-awareness, self-management, social awareness and social skill. The combination of our emotional intelligence and our leadership style is critical to an individual's professional development. This workshop will provide an overview of leadership styles, emotional intelligence and mentorship. The presenters will provide case examples based on their own professional development.

■ Exhibitor Presentation

Andrea Vrobel

NMEDA Comprehensive Automotive Mobility Solutions for Health Professionals course (CAMS-HP) – (Vrobel)

Parish, 3rd Floor

The Comprehensive Automotive Mobility Solutions (CAMS) presentation contains a range of topics pertaining to adaptive automotive equipment for personal use. It will assist the allied health care practitioner and other stakeholders in understanding and advocating for individuals seeking automotive vehicle modification solutions, while also teaching consumers and caregivers about the unique process involved in evaluating and purchasing appropriate automotive options. The presentation provides a high-level summary of available products and solutions from NMEDA's QAP Dealer members for people with disabilities who want to drive or be transported safely. In addition, this presentation is accredited by the AOTA, ADED, RESNA, CCMC and others for professional continuing education units.

Wednesday, June 28 • 4:00pm - 5:00pm, cont.

■ **WS15: Introduction to IoT & Its Potential AT Uses**

Kevin Caves

(CAC) Computer Applications & Communication

Tech Lab Jackson, 3rd Floor

The 'Internet of Things' (IoT) or more accurately described as the 'Internet of Everything' (IoE) is the idea that everyday objects have some sort of network connection, whether that is over Ethernet, Wi-Fi, Bluetooth, or others. This connectivity allows for the transfer of data to control our surroundings. As members of the AT community it is important to leverage the IoT to best serve clients and their families. This presentation details our current standing, future, and importance of a connected world; paying particular attention to how this affects assistive technology.

■ **WS16: Lessons Learned: Exploring Low Cost Virtual Reality Options for Therapeutic Applications**

Amanda M Reinsfelder

(CAC) Computer Applications & Communication

Canal 3rd Floor

Virtual Reality is becoming more easily accessible to the general population through low cost headsets, in addition to the use of smartphones. As the use of applications and headsets increase, the amount of applications available will increase. Therapeutic applications could include using games or simulated environments as motivation for a user to learn how to independently access controls to engage in the simulated environment. These skills can then be transferred to activities of daily living in the "real" environment. This session will review what the presenters have learned from exploring existing devices and applications, and their use in therapeutic sessions.

■ **WS17: Policy matters: Accessible Workplace Technology**

Corinne Weible

(PP) Public Policy and Advocacy

Commerce, 3rd Floor

Job seekers and employees with disabilities continue to face barriers to using information and communications technology (ICT) in workplaces—undoubtedly in part due to the absence of clear language specifying the responsibilities of employers and other covered entities to provide it. The Partnership on Employment & Accessible Technology's "Policy Matters" tool provides plain language resources to help employers, tech companies, and employees understand their legal rights and responsibilities.

■ **WS18: Writing with All You've Got: Fostering Emergent Writing for Students who use Augmentative & Alternative Communication (AAC)**

Heather Gray

(CAC) Computer Applications & Communication

Camp, 3rd Floor

In the age of Facebook and e-filing, the ability to write is a functional life skill. However, students who use augmentative/alternative communication often have limited exposure and opportunity to develop writing skills. This interactive presentation will demonstrate strategies to increase student engagement in writing. Content will include an overview of emergent writing, adaptations for vision, receptive communication, and physical access needs. This session will offer creative and easily implemented hands-on examples for adapting writing activities for students with complex profiles. There will also be participant discussion on ways AAC devices can be used for written expression. From object-based communication to dynamic display devices, we will be writing with all you've got.

■ **WS19: Aging Track: Addressing Mobility Needs Of Older Adults Through Innovative Powered Wheelchair Technology**

Emma Smith, Catherine Bigras, Pooja Viswanathan

(PP) Public Policy and Advocacy

Newberry/Ascot, 3rd Floor

Powered mobility provides opportunities for independence for individuals with limited mobility, including older adults. Innovative technologies including intelligent powered wheelchairs, collaborative control, virtual reality, and obstacle avoidance systems may address some of the needs of older adults to promote independent mobility and participation in their daily lives. Given the variety of needs of older adults, including declining physical and cognitive skills, technology solutions are required which address varying levels of autonomy. In this presentation, we will highlight innovative solutions to these challenges, ranging from technologies which promote independent driving to those which provide complete assistance to the user.



Wednesday, June 28 • 5:30pm – 6:30pm

Location: St. James Ballroom, 3rd Floor

How are we doing?

Overview of key achievements from the past year and where we go from here

Thursday, June 29 • 10:30am - 11:00am

Exhibit Hall: Coffee Break • Churchill, 2nd Floor

Sponsored by Permobil

Thursday June 29 • 11:00am - 12:00 pm

■ **WS20: Sip n' Puff: Is it Really a Thing of the Past? Or Is It Just Alive And Well In Atlanta**

Chris Maurer

(CRT) Seating and Mobility, including Complex Rehab Technology

Magazine, 3rd Floor

This workshop explores pneumatic (sip and puff) switch systems for power seating and mobility. Are pneumatic controls a thing of the past? As clinicians and ATPs, are we maximizing the client's function and safety by fine tuning programmable adjustments? Attendees will be encouraged to discuss the advantages and disadvantages of pneumatic drive system, programming functions and alternative drive control systems for various power wheelchairs. We will compare and contrast alternative control devices for individuals who are unable to use a standard joystick. Case studies will be used to demonstrate the development of wheelchair skills using pneumatic controls.

Student Scientific Paper Competition

Thursday, June 29 • 11:00am - 12:00pm • Location: Parish, 3rd Floor



Sponsored by RESNA's Founders Fund, the purpose of this competition is to promote high quality scientific and engineering research in the field of rehabilitation engineering and assistive technology. The competition encourages students from a variety of disciplines to address contemporary issues in these fields through research and submit their papers for presentation. It focuses on the rigorous use of research methods and evaluation of the papers is based on the scientific and engineering merit of the research.

Winning papers are presented during a platform session and honorable mention papers are presented during a poster session.

Winners Platform Session

Thursday, June 29 • 11:00am – 12:00pm • Location: Parish, 3rd Floor

- **Evaluation of the Agilelife Patient Transfer and Movement System**
Rory Cooper, Alicia Koontz, Andrew N. Sivaprakasam; University of Pittsburgh
- **Out of Scope: Locating Assistive Technology in Injury Insurance Rehabilitation Legislation and Guidelines**
Emily Steel; University of Queensland
- **User Evaluation of an Alternative Manual Drive System for Wheelchair Mobility**
Sarah Bass, Alicia Koontz, Hailee Kulich; University of Pittsburgh
- **Using Diverse Anatomical Sites for Haptic Exploration: An Exploratory Pilot Study**
Lina M Becerra, Alejandra Ruize, Kim Adams, Heather Capel; University of Alberta
- **Defining the Stability Limits of a Manual Wheelchair with Adjustable Seat and Backrest**
Louise Thomas; Simon Fraser University

Honorable Mentions Present in the Exhibit Hall • Churchill, 2nd Floor

Wednesday, June 28 • 2:15pm - 4:00pm • Thursday, June 29 • 3:45pm - 5:15pm • Location: Exhibit Hall

- **An Evaluation of the Efficacy of a Location-Based Navigation System for Individuals with Visual Impairments in the Higher Education Setting**
Vicki Taylor, Brooke Findley; California State University, Fresno
- **Modeling and Simulation of Lower Extremity Powered Exoskeleton**
Brandon Fournier; University of Ottawa
- **The Impact of Small Changes in Seating Posture on Skin Vitality**
Iris Hooendoorn, Bart Koopman, Jaap Buurke, Jasper Reenalda, Hans Rietman; University of Twente
- **The Importance of Studying Safe-Fall Strategies for Lower Limb Exoskeletons**
Mahsa Khalili, Machiel Van der Loos, Jaimie Borisoff; University of British Columbia and ICORD
- **Wording Matters: Preliminary Results in Identifying Students with a Disability in Postsecondary Education**
Jacqueline M Love, Roger Smith; University of Wisconsin Milwaukee, R2D2 Center

Thursday June 29 • 11:00am - 12:00 pm, cont.

■ **WS21: A Winning Team: Engineers, Clinicians, Patients, and Those That Love Them**

Brian W Burkhardt
(OTH) Other
Royal, 3rd Floor

Rehabilitation Engineers are a valuable addition to the rehabilitation team. Unfortunately, this team is often unsure how to best utilize an engineer or even what exactly engineers can do in rehabilitation. Using case studies and personal experience from rehabilitation engineers, clinicians, and Patients within the VA and DOD this session will detail the role and capabilities of rehabilitation engineering within the rehabilitation process. Specific examples of clinician-engineer collaboration and the resulting enhancement to Patient outcomes will be provided.

Paper Platform: Student Sessions

Moderator: Jennifer Boger, University of Waterloo

Thursday, June 29, 2017 • 11:00 am - 12:00 pm
Parish, 3rd Floor

- **Defining the Stability Limits of a Manual Wheelchair with Adjustable Seat and Backrest**
Louise Thomas
- **Evaluation of the AgileLife Patient Transfer and Movement System**
Rory Cooper, Alicia Koontz, Andrew N. Sivaprakasam
- **Out of Scope: Locating Assistive Technology in Injury Insurance Rehabilitation Legislation and Guidelines**
Emily Steel
- **User Evaluation of an Alternative Manual Drive System for Wheelchair Mobility**
Sarah Bass, Alicia Koontz, Hailee Kulich
- **Using Diverse Anatomical Sites for Haptic Exploration: an Exploratory Pilot Study**
Lina M Becerra, Alejandra Ruize, Kim Adams, Heather Capel

■ **WS22: Introduction to Dragon List Commands**

Ray Grott
(CAC) Computer Applications & Communication
Tech Lab Jackson, 3rd Floor

Dragon list commands simplify the task of dictating combinations of words, letters, numbers, and symbols: e.g., dates, part numbers, product codes, and legal citations. A list command is a single utterance that performs dozens (or millions!) of related actions. List commands significantly increase productivity, speed, and accuracy while decreasing user frustration. In this session, you will learn, step-by-step, how to script list commands to solve practical problems that speech recognition users experience while meeting their vocational, educational, and personal goals.

Prerequisites: *No programming experience is assumed, but the ability to create simple Dragon commands will be helpful.*

■ **WS23: Emerging and Innovative Technologies Show and Tell**

Andi Saptoro
(NEW) Emerging Technology
Canal 3rd Floor

Professionals working with assistive technologies regularly evaluate, assess, and integrate new technologies into their practice to improve the quality of life for persons with disabilities. Integrating emerging/innovative technology into AT provision requires a familiarity with existing and available technology, as well as factors which influence AT design. The session is a collaboration between the Emerging Technology SIG and RERC on Information and Communication Technology Access. Attendees will have the opportunity for hands-on demonstrations of recent emerging and innovative technologies in an interactive learning environment.

■ **WS24: How Can We Get There From Here? Creating a National At Outcomes System: Preliminary Data From the RESNA Community**

James A Lenker
(OUT) Service Delivery and Outcomes
Commerce, 3rd Floor

This session will summarize data from over 150 practitioners, researchers, and policy makers who were queried in July 2016 regarding development of a national AT outcomes measurement system. Data were collected in two venues: a 75-minute RESNA conference workshop and a 1-day AT Outcomes Summit. In both venues, participants worked in small groups that discussed questions posed by the organizers. The data were qualitatively analyzed and organized into themes that will be presented in this session. The discussion segment of this workshop will emphasize concrete next steps that can be taken by RESNA members and interested AT stakeholders.

■ **WS25: Aging Track: Zero-effort Ambient Vitals Monitoring**

Isaac Sung Jae Chang, Jennifer Boger
(NEW) Emerging Technology
Newberry/Ascot, 3rd Floor

People with chronic adverse health conditions often monitor their vital signs at home using conventional medical equipment and/or wearable devices. Self-monitoring at home presents a number of potential issues including incorrect usage, non-compliance, and stigmatization. In response, researchers have started investigating how ambient sensors (i.e., sensors embedded into everyday objects) might be used as a low-effort means of improving the frequency and quality of vitals monitoring. This workshop discusses zero-effort ambient monitoring technologies, with a focus on people with cardiovascular disease. Participants will be introduced to relevant topics prior to engaging in group work and discussions to explore the new and trending area of autonomous physiological monitoring at home.

RESNA AWARDS LUNCHEON

Thursday, June 29 • 12:00pm – 1:20pm • Location: St. James Ballroom

Join friends and colleagues at this annual luncheon recognizing stellar contributions to the field and to RESNA.

Thursday, June 29th • 1:30pm - 2:30 pm

■ **WS26: Using the Power Mobility Training Tool to Guide Power Mobility Training for Children with Multiple, Severe Impairments**

Lisa K. Kenyon

(CRT) Seating and Mobility, including Complex Rehab Technology Magazine, 3rd Floor

Children with severe motor impairments who also have deficits in communication, cognition, vision, and other areas are often not considered for power mobility use. Given the potential benefits of power mobility for this population, this session will introduce the Power Mobility Training Tool (PMTT), an observational tool designed to assist clinicians in developing power mobility training programs for children who have multiple, severe impairments. PMTT item administration and scoring will be detailed. Clinical application of PMTT findings will be illustrated through case-based examples pertaining to the development of individualized beginning power mobility programs for specific children.

■ **WS27: Building Better Together- Designing Assistive Technology with End-users and within Interdisciplinary Teams**

Elizabeth G Delarosa

(JEA) Job & Environmental Accommodations, including Ergonomics Royal, 3rd Floor

The Canadian Interprofessional Health Collaborative's (CIHC) framework was developed to inform education and practice across health professions based on a common approach to competencies. Using this framework, students in occupational therapy and engineering engaged with community end-users to design technology. Capitalizing on the space, teaching and learning resources to engage in capacity building, this initiative enabled students to gain a deeper understanding of their respective roles and spark innovation to address social challenges by learning how to form valuable partnerships. We seek to promote a similar approach when designing assistive technology among different institutions and outside the academic setting.

■ **WS28: Emergency Management for Assistive Technology Dependent users: EMDAC Experiences Over Ten Years**

John R. Schweitzer

(PP) Public Policy and Advocacy Parish, 3rd Floor

When disasters strike, they affect whole communities. Some who have added challenges may experience extraordinary needs after a disaster. For example, people with disabilities, who use assistive technology, or have limitations due to aging and the medically fragile, and technology-dependent will not be spared the problems we all face like lack of electricity or water; full or partial destruction of home; loss of possessions; and the need for essential items. All too often each of these problems is magnified for many with disabilities or limitations due to aging during and after a disaster. Because of the technology-dependence of our stakeholder's members, a voluntary organization, Emergency Management for Disabled and Aging Coalition (EMDAC) organized following the Katrina-Rita disasters. It has become a critical part of our state's GOHSEP planning, preparedness, public education, provider and first-responder education, and voluntary action in disasters (VOAD) engaged by of EMD.

■ **WS29: CTCA Sharing Solutions, Igniting Ideas**

Adina Bradshaw

(CAC) Computer Applications & Communication Tech Lab Jackson, 3rd Floor

The Communication Technology and Computer Access SIG invites you to participate in an energetic and exciting way to learn about assistive technology resources and equipment for you to use with your clients. In this session, participants will share different communication technology and computer access ideas that can be used with and/or by individuals with disabilities. Come share your knowledge and experience with your peers! Bring your laptops, tablets, or phones to show apps, videos, websites, articles, research, or gadgets. You will gain information that you can take back and put into your daily practice! Each participant will have up to 5 minutes to share. Everyone in the session is encouraged to participate. All items will be posted in a google document and available during and after the ignite talk. The goal is to inspire people and ignite innovation that can be put into practice.

Paper Platform Session #3: Emerging Technologies

Moderator: Carmen DiGiovine, Ohio State University

Thursday, June 29 • 1:30pm - 2:30pm

Canal, 3rd Floor

- **Multi-Functional Wrist Orthotic With Universal Gesture Recognition System**
Shruthi Suresh, Sudhanshu Manda, Camila Marrero, Lucas Jacob, Bradley S. Duerstock, Purdue University
 - **3D Printing Assisted Method Of Manufacturing A Perforated Silicone Prosthetic Limb Liner**
Esteban Ruiz, Fanying Sun, Zachary Anzelone, University of Pittsburgh
 - **Daily Static Prehensile Patterns Analysis Of Assistive Robotic Manipulators**
Cheng-Shiu Chung, Hongwu Wang, Dan Ding, Rory A Cooper, University of Pittsburgh
 - **EEG Brain-Computer Interface As An Assistive Technology: Adaptive Control And Therapeutic Intervention**
Qussai M. Obiedat, Maysam M. Ardehali, Roger O. Smith, University of Wisconsin-Milwaukee
- **WS30: It's Easier Than You Think And Harder Than It Looks: Conducting Usability Evaluations For At Product Development**
James A Lenker
(NEW) Emerging Technology Commerce, 3rd Floor

Evaluating the usability of assistive technology products presents unique challenges to researchers and practitioners who are working with product developers. This workshop will discuss common obstacles and suggest tactics for all aspects of the evaluation process, including: creating focused evaluation goals, participant recruitment, choosing or creating evaluation tools, data analysis, and synthesis of information. The discussion segment will give audience members the opportunity to share challenges they have encountered and strategies used to overcome them.

■ **WS31: Note-Worthy Accommodations**

Meghan Donahue

(COG) Cognitive and Sensory Impairments

Camp, 3rd Floor

Taking notes when you have a disability is challenging. Difficulties range from writing, keeping up, maintaining focus and accessing the information at a later date. From a professional perspective, there are tons of tools available to assist with note-taking, how do you know you're recommending the best one? This presentation will discuss barriers to note taking and common features of note taking accommodations. Then popular tools will be demonstrated, accompanied with a discussion on employing the accommodations with note taking strategies and suggestions for training. This will cater to considerations for motor impairments and learning disabilities.

■ **WS32: Aging Track: Computer-based Assessments and Interventions for Cognitive Health**

Adrian Rios Rincon, Antonio Miguel Cruz, Andrea Wilkinson

(CAC) Computer Applications & Communication

Newberry/Ascot, 3rd Floor

In this session we present early results from three research projects, conducted in the context of the AGE-WELL National Centre of Excellence, developing computer-based tools for assessing and improving the cognitive function of seniors. The Centivizer (described in the first paper) is a wall-mounted ambient activity unit that provides engaging arcade-style interactions and rewards (e.g., coins, tokens, applause) for targeted activities. The second paper describes the UniCog Whack-a-Mole game, implemented on Android tablets. The game offers levels of systematically increasing difficulty to continuously engage and challenge seniors with dementia, while recording their performance and analyzing their progress. The third paper describes how an Emotiv-based EEG assessment can be combined with these games to measure the players' engagement and arousal, while playing.

Thursday, June 29 • 2:45pm - 3:45pm

■ **WS33: Using Shared Control to Enhance Powered Mobility Training Across the Lifespan**

Emma M Smith

(CRT) Seating and Mobility, including Complex Rehab Technology

Magazine, 3rd Floor

Despite the documented benefits of powered mobility, children and adults with cognitive impairments are often denied the opportunity to practice powered mobility skills due to safety concerns. Use of a remote teleoperation control unit, which allows clinicians to "share" control of the powered mobility device without having to stop or interrupt the individual driving, improves safety and potentially enhances learning in this diverse population. Patient cases will illustrate the use of shared control to facilitate the development of cause and effect skills, decrease frustration and anxiety, and promote error-minimized learning in individuals across the lifespan.

Paper Platform Session #4: Public Policy and Advocacy

Moderator: Brad Duerstock, Purdue University

Thursday, June 29 • 2:45pm - 3:45pm

Royal, 3rd Floor

- **Access Ratings for Buildings: Use as a Learning Tool for Building Assessment Instruction**
Dennis B. Tomashek, Roger O. Smith, Cullen Schuh, University of Wisconsin-Milwaukee
- **The Case for Industry Leadership in Science, Technology & Innovation (STI) Policy Implementation for Assistive Technology**
Joseph P. Lane, University at Buffalo
- **Assistive Technology Design Courses: The Mutually Beneficial Relationship Between Engineering Education And The Provision Of Orphan Devices**
Giulia Barbareschi, Catherine Holloway, Stephen H. Sprigle, University College London Interaction Centre, United Kingdom
- **Analysis Of The Public Transport Bus Operator As A Direct User In The Use Of A Wheelchair Securement System**
Berthana María Salas-Domínguez, Brittany Perez, Laboratorio de Pruebas y Simuladores, Universidad Autónoma Metropolitana-Xochimilco, México

■ **WS34: Organizing The Available Data on Text Entry by Computer Users With Disabilities: Current Findings and Next Steps**

Heidi Koester

(CAC) Computer Applications & Communication

Tech Lab Jackson, 3rd Floor

Many individuals with disabilities use assistive technology (AT) control interfaces to enter text into computers and augmentative alternative communication devices. Selecting the right interface is a critical task that requires consideration of multiple factors including the individual's text entry needs, diagnosis, motor and process skills, an appropriate body site and interface placement. Currently, there are limited evidence-based resources to support interface selection by AT service providers. This workshop will introduce and demonstrate an innovative database and registry that organizes all of the relevant text entry data published in the last 30 years. We will discuss initial findings from this review of the evidence, ways in which others can use the database for their own analyses, and future plans for crowdsourcing and updating the tool over time.

■ **WS35: Mhealth Platform as Self-Management, Self-care, Self-Education Partner for Individual with Disability**

Andi Saptoro

(NEW) Emerging Technology

Canal 3rd Floor

Advances in mobile devices provide opportunities for developing innovative health services that take advantage of the novel characteristics of mobile technologies, including supporting self-management, health monitoring, self-directed learning, interactive patient-clinician communications, and personalized goal settings. Mobile health is a potential tool to improve the quality of life for people with disability due to the high penetration of mobile devices usage in the disability population. The session is a workshop supported by the RERC on Information and Communication Technology Access, highlighting research and development of mobile health applications that provide self-management, self-directed goal achievement, and interactive education/learning for people with disabilities.

Thursday, June 29 • 2:45pm - 3:45pm, cont.

■ **SPON04 - Permobil presents “Pressure Injury - Update on Terms and Etiology” (Walls)**

Ginger Walls

Commerce, 3rd Floor

Historically, pressure injury etiology has revolved around ischemic changes in the skin, and soft tissue. However, recent evidence has demonstrated that tissue deformation of the skin and soft tissue has earlier implications in pressure injury development versus just ischemia alone. This interactive session will review new terminology, as well as the current best evidence of pressure injury pathophysiology, with a focus on the new understanding of the significant role tissue deformation plays in the development of pressure injuries.

■ **WS36: Speech Recognition: Today and the Day after Tomorrow**

Ray Grott

(CAC) Computer Applications & Communication

Camp, 3rd Floor

Speech recognition technologies are becoming more accurate, versatile, and ubiquitous. We will begin with a review of the latest versions of Dragon software and explore what is new, including its “deep learning” technology and Dragon Anywhere option. Built-in and after-market tools for maximizing success will be presented. Then we will shift focus to discuss the emergence of speech to control the Internet of Things, as well as the potential game-changing impact of “deep neural networks” on interactive voice systems. Significant time will be provided for attendee questions and input.

■ **WS37: Aging Track: Smart and Robotic Homes**

Jon Sanford, Wendy Rogers, Brian Jones, Ariel Kapusta

(NEW) Emerging Technology

Newberry/Ascot, 3rd Floor

This workshop will highlight research and development focused on smart and robotic technologies to facilitate aging in place. With an emphasis on evidence-based design, participants will discuss ongoing work aimed at understanding user needs, evaluating effectiveness of current technologies and development of the next generation of smart and robotic technologies. Specific topics include problems experienced in routine home activities by people aging with disability, limitations of current smart home systems designed to meet the needs of older adults, development of autonomous and collaborative robot assistants and smart bathroom technologies to facilitate toilet transfers.

Friday, June 30 • 8:00am - 9:00am

International Platform Session

Newberry/Ascot, 3rd Floor

Dr. Sangmin Lee, President of the Rehabilitation Engineering Society of Korea and Dr. Roger O. Smith, President of RESNA, will make formal presentations followed by a panel discussion. This is an opportunity to discuss initiatives to advance the use of assistive technology to meet the needs of people with disabilities and how this work impacts the rest of the world.

**Paper Platform Session #5:
Computer Applications and Communication**

Moderator: Mary Ellen Buning, University of Louisville

Friday, June 30 • 8:00am - 9:00am

Tech Lab Jackson, 3rd Floor

- **CARE-RATE: Initial Development Of An Artificially Intelligent Online Tool For Connecting Caregivers To Relevant Support**
Jennifer Boger, Frank Rudzicz, Hamidreza Chinaei, Sigrún Kristín Jónasdóttir, Muuo Wambua, Janice Polgar, University of Waterloo, Canada
- **Performance On The Scanning Wizard “ ‘Switch’ Test: Switch Users And Controls”**
Heidi Horstmann Koester, Rich Simpson, Koester Performance Research
- **Training Of EEG Signal Intensification for BCI System**
Haesung Jeong, Hyungi Jeong, Kong Borasy, Kyu-Sung Kim, Sangmin Lee, Jangwoo Kwon, Inha University, Korea
- **Text Entry Rate of Access Interfaces Used by People with Physical Impairments**
Heidi Horstmann Koester, Sajay Arthanat, Koester Performance Research

Friday, June 30 • 8:00am - 9:00am

■ **WS38: Collaboration in AT Education: AT Innovations Cross College Course at Tufts University**

Jennifer C Buxton, Amy Fleischer

(OTH) Other

Royal, 3rd Floor

Featuring principles of design and group problem solving, Assistive Technology Innovations, will be offered at Tufts University in Spring 2017. Funded through the Tufts Innovates Grant the goal of this proposal was to form a cross-school collaboration among Occupational Therapy (OT), Human Factors (HF), and Mechanical Engineering (ME) to provide opportunities for interdisciplinary student groups to work closely with clients with disabilities to collaborate on authentic projects and to promote entrepreneurial, client-centered thinking. Assistive Technology Innovations, will combine the relevant problems OTs need to solve concerning people with disabilities with the user-oriented investigations of HF and the fabrication knowledge of engineers.

■ **WS39: New and Improved Methods of Accessing Large Off-Road Machinery**

Stephen J. Swain

(JEA) Job & Environmental Accommodations, including Ergonomics

Parish, 3rd Floor

It has been reported that more than 5,000 agricultural workers in the U.S. have encountered disabling injuries or disease which pose career ending repercussions unless specialized assistive technologies are utilized. Advancements in agricultural specific technologies have made it possible for these individuals to regain the ability to effectively operate large off-road machinery. Remote-controlled lifts, electronic actuators, electric over hydraulic controllers, and various modes of hand controls have advanced significantly allowing operators with limited mobility to resume a high level of productivity within their chosen agricultural career.

■ **WS40: The Brain Gym: Creating a Wellness-Based Assistive Technology Community Access Program for people of All Levels of Functioning**

James D Gardner

(CAC) Computer Applications & Communication Magazine, 3rd Floor

Consumers of technology with a disability face many challenges in the process of discovering what will work for them. Once a device is decided upon, the training from skilled professionals can be limited. To address these problems the University of Utah Rehab created the "Brain Gym." A wellness model based assistive technology center, which is integrated into the physical wellness program already in place and provides access to the most up-to-date assistive technology available. This workshop provides participants with information and insight to begin the process of developing a wellness based assistive technology program in their own area of practice.

**Paper Platform Session #6:
Service Delivery and Outcome**

Moderator: Dennis Tomashek, University of Wisconsin-Milwaukee

Friday, June 30 • 8:00am - 9:00am

Commerce, 3rd Floor

- **Reliability and Validity of the Usability Scale for Assistive Technology for Computer Access**
Sajay Arthanat, Livia Gosselin, University of New Hampshire
- **Smartbathroom: Developing a Smart Environment to Study Bathroom Transfers**
Brian D. Jones, Shiva Pandey, Peter Presti, Russell Taylor, Prasanna Natarajan, Shambhavi Mahajan, Harshal Mahajan, & Jon Sanford, Georgia Institute of Technology
- **Alternative Thermodynamic Rigid Cushion Loading Indenter for Microclimate Characterization in Full Body Support Surfaces**
Anh Dang, Evan Call, EC-Service
- **Detection of Autonomic Dysreflexia in Persons with Cervical Spinal Cord Injuries Through a Support Vector Machine**
Shruthi Suresh, Brendan Raftery, Bradley S. Duerstock, Purdue University

■ **WS41: Problem Solving With Peers: Accommodations Works in Progress**

Cindi L Pichler

(JEA) Job & Environmental Accommodations, including Ergonomics Canal 3rd Floor

This workshop provides an unique brainstorming opportunity for AT practitioners who have challenging cases to solve back home by tapping into the pool of talent and experience of RESNA members gathered at the conference by seeking their expertise in coming up with creative rehab engineering solutions for cases presented. Participants present the scenarios and the audience participates by offering job accommodation suggestions and solutions.

■ **WS42: You Try It! Tools for People Who Experience Reading Barriers**

Lara Rondberg

**(COG) Cognitive and Sensory Impairments
Camp 3rd Floor**

Ebooks are a preferred medium for many people, but for those who experience barriers to printed text, such as dyslexia, visual impairments, and physical disabilities, even e-reading can be problematic. Many technologies allow this audience to read in ways that work for them: in audio, large type, audio and text combined, and braille; on tablets, smartphones, computers, MP3 players, and assistive technology devices. Experience a variety of tools that allow people with print disabilities to become better and more independent readers. Equipped with stronger literacy skills, these individuals can actively pursue the educational and career advancement opportunities that await them.

Friday, June 30 • 9:00am - 9:30am

The District Lobby: Coffee Break

Friday, June 30 • 9:30am - 10:30 am

■ **WS43: Out Patient Wheelchair clinic – Barriers and Strategies For Service Delivery To An Underserved Population**

Susan Christie

**(OUT) Service Delivery and Outcomes
Magazine, 3rd Floor**

A wheelchair clinic at an adult rehab center typically consists of an assessment of one to four visits on an inpatient or outpatient basis followed by one or more visits for fitting and delivery once the new equipment arrives. Barriers such as transportation, geography, medical fragility, funding, and conflict with other home-based or outpatient services may appear to prevent the consumer from getting the needed services. This presentation will address some strategies to allow health care providers to supply these services and get reimbursed for them.

■ **WS44: Systematic Instruction and Technology to Improve Attention following CVA: Team Collaboration Enhancing Patient Outcomes**

Kimberly A Eichhorn

**(OUT) Service Delivery and Outcomes
Royal, 3rd Floor**

The combination of multi-disciplinary experience, assistive technology and systematic instructional methods can bring about remarkable outcomes for patients. Throughout the review of case studies of veterans with various degrees of cognitive and physical impairments using multiple assistive technologies, learners will develop an understanding of the concepts of systematic instruction, ways to target multiple learning objectives, and consider novel applications for technologies to assist with restoring function.

Friday, June 30th • 9:30am - 10:30 am, cont.

■ **WS45: Befuddled About Bed Support Surfaces? Become an Expert**

Karen A Lerner

(OUT) Service Delivery and Outcomes

Parish, 3rd Floor

Using the right equipment on the right patient will affect the right clinical outcome. Everyone wins. But a one-size-fits-all approach will surely create losers. Bed support surfaces are the mainstay in pressure redistribution and pressure redistribution is paramount to preventing and treating pressure ulcers but there is little training on when to use what product. Proper use and procurement of bed support surfaces requires a multidisciplinary approach. Knowing how and when to recommend and evaluate the clinical effectiveness and efficacy of bed support surfaces will help ATPs, clinicians, and DMEs prevent pressure ulcers and help pressure ulcers heal more quickly.

■ **WS46: Customizable Computer Control Schemes in Adaptive Recreation: From Screen to Sail and Snow**

James D Gardner

(NEW) Emerging Technology

Tech Lab Jackson, 3rd Floor

This workshop explores the use of customizable assistive input devices for adaptive sports equipment and virtual sport simulations. This work is primarily focused on the development of a customized control scheme for use in a sailing and alpine ski computer simulation. The session will also show the use of these customized settings in real world sailing and alpine skiing recreational equipment by individuals with tetraplegia. Current technology mostly utilizes joystick or Sip-and-Puff commands for control, the customizable input device that will be discussed during this session allows an array of control options that can be adapted to each individual user.

■ **WS47: SmartHome EADLs - A Sampling of Cases**

Meghan Donahue

(JEA) Job & Environmental Accommodations, including Ergonomics

Canal, 3rd Floor

Providing environmental accommodations has become more affordable with the growing availability of home control products in the mainstream market. A few case studies will be discussed that provided different environmental accommodations for lights, bed, call systems, and door control primarily accessed from tablets, phones and computers. An overview of all items considered as accommodations and what led to the selection will be discussed as well as additional considerations learned at implementation. There will be time for interactive discussion to discuss additional approaches for each situation through audience participation.

■ **WS48: Complex Rehab Technology Update**

Don Clayback

Technology

Commerce, 3rd Floor

Access to Complex Rehab Technology (CRT) continues to experience significant changes and challenges. To protect access for people with disabilities, CRT stakeholders need to stay current and engaged. This session will supply CRT updates on both the federal and state level. Topics will include the application of Competitive Bid pricing to CRT wheelchair accessories, the Medicare Separate Benefit Category legislation, Medicaid matters, and other important initiatives and trends. We'll also review the latest tools available to promote access to CRT with policy makers and payers.

Paper Platform Session #7: Emerging Technology

Moderator: Joseph Klaesner, Washington University

Friday, June 30 • 9:30am - 10:30am

Camp, 3rd Floor

- **Effects of Wheels and Casters on Energy Loss in Manual Wheelchairs**
Stephen Sprigle, Ray Lin, Morris Huang, Georgia Institute of Technology
- **A Person Centered Approach for the Development of Emerging Technologies for People with Complex Disabilities**
Suzanne Martin, Elaine Armstrong, Jean Daly Lynn, University of Ulster, Northern Ireland, UK
- **Pilot Study for Examining Human-Robot Trust in Healthcare Interventions Involving Sensitive Personal Information**
Jin Xu, Ayanna Howard, Georgia Institute of Technology
- **Rehabilitation Engineers, Technologists, and Technicians: Vital Members of the Assistive Technology Team**
Carmen P. DiGiovine, Meghan Donahue, Patricia Bahr, Mark Bresler, Joseph Klaesner, Raj Pagadala, Brian Burkhardt, The Ohio State University

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Scientific Paper Poster Sessions

Wednesday, June 28 and Thursday, June 29 • Exhibit Hall • Churchill, 2nd Floor

Scientific Paper authors will be available to share additional information and answer questions on Wednesday 2:15pm - 4:00pm and Thursday 3:45pm - 5:15pm.

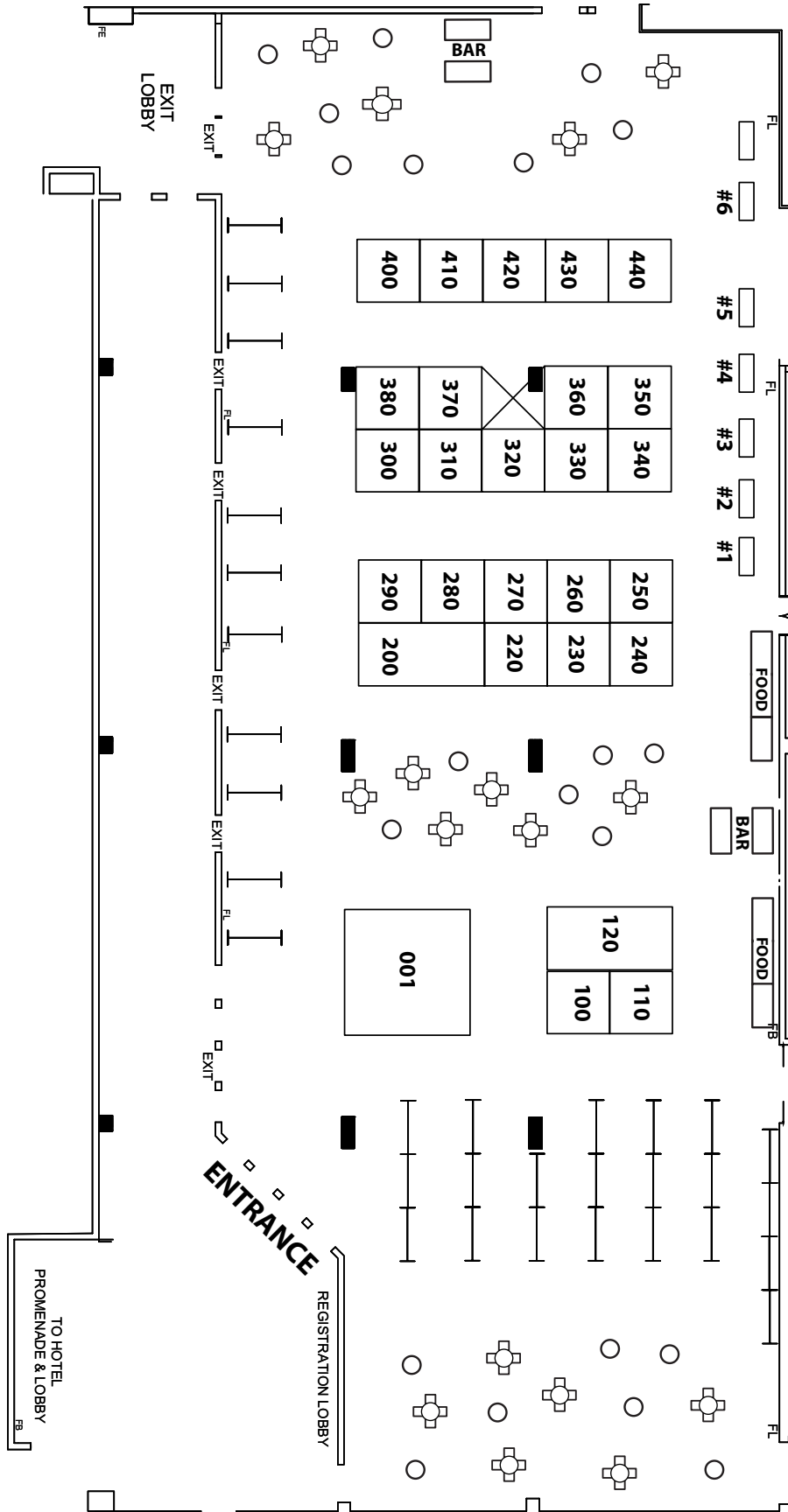
Wednesday, June 28

- PWED01 A Social Robot's Performance as a Coach for a Medication Sorting Task
Nah Young Lee
- PWED02 Assistive Technology Adoption Patterns of Minority Students
Irina Nikivincze
- PWED03 Assistive Technology Quality Assurance
Julie Faieta
- PWED04 Automatic Positioning of Communication Devices and Essential Equipment
Dianne Goodwin
- PWED05 Bed-Posture Control System for Pressure Ulcer Prevention
Inhyuk Moon
- PWED06 Developing a Universal Pre-Professional Curriculum in Basic Wheelchair Seating and Mobility (WSM)
Barbara Crane
- PWED07 Developing Student Understanding of Power Electronic Design Through a Real Word Project
Ruiyun Fu
- PWED08 Feasibility of Outcome Measure Training Module for Postural Care
Jennifer Hutson
- PWED09 From Project to Patent: Assistive Technology Development in Action
Caren Sax
- PWED10 Functional Activity Monitoring Through Embedded Sensors in a Modified Ride-On Toy Car
Ayshka Rodriguez-Velez
- PWED11 Measuring Prefrontal Cortex Activity During Passive and Active Movement
Melody Wallace
- PWED12 Partnership Working Underpinning Innovation
Jean Daly Lynn
- PWED13 Passive, Variable Stiffness Assistive Devices for Human Assistance
Andrew McPherson
- PWED14 Pressure Distribution Properties of Seat Cushions for Individuals with a Spinal Cord Injury: a Pilot Study
Carmen DiGiovine
- PWED15 Proposal of Control Method for Neck Emg Signal Control-Type Electrolarynx
Katsutoshi OE
- PWED16 Rehabilitation Engineering Examples in Mechanical Engineering Curricula
Rees Fullmer
- PWED17 Strategies for Agent-Based Scheduling to Improve Self-Management by Adolescents with Disabilities
Lynn Garrett
- PWED18 The Age of 3D Printing Applications for Designer and User: A Model of Developing Wearable Assistive Tool for Wheelchair User
Tianyu Cui
- PWED19 The Necessary Convergence of Macro Technology Trends To Support Open Source Hardware Assistive Technologies
Harry Lew
- PWED20 A Stimulus-Response Model of therapist-Patient Interactions in Task-Oriented Stroke therapy Can Guide Robot-Patient Interactions
Michelle Johnson

Thursday, June 29

- PTHURS01 Attitudinal Barriers Faced by Young Adults with Disabilities as Depicted Through Photovoice
Jacque Ripat
- PTHURS02 Design and Testing of an Agonist-Antagonist Switching Position-Impedance Controlled Myoelectric Prosthetic
Christopher Aymonin
- PTHURS03 Experiences and Needs of Caregivers' of Older Power Wheelchair Users
Delphine Labbe
- PTHURS04 Obtaining at Funding for Parents with Disabilities; a Case Study
Lynn Gitlow
- PTHURS05 One-Handed Typing: Layouts Do Matter
Denis Anson
- PTHURS06 Papalani, Tricycle for Sport and Rehabilitation Development of People with Cerebral Palsy
Berthana Salas-Domínguez
- PTHURS07 Practical Considerations for the Accommodation of Persons with Low Vision in Veterinary Medicine
Bradley Duerstock
- PTHURS08 Pressure Mapping of Elderly by O.T. Studnets: Sevices Learning and Data Collection.
Husny Amerih
- PTHURS09 Quantitative Assessment of Compensatory Movements during Upper Limb Functional Performance
Kimberly Kontson
- PTHURS10 Speakup - An Interactive SPL Meter Android Application
Leighanne Davis
- PTHURS11 Test-Retest Reliability of the 3-Cone Test
Mehdi Eshraghi
- PTHURS12 The "Butterfly Parameters" Effected By Ankel-Foot Orthosis (AFOS) in Stroke: A Pilot Study
Warin Krityakiarana
- PTHURS13 Use of Wheelmill System for Peak VO2 Measurement for Manual Wheelchair Users
Joseph Klaesner
- PTHURS14 An Evaluation of the Efficacy of a Location-Based Navigation System for Individuals with Visual Impairments in the Higher Education Setting
Brooke Findley
- PTHURS15 Effect of Wheelchair Maintenance on the Total Rolling Resistance of Manual Wheelchair
Mehdi Eshraghi
- PTHURS16 Modelling and Simulation of Lower Extremity Powered Exoskeleton
Brandon Fournier
- PTHURS17 The Challenge of Structuring the Routine of Children with Disability and the Use of App as a Facilitator Resource
Regis Nepomuceno Peixoto
- PTHURS18 The Impact of Small Changes in Seating Posture on Skin Vitality
Iris Hoogendoorn
- PTHURS19 The Importance of Studying Safe-Fall Strategies for Lower Limb Exoskeletons
Mahsa Khalili
- PTHURS20 Wording Matters: Preliminary Results in Identifying Students with a Disability In Postsecondary Education
Jacqueline Love

Exhibit Hall Floor Plan • Churchill, 2nd Floor



Exhibitors

NCART Booth #310

54 Towhee Ct
East Amherst, NY 14051
(716) 839-9728
www.ncart.us

NCART, the National Coalition for Assistive and Rehab Technology, is a national association of suppliers and manufacturers of complex rehab technology (CRT) products and services that are used by individuals with significant disabilities and medical conditions. Our mission is to ensure that federal, state, and private coverage and reimbursement policies allow for these individuals to have appropriate access to these specialized and individually configured products and services.

Permobil, Inc. Booth #230

300 Duke Dr.
Lebanon, TN 37090
(800) 736-0925
www.permobilus.com

For more than 40 years, Permobil has been working with and for people throughout the world with various kinds of functional disability. We are so privileged to have such strong, close relationship with our customers and know that our products are an important part of their daily lives. It is one of the primary ways we measure the success of our company... keeping the focus on people and their needs.

Quantum Rehab/ Pride Mobility Booth #200

182 Susquehanna Ave.
Exeter, PA 18643
(800) 800-8586
www.quantumrehab.com

Quantum Rehab® is a premier manufacturer of clinically-focused, consumer-inspired, innovative complex rehab products, including the Q6® Series of power bases, TRU-Balance® 3 Power Positioning Systems, Q-Logic 2 Drive Control System, Synergy® Cushions and Backs, and Stealth® Products, a leader in positioning components, specialty controls and pediatric mobility. Please visit www.QuantumRehab.com.

RERC on AAC, Penn State University

227 CEDAR, Penn State University
University Park, PA 16802
(814) 865-7159
rerc-aac.org

The Rehabilitation Engineering Research Center on Augmentative and Alternative Communication (the RERC on AAC) is a collaborative center committed to advancing knowledge and producing innovative engineering solutions in augmentative and alternative communication (AAC). More information on our research, development, training, and dissemination activities is available at <http://rerc-aac.org>.

Smith-Kettlewell Eye Research Institute Booth #400

2318 Fillmore St.
San Francisco, CA 94115
(415) 345-2000
www.ski.org

The Smith-Kettlewell RERC develops technology for those who are blind, visually impaired or have dual sensory loss. The exhibit will include examples of projects for this target population such as applications of computer vision, new approaches to video description, and methods for accessing spatial or scientific information.

Taylor & Francis Booth #250

530 Walnut St, Suite 850
Philadelphia, PA 19106
(215) 625-8900
www.tandfonline.com

For two centuries, Taylor & Francis has been fully committed to the publication of scholarly research. We are the publisher of Assistive Technology, RESNA's official journal, and similar titles. Visit the Taylor & Francis booth to learn about our products and services, and for free sample copies.

University of Alabama at Birmingham Booth # 440

SHPB 341, 1716 9th Ave. S
Birmingham, AL 35233
(205) 403-5504
www.rectech.org

RERC RecTech is dedicated to using technology to promote healthier, active lifestyles for people with disabilities. RecTech focuses on four areas of research and development that are key to promoting health and function and community participation for people with disabilities: 1) access; 2) participation; 3) adherence; and 4) health and function.

AGE-WELL Booth #340

Toronto Rehabilitation Institute
University Health Network, 12th Floor Research
550 University Ave.
Toronto, ON M5G 2A2
(416) 597-3422 Ext. 7778
agewell-nce.ca/
<http://www.techsage.gatech.edu/>

AGE-WELL is a Canadian federally-funded Network of Centres of Excellence (NCE) with over 140 industry, non-profit organizations, government, care providers, end users, and academic partners. Our network focuses on driving innovation and developing technologies and services to support older adults and caregivers.

George Mason University Booth #330

Assistive Technology Program
Graduate School of Education
4400 University Drive, 1F2, Finley Building, 102
Fairfax, VA 22030-4444
(703) 993-3670

<https://gse.gmu.edu/assistive-technology>

The Online Assistive Technology Program at GMU is designed to provide individuals with training on current AT tools and techniques using a tool-based, hands-on, direct-learning approach through our 15 credit graduate certificate or 30 credit masters degree program.

KY AgrAbility Booth #300

University of Kentucky
N122 Ag Science North
Lexington KY 40546-2814
(800) 333-2814
www.ca.uky.edu/anr/AgrAbility

The vision of AgrAbility is to enhance quality of life for farmers, ranchers, and other agricultural workers with disabilities, so that they, their families, and their communities continue to succeed in rural America. KY AgrAbility has been part of the national project since 1993 and is proud of its service to the people of Kentucky. Working through partners such as Kentucky State University, KY Easter Seals, KY Office of Vocational Rehabilitation, KY Growing Warriors and other organizations many farmers with disabilities have returned to the farms to work productively and safely.

LS&S Booth #290

145 River Rock Drive
Buffalo, NY 14207
(800) 468-4789
www.lssproducts.com

LS&S specializes in products for the blind, visually impaired, deaf, and hard of hearing. Here you will find a great collection of low vision aids, hearing helpers, daily living aids, and information designed to help you or a loved one regain independence. Adjusting to life-altering changes can be difficult, but in the case of vision or hearing loss LS&S can help you find useful products that will make a difference in your life.

OrCam Booth #280

1350 Broadway, Suite 1600
New York, NY 10018
800-713-3741
www.orcham.com

OrCam's breakthrough artificial vision technology wearable device gives independence to people who are blind, visually impaired or have a reading disability. The OrCam MyEye is a smart camera worn on eyeglasses that instantly and discreetly reads text, recognizes people and identifies products - enhancing people's lives.

Prehensile Technologies Booth #270

2827 Grackie Ln West
Lafayette IN 47906
(301) 659-6497
www.prehensiletechnologies.com

Prehensile is committed to developing best-in-class assistive technologies that enable individuals with disabilities to be more independent, productive, and socially active. Our first product, RoboDesk, enables power wheelchairs users to independently deploy, position, store, and charge mobile devices.

Southwest ADA Center Booth #380

TIRR Memorial Hermann - ILRU
1333 Moursund
Houston, TX 77030
(800) 949-4232
www.southwestada.org

The Southwest ADA Center is the Southwest's leading resource on the ADA and related disability rights laws. The Center serves anyone interested in or impacted by these laws, including employers, businesses, government agencies, schools and people with disabilities. Training, information & resources are available via our toll-free line at (800) 949-4232.

Tobii Dynavox Booth #240

2100 Wharton Street, Suite 400
Pittsburgh, PA 15203
(800) 344-1778
www.tobiidynavox.com

Tobii Dynavox, Part of Tobii Technology Group, is the global market leader in AAC, helping individuals with speech and communication impairment lead more independent lives.

University of Colorado - Assistive Technology Partners Booth #430

Anschutz Medical Campus
School of Engineering
1201 5th St., Suite 240
Denver, Colorado 80204
(303) 315-1280

www.assistivetechologypartners.org

The goal of the RERC-ACT is to improve the everyday lives of individuals with cognitive

impairments through research and development of technologies designed to improve quality of life, and that of caregivers. The RERC is currently focused on research and development projects; educational activities; and knowledge translation and utilization.

University of Pittsburgh - Rehab Engineering Research Center on ICT Access Booth #420

6028 Forbes Tower - HIM Department
School of Health and Rehabilitation Sciences
Pittsburgh, PA 15260
(412) 383-5101
www.ercict.pitt.edu

RERC-ICT Access harnesses the power of the Cloud, the Internet and mobile technologies to mitigate accessibility barriers to ICT for people with disabilities (PwD), to empower PwDs by developing innovative mobile and telehealth that opens access to health and social services, and to increase access to ICT in underserved areas.

Partnership on Employment & Accessible Technology (PEAT) Booth #100

1560 Wilson Blvd, Ste 850
Arlington, VA 22209
(703) 524-6686, Ext. 350
www.acrm.org

PEAT is a multi-faceted initiative to foster collaboration and action around accessible technology in the workplace. Guided by a consortium of policy and technology leaders, PEAT works to help employers, IT companies, and others to understand why it pays to build and buy accessible technology, and how to do so.

Otto Trading Inc Booth #370

1921 Carnegie Ave, Suite C
Santa Ana, CA 92705
(714) 540-5595
www.unimedmassager.com

Manufacturer and distributor of drug free pain-management technology, TENS & EMS.

American Congress of Rehabilitation Medicine (ACRM) Booth #320

11654 Plaza America Drive, Suite 535
Reston, VA 20190
(703) 435-5335
www.acrm.org

With the mission of IMPROVING LIVES of those with disabling conditions through interdisciplinary rehabilitation research, ACRM curates and disseminates world-class rehabilitation research in person (www.ACRMconference.org), in print (Archives of Physical Medicine and Rehabilitation) and online (www.ACRM.org). ACRM is truly interdisciplinary – uniting all members of rehabilitation teams from around the world.

RESNA Booth #110

1560 Wilson Dr., Ste. 850
Arlington, VA 22209
(703) 524-6686
www.resna.org

RESNA, the Rehabilitation Engineering and Assistive Technology Society of North America, is the premier professional organization dedicated to promoting the health and well-being of people with disabilities through increasing access to technology solutions. RESNA advances the field by offering certification, continuing education, and professional development; developing assistive technology standards; promoting research and public policy; and sponsoring forums for the exchange of information and ideas to meet the needs of our multidisciplinary constituency.

Positional Therapy Pillows LLC Booth #260

145 River Rock Dr.
Buffalo, NY 14207
(361) 767-1888
www.comfy-liftbed.com

The Comfy-Lift™ Bed/mattress features an elevated head rest to lift the upper body as well as a counter foot wedge to maintain elevation, keeping stomach acid out of the esophagus, as well as assist in breathing. Side barriers create a concave design that will cradle the child in the center.

Conference Sponsors

National Mobility Equipment Dealers Association (NMEDA) Booth #001

3327 W. Bears Ave.
Tampa, FL 33618
(800) 833-0427
www.nmeda.com

"NMEDA is a non-profit trade association of automotive mobility equipment manufacturers, dealers, driver rehabilitation specialists, and other professionals dedicated to improving the lives of people with disabilities and assisting with driving independence using wheelchair accessible vehicles. For more information about how you can live a more active and independent life, visit us at www.NMEDA.org."

Control Bionics Booth #120

745 Centre Street, Suite 303
Milford, OH 45150
(513) 453-4848
www.controlbionics.com

Control Bionics is redefining the way the world views brain to computer interface technology. The company's mission is to become the world's leading provider of wearable EMG bionic devices. Our

latest device, the NeuroNode, is changing the lives of people living with conditions such as ALS/MND, spinal cord injury, and stroke by restoring their ability to control their own lives.

Quantum Rehab/ Pride Mobility Booth #200

182 Susquehanna Ave.
Exeter, PA 18643
(800) 800-8586
www.quantumrehab.com

Quantum Rehab® is a premier manufacturer of clinically-focused, consumer-inspired, innovative complex rehab products, including the Q6® Series of power bases, TRU-Balance® 3 Power Positioning Systems, Q-Logic 2 Drive Control System, Synergy® Cushions and Backs, and Stealth® Products, a leader in positioning components, specialty controls and pediatric mobility. Please visit www.QuantumRehab.com.

Sunrise Medical Booth #220

6899 Winchester Circle, Suite 200
Boulder, CO 80301
(303) 981-6710
www.sunrisemedical.com

Sunrise Medical is a world leader in the development, design, manufacture and distribution of manual and powered wheelchairs, mobility scooters and both standard and customized seating and positioning systems.

Keep the conversation going after the conference...



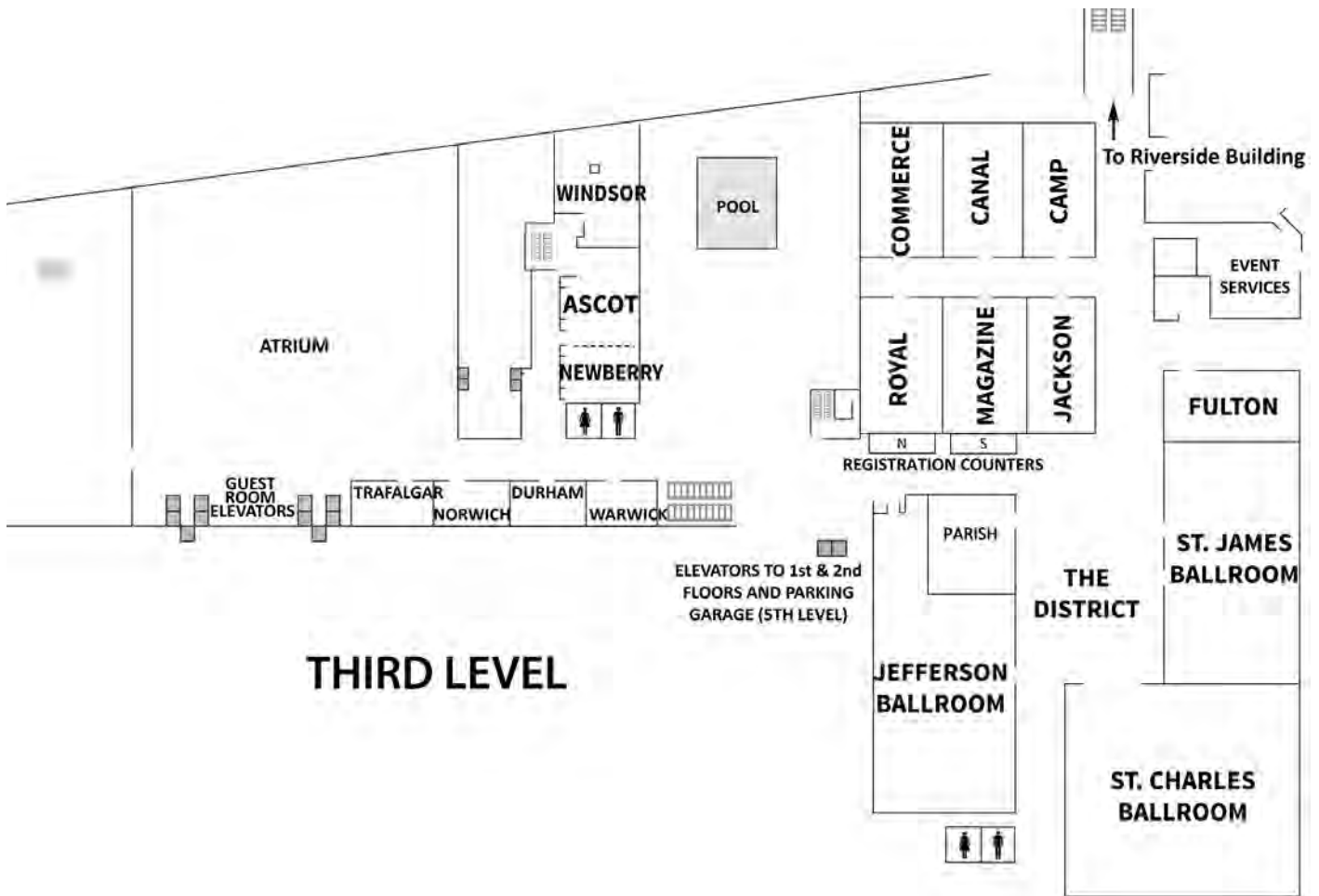
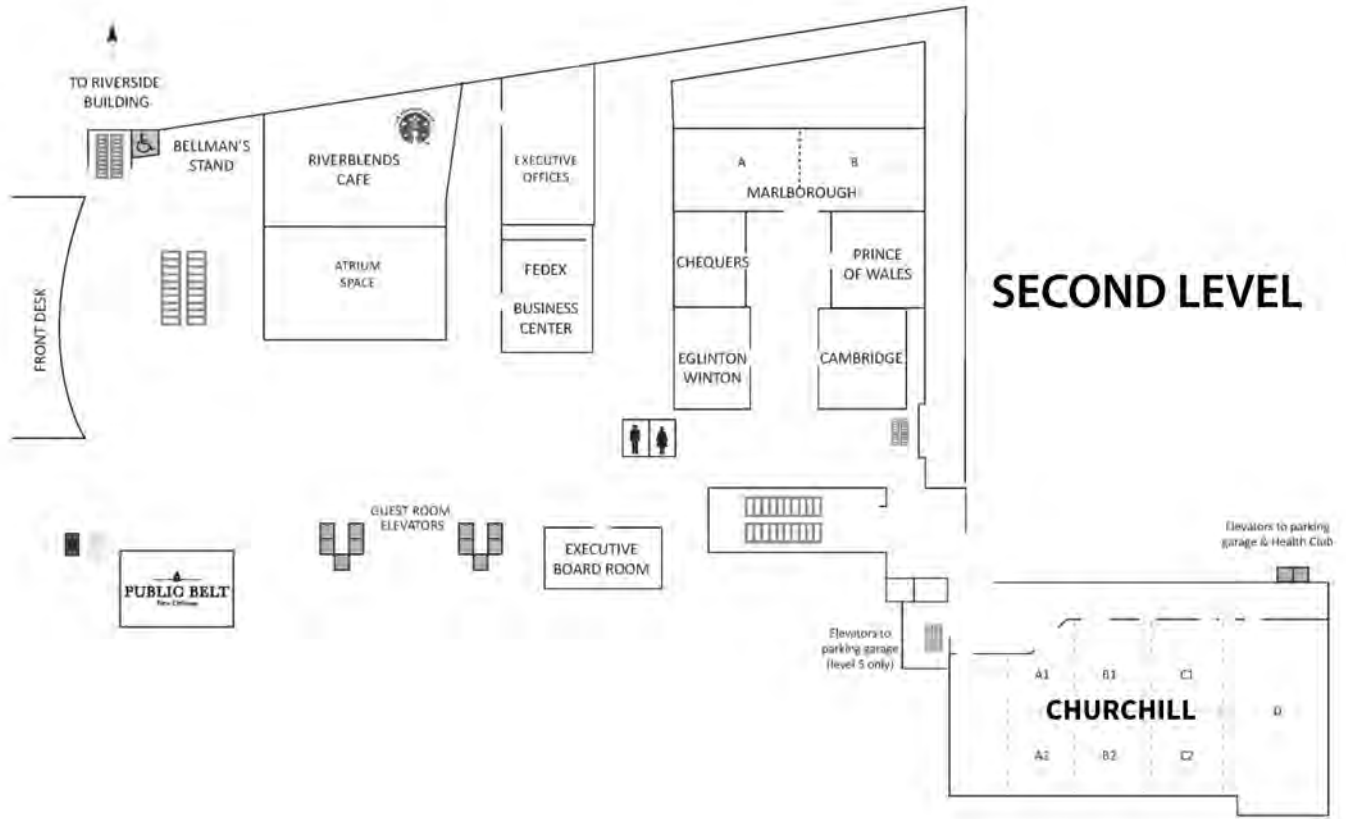
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 - **Get certified** – validate your skills and receive industry recognition through RESNA's ATP certification and the advanced SMS certification
 - **Volunteer on RESNA committees and boards** – gain valuable leadership and organizational skills while giving back to the AT community
 - **Post your job openings on the RESNA Job Board** – openings are promoted through RESNA's social media channels
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Together, we'll continue to promote technology solutions
for people with disabilities.

