

Promoting Access to Assistive Technology

RESNA/NCART 2016

In partnership with NRRTS

Conference:

July 12-14, 2016

Pre-Conference Education Dates:

July 10-11, 2016

Hyatt Regency Crystal City
Arlington, VA



Final Program

Education | Advocacy | Networking

www.resna.org/conference2016





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Welcome from the Conference Chair and RESNA's President



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



Ray Grott, ATP, RET
RESNA President, 2014 - 2016
San Francisco State University
Richmond, CA
rgrott@sfsu.edu

Welcome to **RESNA/NCART 2016**, in partnership with **NRRTS**. We are pleased that you chose to make this conference part of your professional development game plan. We are confident that you will find many opportunities to learn and to share your own knowledge and experience. We've worked hard to offer a top notch program that includes instructional courses, workshops, paper presentations, poster sessions, and stimulating plenary speakers. The exhibit hall will offer you hands-on experience with a variety of technologies. You will also find many formal and informal opportunities to network and make connections.

The theme of this year's conference is "Promoting Access to Assistive Technology," which is underscored by the opportunity to visit Capitol Hill to educate Congress about the critical role that assistive technology plays in advancing community living and improving the health and well-being of people with disabilities. At the same time, we could say that the unofficial theme is "Collaboration," which is exemplified by this joint conference with NCART, in partnership with NRRTS, and applies to the nature of RESNA and our field.

RESNA is a membership-driven organization and there is ongoing collaboration between our volunteer leadership and our dedicated staff. This conference is a great example of collaboration among staff, committees, instructors, presenters, exhibitors, sponsors and, most importantly, you as an attendee. We look forward to your participation and engagement. Please ask the tough questions and offer your own perspectives on the issues. Challenge us with your suggestions. After all, that is what many of us do in our daily work as we collaborate with the people with disabilities who utilize our skills and services and work with others to promote access to assistive technologies. We are glad you are here to collaborate with RESNA, NCART and NRRTS, our expert presenters, exhibitors, sponsors and each other.

Welcome from the Executive Directors

Welcome to **RESNA/NCART 2016**, in partnership with **NRRTS**. We are very happy you are able to join us for what promises to be an exciting program.

This first-ever collaborative conference between our organizations will leverage proximity to the nation's capital to engage policymakers, federal program administrators and assistive technology stakeholders. There has never been a more important time to rally around the theme of *Promoting Access to Assistive Technology* and advocating for AT devices, products and services. Indeed we have a great core mission: to promote technology solutions for people with disabilities.

Holding the conference in the Washington, DC area gives us a unique opportunity to meet with federal policymakers and Members of Congress. We look forward to a strong showing of advocates as we collectively visit Capitol Hill on Thursday. Our voices are more powerful when we work together.

We hope that you will take full advantage of all the educational, networking and advocacy opportunities being offered this week. Our special thanks goes to our sponsors and exhibitors; without their generous support this conference would not be possible. Please be sure to personally thank them when you visit the Exhibit Hall.

We believe that this conference will serve as a catalyst for more effective information sharing, collaboration and advocacy on assistive technology. Thanks for coming and we look forward to making it a great week.



Don Clayback, Weesie Walker, Michael Brogioli

Michael Brogioli
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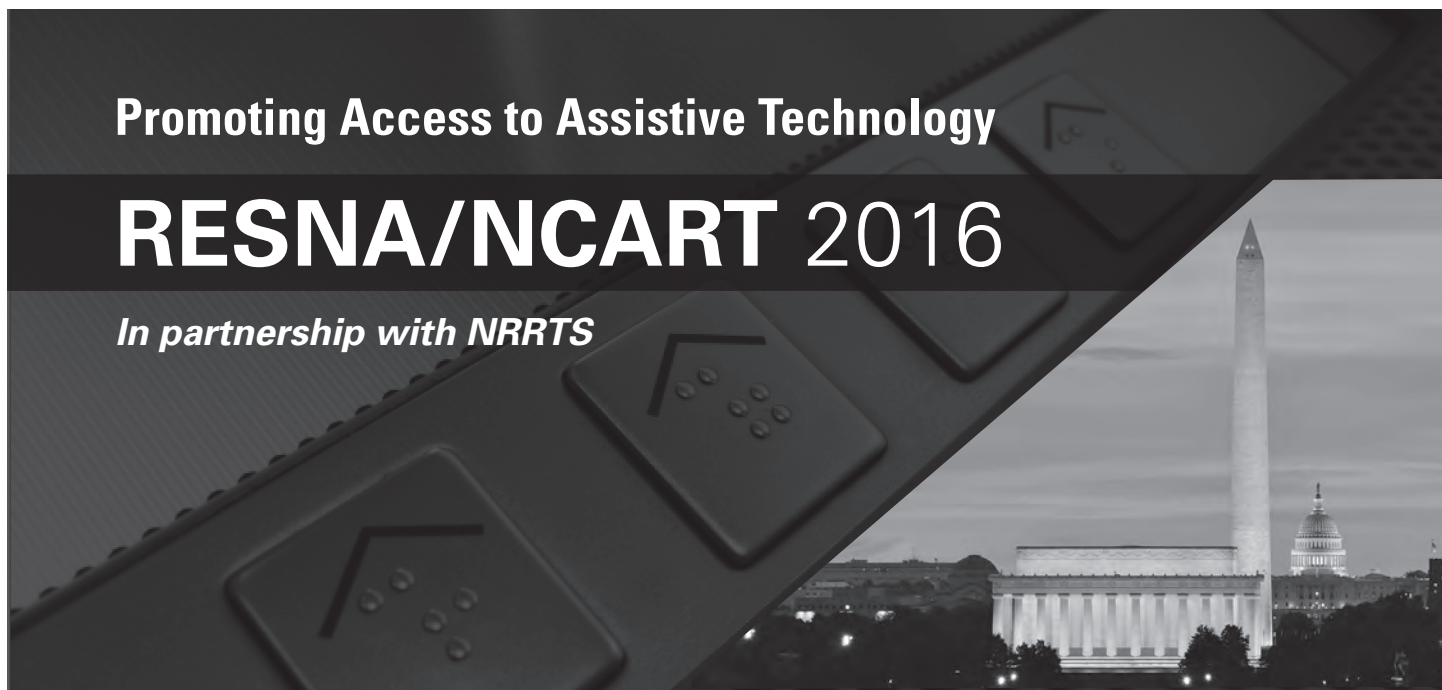
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Promoting Access to Assistive Technology

RESNA/NCART 2016

In partnership with NRRTS



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Student Design Competition

Emma Smith, MScOT, ATP/SMS, *Jump Start Occupational Therapy*

Conference Tech Lab & Conference Proceedings

Denis Anson, MS, OTR, *Misericordia University*

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Schedule-at-a-Glance

SUNDAY, JULY 10

- 8:00am – 5:00pm RESNA Fundamentals Course – Day 1
8:00am – 5:00pm Accreditation Evaluators' Training

MONDAY, JULY 11

- 8:00am – 5:00pm RESNA Fundamentals Course – Day 2
8:00am – 5:00pm RESNA Standards Committee:
Wheelchairs & Transportation (WHAT)
8:00am – 5:00pm RESNA Catalyst Project Annual Conference
8:30am – 5:30pm Instructional Courses
9:00am – 12:00pm NIDILRR Tech Transfer Meeting
(by invitation only)
10:30am – 5:00pm RESNA Board Meeting
12:00pm – 5:00pm Exhibitor Setup
12:00pm – 5:00pm Registration Open
1:00pm – 5:00pm NIDILRR Project Directors Meeting
(by invitation only)
4:00pm – 6:00pm RESNA Standards Committee:
Wheelchair & Related Seating (WRS)
6:00pm – 6:30pm First Timers Orientation
6:30pm – 8:00pm Opening Reception

TUESDAY, JULY 12

- 7:00am – 7:00pm Registration Open
7:30am – 5:00pm NIDILRR Project Directors Meeting
(by invitation only)
7:45am – 8:45am RESNA Specialty Interest Group (SIG)
Meetings
8:00am – 5:00pm RESNA Catalyst Project Annual Conference
9:00am – 10:30am Plenary Session
10:30am – 5:00pm Exhibits Open
10:45am – 12:00pm Workshops & Scientific Paper Platform
12:00pm – 1:00pm Lunch
12:00pm – 1:00pm AT Journal Editorial Board Meeting
12:00pm – 2:00pm AgrAbility 25-Year Celebration Luncheon
(by invitation only)
1:15pm – 2:30pm Workshops & Scientific Paper Platform
2:30pm – 4:00pm Dedicated Exhibit Time & Scientific Paper
Posters

TUESDAY, JULY 12, cont.

- 3:30pm – 5:30pm Student Design Competition Judging
4:00pm – 5:15pm Workshops & Scientific Paper Platform
5:30pm – 6:30pm RESNA Business Meeting
6:30pm – 8:30pm Developers Forum
8:30pm – 10:00pm Networking Reception

WEDNESDAY, JULY 13

- 7:00am – 7:00pm Registration Open
7:45am – 8:45am RESNA Professional Specialty Group (PSG)
Meetings
9:00am – 10:30am Plenary Session
10:30am – 5:00pm Exhibits Open
10:45am – 12:00pm Workshops & Scientific Paper Platform
12:00pm – 2:00pm RESNA Awards Luncheon (Exhibits Closed)
2:00pm – 5:00pm RESNA Professional Standards Board
Meeting
2:15pm – 3:30pm Workshops & Scientific Paper Platform
3:30pm – 5:00pm Dedicated Exhibit Time & Scientific Paper
Posters
3:30pm – 5:00pm PSG & SIG Chairs & Vice Chairs Meeting
5:00pm – 6:15pm Workshops & Scientific Paper Platform
6:30pm – 7:30pm Congressional Prep for Capitol Hill Visits
5:00pm – 9:00pm Exhibitor Dismantle

THURSDAY, JULY 14

- 7:00am – 1:00pm Registration Open
8:00am – 9:15am Workshops & Scientific Paper Platform
9:00am – 5:00pm Capitol Hill Visits
9:30 am – 11:00 am Workshop on AT Outcomes
11:15am – 12:30pm Workshops
12:45pm – 2:00pm Workshops
6:00pm – 8:00pm Capitol Hill Debrief and Reception

FRIDAY, JULY 15

- 8:00am – 4:00pm AT Outcomes Summit
(by invitation only)

General Information

Registration

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

Registration Desk Hours

Monday, July 11 12:00pm – 5:00pm
Tuesday, July 12 7:00am – 7:00pm
Wednesday, July 13 7:00am – 7:00pm
Thursday, July 14 7:00am – 1:00pm

Exhibit Hall Hours

Monday, July 11 6:30pm – 8:00pm
Tuesday, July 12 10:30am – 5:00pm
Wednesday, July 13 10:30am – 12:00pm; 2:00pm – 5:00pm

Computer Tech Lab

The tech lab is equipped with a number of computers 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.

Tech Lab Hours

Tuesday, July 12 7:30am – 6:00pm
Wednesday, July 13 7:30am – 6:00pm
Thursday, July 14 7:30am – 1:00pm

Accessibility Services

CART

There will be Computer Assisted Real Time Translation (CART) services for the 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's front desk for the dog walking area.

Continuing Education Units – CEUs

Conference attendees may earn RESNA Continuing Education Units (CEUs) for scientific and educational sessions.

In order to earn CEUs, attendees must complete an online evaluation and provide the session codes for each session attended. Students who attend the Fundamentals course must pass a post-course quiz.

RESNA 2016 PROGRAM	CEU's	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	.1	1.0
Workshop Session	.125	1.25
Platform Session	.125	1.25

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, Capitol Hill prep and visits, CRT Town Hall, and time spent visiting exhibits.

RESNA Awards Luncheon

Join friends and colleagues at this annual luncheon recognizing stellar contributions to the field and to RESNA. We will also announce the winners of the Student Design Competition!

Wednesday, July 13 • 12:00pm – 2:00pm

Location: Regency ABCD



How the Sessions are Structured

Workshops

Each 75-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 75-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, ARM University Worldwide Education Program, and the Center for the Translation of Rehabilitation Engineering Advances and Technology (TREAT), 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. The top three designs will win cash prizes, courtesy of ARM University Worldwide Education Program. 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 Paralyzed Veterans of America (PVA). Other papers receiving honorable mentions will be presented via poster presentations.

Note: *Papers presented in the Platform 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.

Developers Forum

Tuesday, July 12 • 6:30pm – 8:30pm

Location: Lincoln

Sponsored by the Center for Translation of Rehabilitation Engineering Advances and Technology (TREAT)

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

RESNA Meetings

Monday, July 11

10:30am – 5:00pm RESNA Board Meeting
Room: Washington Room

8:00am – 5:00pm Standards Committee on Wheelchairs and Transportation (WHAT)
Room: Potomac II

4:00pm – 6:00pm Standards Committee on Wheelchair Wheelchair and Related Seating (WRS)
Room: Potomac IV

Tuesday, July 12

7:45am - 8:45pm Specialty Interest Group Meetings (SIGs)

12:00pm - 1:00pm AT Journal Editorial Board
Room: Washington A

5:30pm – 6:30pm RESNA Business Meeting (Open to RESNA Members)
Room: Roosevelt

Wednesday, July 13

7:45am – 8:45am Professional Specialty Group Meetings (PSGs)

2:00pm – 5:00pm Professional Standards Board (PSB)
Room: Potomac VI

3:30pm – 5:00pm PSG & SIG Chairs/Vice Chairs Meeting
Room: Tidewater II

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)*
- Accreditation (Ad Hoc)
- Education
- International Relations (Ad Hoc)
- 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
- Professional Standards Board

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Pre-conference Education Sessions

DAY 1: Sunday, July 10 • 8:00am – 5:00pm; DAY 2: Monday, July 11 • 8:00am – 5:00pm

Note: separate fee is required for all pre-conference education sessions.

RESNA's Fundamentals in Assistive Technology Course

The Fundamentals course provides interested individuals with an overview of numerous areas of assistive technology. It is also designed to broaden the knowledge of AT providers. Throughout this course, multiple case studies will be used to illustrate applications of principles and theories in assistive technology provision. While this course is designed to cover the basic areas of assistive technology service provision and aspects of this course may cover the general scope of the ATP certification exam, it is not a review course for the ATP exam.

■ IC01: N=1 Studies; What Are They and How Do I Do One?

Monday, July 11, 8:30am – 5:30pm

Dennis Tomashek, University of Wisconsin-Milwaukee

Level: Intermediate Topic: Other Room: Roosevelt

Due to the number and individualized nature of AT, large clinical trials are rare, and often impossible to conduct. N=1, or Single Subject Designs (SSD), and meta-analysis of multiple SSDs offer methods to AT researchers and practitioners to quantify outcomes. This course will cover the history and current state of AT outcomes, including issues and possible solutions; discuss SSD methodologies and analyses, critique current SSD research articles, and discuss the importance of meta-analysis of SSD for evidence based practice. Participants will get a chance to work with the presenters on creating a SSD experiment to demonstrate a grasp of the topic, and will be able to participate in a question and answer session with leading AT outcomes and SSD experts.

■ IC02: Power Wheelchair Driving Methods

Monday, July 11, 8:30am – 5:30pm

Michelle L. Lange, Access to Independence

Level: Intermediate Topic: Seating and Mobility Room: Regency B

Power wheelchairs can provide independent mobility for many people with physical limitations. However, not everyone can use a standard joystick due to limitations in motor control or muscle strength. This course will present a variety of alternative proportional and digital driving methods with clinical indicators for each. Hands-on time with individual access methods and opportunities to program will be included. Case studies will be used throughout and audience participation is encouraged.

■ IC03: Access to Mobile Devices for Individuals with Physical Disabilities

Monday, July 11, 8:30am – 5:30pm

Emma M Smith, Jump Start Occupational Therapy

Level: All Levels Topic: Emerging Technology Room: Jefferson

The rise in the use of touch-screens (phones and tablets) for access to communication, social, and environmental interactions, has changed the way we consider access for individuals with physical disabilities. This hands-on BYOD (Bring Your Own Device) workshop will address a range of access issues. We will specifically address Android and Apple accessibility features to permit a greater range of access, including iOS Assistive Touch and Switch Control. We will consider the potential for accessories to promote or enhance access. Finally, we will explore challenges with mounting and wheelchair integration. Case studies will be used to consolidate new learning.

■ IC04: Coding and Reimbursement for a Successful Seating Clinic

Monday, July 11, 1:30pm – 5:30pm

Barbara Crume, CarePartners Health Services

Level: All Levels Topic: Seating and Mobility Room: Kennedy

Correct coding and documentation for therapy reimbursement is critical to the success of any outpatient clinic or home health provider. This course will provide information on Current Procedural Terminology (CPT) and how to use these codes for wheelchair seating and mobility services. Documentation of the evaluation and treatment intervention will be presented to demonstrate provision of skilled care and justify the need for the assistive technology recommended. For those patients on Medicare, the selection of G-codes and tools to select modifiers will be presented and discussed. In addition ideas to keep your seating clinic viable will be shared.

Thank you to Rifton for sponsoring Wi-Fi access.



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1. Select Wi-Fi Internet Access: **HYATT_MTG**
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3. Enter: **access2016** (Your Personal Access Code: this will allow you access to Wi-Fi throughout all Meeting Spaces)
4. Then press enter
5. Afterwards you will notice the HYATT Crystal City Home Page, which indicates that you have gained access to the Wi-Fi.



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Opening Reception

Monday, July 11 • 6:30pm – 8:00pm • Location: Independence Center

An opportunity to meet exhibitors and socialize with attendees



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NSM (National Seating & Mobility) and AccessNSM are committed to providing its clients with total access through life.

All our people are working to help support the efforts of RESNA and NCART to promote access to assistive technology.

Together, we are bringing mobility and access to help people move through life.



Opening Plenary Session

Tuesday, July 12 • 9:00am – 10:30am • Location: Regency EF

Research as the Keystone to Improving Assistive Technology

This panel of esteemed researchers will share their perspectives on current and future research initiatives and how they can improve access to assistive technology.



Carla Bailo

Carla Bailo is Assistant Vice President – Mobility Research and Business Development at The Ohio State University. Also, she is President and CEO of ECOS Consulting, LLC which specializes in Engineering Efficiency and Optimization as well as Electrification and Computer Operated (Autonomous) Vehicles.

Until Feb 1, 2014, she was senior vice president, Research & Development-Nissan Americas. In this role, she was responsible for all of Nissan's vehicle engineering and development operations in Michigan, Arizona, Mexico and Brazil. She was also a member of Nissan's MC-A, the company's highest-ranking decision-making body in the Americas region.

Bailo began her automotive career with General Motors' Truck & Bus division, where she was in charge of truck durability testing and test development. She holds a bachelor's degree in mechanical engineering from General Motors Institute (now Kettering University) and a master's degree in mechanical engineering from the University of Michigan.



Dr. Ann M. Spungen

Dr. Spungen is a VA Research Scientist, Associate Professor of Medicine and Rehabilitation Medicine at the Icahn School of Medicine at Mount Sinai and the Associate Director of the VA Center for the Medical Consequences of Spinal Cord Injury. She has been a funded VA investigator since 1998 and has published >125 peer-reviewed manuscripts. In 2011, she

was the first VA investigator to study exoskeletal-assisted walking in persons with SCI. She is currently funded by the DOD, VA RR&D and the VA Cooperative Studies Program. She is considered to be one of the leading experts in the field of exoskeletal-assisted walking for persons with SCI.



Kenneth J. Ottenbacher, PhD, OTR

Kenneth J. Ottenbacher received his PhD from the University of Missouri-Columbia and is a licensed occupational therapist. He currently holds the Russell Shearn Moody Distinguished Chair in Neurological Rehabilitation at the University of Texas Medical Branch (UTMB).

Dr. Ottenbacher is Director of the Division of

Rehabilitation Sciences in the School of Health Professions and is also Director of the Center for Recovery, Physical Activity and Nutrition, and Associate Director for the Sealy Center on Aging at UTMB.

Dr. Ottenbacher began his academic career at the University of Wisconsin-Madison in the Department of Occupational Therapy and was promoted through the ranks from assistant professor to full professor. In 1990 he joined the State University of New York at Buffalo where he served in several positions including Associate Dean for Research and Academic Affairs in the School of Health Related Professions, Professor in the Department of Occupational Therapy, Professor in the Department of Rehabilitation Medicine, and Associate Director of the Center for Functional Assessment Research in the School of Medicine. In 1996, he joined the University of Texas Medical Branch as Vice Dean and Professor in the School of Health Professions.

Dr. Ottenbacher's current research involves using large datasets to study rehabilitation outcomes with a focus on functional assessment, disability and frailty in older adults. Dr. Ottenbacher has published more than 300 articles in refereed journals and received continuous federal funding as principal investigator to support his research and training activities since 1984. He is currently the PI for five federal grants. Dr. Ottenbacher has been the recipient of numerous awards for his research, mentoring and service including fellow status in the American Occupational Therapy Association, the American Congress of Rehabilitation Medicine, and the Gerontological Society of America (Health Sciences Division).

A black and white photograph of a woman with long hair and sunglasses, wearing a jacket and pants, sitting in a wheelchair on a concrete ramp. She is looking off to the side with a slight smile. The background shows trees and a railing.

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Conference Workshops

Tuesday, July 12 – Thursday, July 14, 2016

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

Tuesday, July 12 • 10:45am – 12:00pm

■ Scientific Paper Platform Session #1

Level: All Levels Topic: NEW Room: Conference Theater

- **An IoT Smart Home System for Activity Analysis**
Christopher Coelho, PPT; Sethu Chidambaram and Marilyn Wolf, Georgia Institute of Technology
- **Immersive Virtual Reality for Vocational Rehabilitation of Individuals with Disabilities**
Lal Bozgeyikli, Evren Bozgeyikli, Andoni Aguirrezabal, Redwan Alqasemi, Stephen Sundarrao and Rajiv Dubey, University of South Florida
- **Usability of Physical Activity Monitoring And Sharing System for Manual Wheelchair Users**
Khara James, Human Engineering Research Lab; Dan Ding and KaLai Tsang, University of Pittsburgh; Natthasit Wongsirikul; Shivayogi Hiremath, Temple University
- **Application of Body Weight Support Systems in Real World Settings across the Lifespan**
Devina Kumar, Tracy Stoner and James Galloway, University Of Delaware; Elena Kokkoni; Samuel Logan, Oregon State University
- **Design of a Low-Floor Care Bed for Aged People**
Inhyuk Moon, Dong-Eui University



Walkabout Lunch in the Exhibit Hall

Tuesday, July 12 • 12:00pm - 1:00pm

■ WS01: Improving Web Accessibility for Low Vision

George Spohn, sitecues by Ai Squared

Level: Intermediate Topic: COG Room: Roosevelt

Low vision web users are too often overlooked by web accessibility practices. Historically and for good reason, blind users have received much of the focus of vision-related web accessibility efforts. The potential to help low vision web users is massive – both due to the size of this segment, and the fact that this group has been underserved. Fortunately, new insights and techniques offer professionals ways to make the web more accessible to low vision users.

■ WS02: CRT Industry Leaders Panel

Don Clayback, NCART

Level: All Levels Topic: OUT Room: Regency EF

There are a lot of changes taking place in the world of providing Complex Rehab Technology. In today's challenging business environment, CRT providers and manufacturers need to understand multiple factors in planning and operating their companies. An Industry Panel of leading providers and manufacturers will share their perspectives and thoughts on the CRT market. The session will include an overview of the state of the CRT industry and suggestions as to what lies ahead.

■ WS03: The Impact of Cognitive Support Technology for College Students with Traumatic Brain Injuries: iPads and Apps as Assistive Devices

Eileen Elias, JBS International; Phillip Rumrill, Kent State University; Marcia Scherer, Institute for Matching Person & Technology; Anne Leopold, JBS International

Level: All Levels Topic: CAC Room: Jefferson

For individuals with TBI, cognitive impairments often lead to barriers in gaining/maintaining employment. Best practices exist within assistive technology, but practices limitedly address the needs of individuals with TBI transitioning from college to employment. This presentation describes key features and outcomes of a development project that matches college students with TBI to iPad apps designed to improve academic and vocational functioning. The intervention is driven by the Matching Person Technology (MPT) model. Qualitative and quantitative outcome data are presented as well as implications of project activities and findings for best practices in rehabilitation engineering, assistive technology, and vocational rehabilitation.

■ WS04: Assistive Technology for Individuals who are Deaf or Hard of Hearing: A Methodology for Practice in Vocational Rehabilitation

Shannon Aylesworth, pepnet 2; Anthony Shay, Everybody Works!

Level: Beginner Topic: COG Room: Kennedy

This session offers participants an overview of a method for practice in the application of assistive technology (AT) in the Vocational Rehabilitation (VR) process. Presenters will briefly describe the relationship between AT interventions and measureable outcomes for individuals who are deaf or hard of hearing in postsecondary and vocational settings. Breaking into small groups, participants will have an opportunity to explore the application of Tech Points Protocol within the context of education or employment for an individual who is deaf or hard of hearing.

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■ **WS05: Accommodations Show & Tell**

Cindi Pichler, IndependenceFirst; John Wardzala, Assistive Interface Designs

Level: All Levels Topic: JEA Room: Arlington

This session provides RESNA participants with a chance to share work-site 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 job accommodations.

■ **WS06: Use of AT to Address Cognitive Deficits for those with Anxiety, Depression, and PTSD**

Amanda Reinsfelder and Dorothy Porcello, WRNMMC

Level: All Levels Topic: OTH Room: Fairfax

Military service members demonstrating symptoms of Anxiety, Depression and Post Traumatic Stress Disorder (PTSD) are served by an interdisciplinary Rehabilitation Team. Frequently, symptoms interfere with an individual's ability to manage basic activities of daily living (ADLs). This session will review commonly demonstrated symptoms, how ADLs are affected by them, and examples of how assistive technology models were applied to meet the patient's goals. The importance of keeping the entire team informed throughout the process will be emphasized through the discussion of a case study.

■ **WS07: Selecting Appropriate Assistive Technology for Agricultural Workplaces**

Steve Swain, Bill Field, Purdue University

Level: Beginner Topic: JEA Room: Prince William

The session will address the fundamentals of selecting assistive technology that is appropriate, and safe, for use in agricultural workplaces. It will focus on users who have limited mobility and impaired upper limb function. Methods of adapting primary types of agricultural equipment using both commercially available and custom made devices. Modified work practices as a means of accommodation will be covered. Preventing secondary injuries will be stressed. Resources available through the AgrAbility Project will be reviewed and discussed.

■ **WS08: I Think I Can Drive**

Lauren Rosen, St Joseph's Children's Hospital; Lisa Rotelli, Adaptive Switch Labs

Level: Intermediate Topic: CRT Room: Roosevelt

Many children desire to be mobile but they do not have the physical abilities to crawl or walk. Frequently, those children are also nonverbal so they cannot express the desire to move. This course will focus on determining who should trial complex power wheelchairs as well as how assist them to learn to operate the device effectively. Peer reviewed research as well as clinical experience will be included. Videos case studies and class discussion will be used to better explain the process and how to do it.

■ **WS09: No More Addendums! Get it Right the First Time when Documenting the Medical Necessity for Complex Rehab Technology**

Daniel Fedor, VGM US Rehab

Level: All Levels Topic: CRT Room: Lincoln

One of the most frustrating things for a clinician is when the patient clearly requires CRT but are informed that the documentation doesn't justify the medical necessity. In this interactive workshop participants will gain insight into Medicare's documentation requirements for CRT. The instructor will present in an understandable manner what Medicare expects from a clinician to justify the medical necessity for qualified patients. Participants will have a hands-on experience by reviewing actual wheelchair evaluations then discuss their findings with the group and with the help of the instructor learn what is considered acceptable documentation for commonly used CRT.

■ **WS10: Including the Rehabilitation Engineering Community in the Discussion About Synergies Between AAC and BCI Technologies**

Melanie Fried-Oken, Oregon Health & Science University

Level: Advanced Topic: CAC Room: Jefferson

In September, 2015, 18 AAC experts, engineers, computer scientists and neuroscientists participated in an NIH-sponsored webinar on creating synergy between brain-computer interfaces and augmentative communication technologies. Our plan is to extend the conversation that was started in September to additional critical stakeholders so that we adequately identify all important issues. The purposes of this workshop are to present our findings, and to engage the rehabilitation engineering community to further describe the challenges and opportunities that currently exist for BCI-AAC synergy. We hope to expand multidisciplinary collaboration and produce a publishable agenda so that BCI research and development for augmentative communication technologies is valid, reliable, and meaningful for individuals with complex communication needs and stakeholders.

Tuesday, July 12 • 1:15pm – 2:30pm

■ **Scientific Paper Platform Session #2**

Level: All Levels Topic: CRT Room: Conference Theater

- **An Accessible and Personalized Navigation Service for Wheelchair Users**

Hassan Karimi, University of Pittsburgh

- **Synchronized Wireless Sensor System Records Differences in Elbow Flexion and Pushrim Force Patterns during Manual Wheelchair Propulsion in Three Different Conditions**

Nuno Oliveira, Naphtaly Ehrenberg, Gail Forrest, Trevor Dyson-Hudson and Peter Barrance, Kessler Foundation; Sheila Blochlinger and Theresa Defosse, Children's Specialized Hospital

- **Usability of Public Transit Bus Ramp Slopes for Wheeled Mobility Device Users**

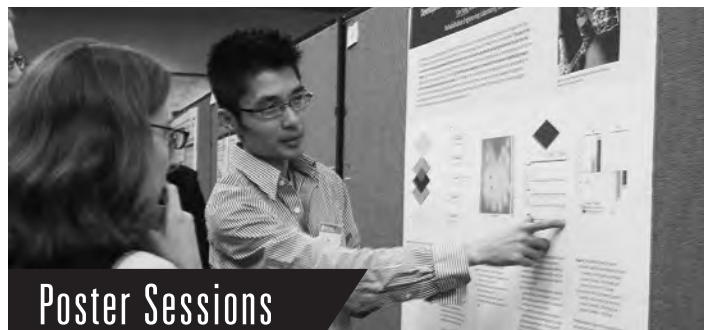
Brittany Perez, Lydia Kocher, Medha Nemade, and Victor Paquet, IDeA Center; James Lenker, University of Buffalo

- **Quantitative Assessment of Walker-Assisted Gait in Transtibial Amputees**

Maximilian Kopf, Omid Jahanian, Alyssa Schnorenberg, Roger Smith and Brooke Slavens, University of Wisconsin-Milwaukee; Barbara Silver-Thorn, Marquette University; Joel Kempfer, Kempfer Prosthetics Orthotics, Inc.

- **Can The Kinect Detect Differences Between Proper And Improper Wheelchair Transfer Techniques?**

Lin Wei and Hyun Ka, University of Pittsburgh; Alicia Koontz, Human Engineering Research Laboratories; Chung-Ying Tsai



Poster Sessions

Tuesday, July 12 • 2:30pm – 4:00pm

Wednesday, July 13 • 3:30pm – 5:00pm

Location: Independence Center

Scientific, practice-based, and policy-oriented papers; interact with the poster authors during unopposed time on Tuesday and Wednesday.

■ **WS11: Smart Watches, Phones, Apps for Cognitive/ Behavioral Disabilities**

David Grant, Arizona Assistive Technology

Level: All Levels Topic: COG Room: Kennedy

Clients have been using smart watches and apps for the last year and a half. We began using with the Samsung Gear series and now we have clients using Pebble, Apple Watch and Microsoft Band as well. The ability to use low-key wearable technology has made an impact on their ability to make successful transitions between tasks (Autism), reduce stress, anxiety and manage personal scheduling (SMI, TMI, PTSD and Stroke) Their use has now been incorporated into IEP goals for transition high school students as well. This method of providing external prompts and reminders has been useful and has met with greater acceptance than expected.

■ **WS12: Using Ice Cubes to Make Snowflakes: Addressing Power Mobility Needs In ALS Using Common Configurations**

Steven Mitchell, Cleveland VAMC SCI/D

Level: All Levels Topic: CRT Room: Arlington

It has been said that “Complex rehab power chairs are like snowflakes: no two are alike”. While users with ALS have complex needs, is it practical to provide snowflakes to a population whose needs will continually change as their disease progresses? This presentation will describe an ALS-specific custom option package that was developed to address challenges encountered during the course of providing seating/wheeled mobility intervention to this population. As importantly, it will describe how using the manufacturer’s customs department to replicate successful solutions on future ALS power chairs can allow others to request the same solutions for their population of users.

■ **WS13: Universal Design and Smart Technologies for the Older Adult**

Sara Benham, University of the Sciences; Anne Cronin, West Virginia University; Lynn Gitlow, Ithaca College; Erin Muston-Firsch, Craig Rehabilitation Hospital

Level: All Levels Topic: OTH Room: Fairfax

There are many challenges that impact community living efforts for individuals with disabilities. However with advances in universal design concepts, “smart” and smarthome technologies, community-based living is becoming achievable for more people. Participants will be introduced to existing and emerging technologies that provide supports for people to remain living in their own home and communities. A wide range of low to high technologies will be discussed that support people to remain in or return to their homes. Participants will receive a comprehensive list of resources that will provide them with links to technological solutions that can be used with clients.



Tuesday, July 12 • 5:30pm – 6:30pm

Location: Roosevelt

How are we doing?

- Overview of key achievements from the past year
- Executive Director’s report
- What’s next?

■ **WS14: Medicaid CRT Issues and Advocacy**

Don Clayback, NCART

Level: All Levels Topic: PP Room: Regency EF

Medicaid policies have a big impact on the coverage and payment of CRT. This session will review a variety of common Medicaid problems encountered and how to deal with them. Issues to be discussed will include the adoption of Medicare competitive bid program payment amounts, use of restrictive lists to exclude CRT, and dealing with Medicaid Managed Care contracts. The presenters will share lessons learned and what to do should these arise in your state.

Tuesday, July 12 • 4:00pm – 5:15pm

■ **Scientific Paper Platform Session #3**

Level: All Levels Topic: SSPC Winners Room: Conference Theater

- **The Impact of Wheelchair Weight Distribution and Human Physiological Fitness on Over-Ground Maneuver**
Jui-Te Lin and Stephen Sprigle, Georgia Tech
- **The Relationship between Social Participation and Wheelchair Breakdowns in People with Spinal Cord Injury**
Sara Munera, Lynn Worobey, Michael Boninger and Jonathan Pearlman, University of Pittsburgh; Rory Cooper; Maria Toro, Universidad CES
- **Getting a Moving Manual Wheelchair over a Threshold: A Descriptive Study**
Zainab Al Lawati; Ronald Kirby, Dalhousie University; Cher Smith, Nova Scotia Health; Diane MacKenzie
- **Measuring Heart Rate in Manual Wheelchair Users during Exercise and Free-living Activity with the latest Fitbit Surge Monitor**
KaLai Tsang and Dan Ding, University of Pittsburgh; Hui-ju Young and James Rimmer, University of Alabama at Birmingham
- **Exploring the Relationship of Rolling Resistance and Misalignment Angle in Wheelchair Rear Wheels**
Jonathan Vander Wiel and Norman Reese, LeTourneau University; Boice Harris; Carl Jackson

■ **WS15: ATSB Report: New AT Standards During 2015-2016**

Barbara Crane, University of Hartford; Evan Call, EC-Service, Inc.; Patricia Karg, University of Pittsburgh; Miriam Manary, University of Michigan; Kara Kopplin, Roho, Inc.

Level: All Levels Topic: CRT Room: Roosevelt

RESNA’s Assistive Technology Standards Board and standards committees produce standards across a wide range of Assistive Technology. These standards are used by many stakeholders, including consumers, manufacturers, policymakers, and third-party payers. Each year, new standards are introduced, as well as significant revisions made to existing standards. This year, the ATSB will highlight revisions and new sections for WC 3 – Wheelchair and Related Seating and WC 4 – Wheelchairs and Transportation. WC 3 focuses on the performance characteristics of wheelchair cushions and postural supports. WC 4 addresses wheelchairs, wheelchair seating, WTORS, and in-vehicle stations used to improve safety during motor vehicle travel.

■ **WS16: School of Power Mobility; Tips for Teaching Power Wheelchair Skills**

Angie Kiger, Sunrise Medical; Robin Skolsky, Shepherd Center

Level: All Levels Topic: CRT Room: Lincoln

Creating exciting yet effective strategies for teaching power mobility skills can be difficult. During this session participants will learn tips and tricks for creating a successful power mobility training program. First considerations to keep in mind when setting-up the environment, communication techniques, and expectations of the end user and the entire team will be reviewed. Next strategies and activity ideas for developing skills while the client is not in a power wheelchair (i.e. home, school, day treatment program, etc.) will be discussed followed by curriculum ideas for power mobility training sessions while the client is “behind the wheel”.

Student Scientific Paper Competition

Tuesday, July 12 • 4:00pm – 5:15pm • Location: Conference Theater

Sponsored by the Paralyzed Veterans of America, 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

Tuesday, July 12 • 4:00pm – 5:15pm • Location: Conference Theater

- **The Impact of Wheelchair Weight Distribution and Human Physiological Fitness on Over-Ground Maneuver**
Jui-Te Lin and Stephen Sprigle, Georgia Tech
- **The Relationship between Social Participation and Wheelchair Breakdowns in People with Spinal Cord Injury**
Sara Munera, Lynn Worobey, Michael Boninger and Jonathan Pearlman, University of Pittsburgh; Rory Cooper; Maria Toro, Universidad CES
- **Getting a Moving Manual Wheelchair over a Threshold: A Descriptive Study**
Zainab Al Lawati; Ronald Kirby, Dalhousie University; Cher Smith, Nova Scotia Health; Diane MacKenzie
- **Measuring Heart Rate in Manual Wheelchair Users during Exercise and Free-living Activity with the latest Fitbit Surge Monitor**
KaLai Tsang and Dan Ding, University of Pittsburgh; Hui-ju Young and James Rimmer, University of Alabama at Birmingham
- **Exploring the Relationship of Rolling Resistance and Misalignment Angle in Wheelchair Rear Wheels**
Jonathan Vander Wiel and Norman Reese, LeTourneau University; Boice Harris; Carl Jackson

Honorable Mentions Poster Session

Tuesday, July 12 • 2:30pm – 4:00pm • Location: Independence Center

- **Seating Interface Characteristics Through Temperature Description**
Julie Faieta, Carmen DiGiovine, Marcia Nahikian-Nelms, Susan White, Matthew Yankie, The Ohio State University
- **Development and Simulation of a Self-Leveling Algorithm for the Mobility Enhancement Robotic Wheelchair**
Sathish Sundaram, Rory Cooper, Jorge Candiotti, University of Pittsburgh; Hongwu Wang, Human Engineering Research Laboratory
- **Analysis of the Effect of a Rear Wall Grab Bar Configuration on the Fall Risk Associated With Toilet Transfers in Older Adults with Mobility Impairment**
Yu-Kuang Wu, Hsin-yi Liu, Annmarie Kelleher, Rory Cooper, University of Pittsburgh Achyuthkumar A. Sanath, Harshal Mahajan, Elena Gonzalez, Jon A. Sanford, Brad Fain Georgia Institute of Technology
- **An Interview-Based Study of Cycle Training In Children with Cognitive Impairment**
Raissa Barros de Carvalho, Clive D'Souza, University of Michigan
- **Evaluation of Shoulder Joint Kinematics and Stroke Cycle Characteristics during Geared and Standard Manual Wheelchair Mobility**
Omid Jahanian, Alyssa Schnorenberg, Lianna Hawi, Brooke Slavens, University of Wisconsin Milwaukee

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Plenary Session

Wednesday, July 13 • 9:00am – 10:30am • Location: Regency EF

Advancing Policies that Improve Access to Assistive Technology

This panel of federal officials and Washington-based policy experts will share perspectives on how to increase access to assistive technology and the importance of advocacy to achieve our shared goals.



Peter W. Thomas

Peter W. Thomas is a principal with the Washington, DC based law firm of Powers, Pyles, Sutter & Verville. He has been a legislative and regulatory advocate for over twenty five years on behalf of health care and post-acute care providers as well as consumers with injuries, illnesses, disabilities and chronic conditions. He represents numerous clients before Congress and the federal

agencies including associations representing psychiatrists, rehabilitation hospitals, orthotic and prosthetic and mobility DME providers and consumers, recreational therapists, and brain injury providers and consumers, among others. Mr. Thomas has personal experience with physical disability, wearing two prosthetic limbs below the knees since age ten.

Mr. Thomas helps coordinate multiple coalitions focused on health and disability advocacy, including the ITEM Coalition, which is comprised of 75 organizations which advocate for access to assistive devices and technologies for people of all ages. Mr. Thomas also serves on the National Quality Forum's Patient and Family Centered Care Committee which evaluates and validates functional and quality of life measures. He also served on the President's Commission on Consumer Protection and Quality in the Health Care Industry. He has testified numerous times before Congress, authored hundreds of articles on health and disability policy, and is a co-author of a book on implementation of the Americans with Disabilities Act. He attended Georgetown University Law Center and Boston College, and is a member of the New York State and District of Columbia Bars.



John Tschida

John Tschida serves as the director of the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR) within the Administration for Community Living at the U.S., Department of Health and Human Services. He has spent most of his career using data and research to drive policy change.

He comes to NIDILRR from Allina Health in Minnesota, where he served as director of public policy and innovation. In this role, he worked to develop integrated health delivery systems and financing models for people with disabilities. Tschida also spent 14 years at Courage Center, Minnesota's leading nonprofit rehabilitation service provider, where he led a public policy and research team that focused on defining and achieving better outcomes for complex populations. His team received one of the first Health Care Innovation Awards distributed by CMMI at CMS.

Prior to joining Courage Center, Tschida served as a research fellow at the National Rehabilitation Hospital Center for Health and Disability Research. Earlier in his career, he served as assistant director of the Minnesota House of Representatives Public Information Office.

A graduate of Macalester College, Tschida holds a Master's degree in Public Policy and Health Services Research certificate from Georgetown University.



Jennifer Sheehy

Jennifer Sheehy is the Deputy Assistant Secretary, leading the Office of Disability Employment Policy (ODEP), US Department of Labor. The mission of ODEP is to develop policies to increase the number and quality of employment opportunities for youth and adults with disabilities. Prior to her current position, Jennifer spent ten years at the US Department

of Education in many roles, including acting Director of the National Institute on Disability and Rehabilitation Research, acting Deputy Commissioner of the Rehabilitation Services Administration and Special Assistant to the Assistant Secretary of Office of Special Education and Rehabilitative Services. Jennifer came to the Department of Education from the Presidential Task Force on Employment of Adults with Disabilities where she was Senior Policy Advisor and served a detail as Associate Director in the White House Domestic Policy Council. Before she joined the task force staff, Jennifer was Vice President of the National Organization on Disability and Director of its CEO Council. She has worked for Marriott, Sheraton, and Anheuser-Busch and has received many civic and leadership honors. Jennifer earned a BA from Cornell University and an MBA from Georgetown University.



John Wren

As the Deputy Administrator for the Center for Integrated Programs within the Administration for Community Living, John Wren oversees ACL's administration of programs and initiatives that serve both older adults and people with disabilities, as well as their families and caregivers, including consumer access and protection programs, as well as programs and initiatives that

promote the use of self-directed and person-centered service models.

Mr. Wren previously served as the Deputy Administrator for ACL's Center for Disability and Aging Policy and, prior to that, as Deputy Assistant Secretary for Policy, Planning and Evaluation at the Administration on Aging (AoA). Prior to joining AoA in 2000, Mr. Wren served as Vice President for the National Council on the Aging and the Director of the National Aging Program at the Pew Charitable Trusts. From 1976 to 1995, Mr. Wren worked for the New York State Office for the Aging, where he designed and implemented several major statewide programs for the elderly, including the Expanded In-Home Services for the Elderly Program, the State Health Insurance Counseling and Assistant Program, and the State Family Caregivers Assistance Program. He also served as lead staff directed to the Governor's Policy Coordinating Council on Long Term Care.

Mr. Wren has served on the Board of Directors for the National Senior Citizen's Law Center and is a member of the National Academy of Social Insurance. He received his Master of Public Administration degree from the Maxwell School of Citizenship and Public Affairs at Syracuse University, and received advanced training in policy analysis and public management at Harvard University's Kennedy School of Government.

■ **WS17: Scanning Wizard Software for Optimizing Configuration of Switch Scanning Systems**

Heidi Koester, KPR; Richard Simpson, NYIT

Level: All Levels Topic: CAC Room: Jefferson

It is essential yet challenging to properly configure a switch scanning system to optimally meet a user's needs and provide the best performance. Scanning Wizard is a software tool to help make the configuration process more efficient and effective. This workshop provides an overview of how the software works, the research and development on which it is based, and what we've learned so far about its effectiveness. Attendees will learn principles that govern switch scanning performance, and how to use Scanning Wizard to provide enhanced services to people who use switch scanning.

■ **WS18: Wheelchair Skills Training; A Practical Workshop on Wheelies**

Ronald Kirby, Dalhousie University; Cher Smith, Nova Scotia Health

Level: All Levels Topic: CRT Room: Kennedy

The Wheelchair Skills Program (WSP) (www.wheelchairskillsprogram.ca) 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 wheelie, the majority of the workshop will consist of practical skills training. This will focus on acquiring the stationary wheelie skill and the wheelie-dependent skills that it permits (e.g. incline descent, curb descent, managing soft surfaces). On completion of the course, attendees will be able to implement such training in their own settings.

■ **WS19: CRT Town Hall**

Don Clayback, NCART; Weesie Walker, NRRTS

Level: All Levels Topic: OUT Room: Regency EF

If you have an opinion on CRT, this session is for you. There's plenty to talk about within the CRT industry and this session will provide just that opportunity. The format will allow for open discussion on selected topics that impact the future of CRT and are suited for group dialogue. Topics will be selected based on attendee suggestions and will provide valuable input to industry leadership and stakeholders. *CEUs will not be awarded for this activity.*

■ **WS20: The Design Development and Implementation Process for Assistive Devices**

Allen Hoffman, WPI; David Jaffe, Stanford University

Level: All Levels Topic: OTH Room: Fairfax

The goal of this workshop is to present and discuss structured approaches to designing, developing and implementing customized assistive devices. The presenters will focus on a multi-step process that leads the device development team (designers, engineers, healthcare professionals, and users) to clearly identify problems; define needs; create design specifications; research existing solutions; develop new solutions; evaluate multiple preliminary design concepts; fabricate prototypes and evaluate the final design. Examples of each step will be presented.

■ **WS21: Dissemination of Rural Assistive Technology Resources**

Paul Jones, Purdue University

Level: Beginner Topic: JEA Room: Prince William

Access to resources related to assistive technology for workplace accommodations is limited in many rural communities due to the lack of access to internet services or the slow speed of these services, if available. This session will explore existing databases such as www.agrability.org and ABLEDATA and how accessing them can be enhanced in rural settings. Topics will include a review of currently available databases, issues with access and strategies for making their content more accessible. Sites will be visually explored during the session and strengths and weaknesses noted with respect to utilization in a rural setting.

Wednesday, July 13 • 10:45am – 12:00pm

■ **Scientific Paper Platform Session #4**

Level: All Levels Topic: PP & OUT Room: Conference Theater

• **Case Study: Lessons Learned in Selecting Distribution Channels and Promotion Strategies for Products for Baby Boomers**

James Leahy, Center on KT4TT

• **The Path to Transferring Technology Innovations into the Marketplace: A Prospective Study of NIDILRR Grantee Practices**

Michelle Lockett, Vathsala Stone, and Jennifer Flagg, Center on KT4TT

• **What Services Do Wheelchair Users Value? Findings from A Qualitative Study In Kenya And The Philippines**

Emma Williams, Eva Bazant, Elizabeth Hurwitz and Immaculate Obaga, Jhpiego; Lee Kirby, Dalhousie University; Adovich Rivera, IHPDS

• **Documenting Assistive Technology History: The Fred Sammons Archive Project Resource**

Caitlin Dobson, Roger Smith and Kathryn Koch, University of Wisconsin-Milwaukee

• **Where the Rubber Meets the Road: Makers, DIY, And Quality Control**

Brian Burkhardt and Melissa Oliver, McGuire VA Medical Center

■ **WS22: Do Not Live in Fear of Pressure and Shear**

Thomas Hetzel, Ride Designs

Level: All Levels Topic: CRT Room: Roosevelt

Just the mention of pressure and shear among a group of wheelchair seating professionals can turn a lovely evening into a gloom and doom downhill spiraling discussion of pressure ulcer risk. Certainly pressure and shear are strongly implicated in the development of sitting related pressure ulcers, but pressure and shear are also the forces needed for postural support and to, quite literally, keep people from sliding out of their wheelchairs! This workshop explores Ride Designs' alternative perspective on pressure and shear and how to harness these forces for postural control while simultaneously managing pressure ulcer risk.

■ **WS23: You Don't Need to be an Assistive Technology "Know It All"**

Marci Kinase Jerome and Cindy George, George Mason University

Level: Beginner Topic: OUT Room: Lincoln

As professionals, we know that Assistive Technology is best served through a holistic approach. You strive to consider the 'whole person' when working with individuals with disabilities. Yet how can you be holistic if you don't work in an ideal team situation? Or, even more challenging, you are expected to be the "know it all" and are your own AT Team? This session will provide discussion, tools and strategies to support AT professionals in leading AT teams, both formal and informal, to provide a more holistic service model.

■ **WS25: RERC Technologies to Support Successful Aging with Disability**

Tracy Mitzner; Jon Sanford, Elena Gonzalez, and Wendy Rogers, Georgia Tech

Level: All Levels Topic: COG Room: Kennedy

The mission of the Rehabilitation Engineering Research Center on Technologies to Support Successful Aging with Disability (TechSAGE) is: • to support people with chronic conditions and long-term impairments who are at risk of disability or increased disability due to co-morbid age-related losses; • by empowering these individuals to sustain independence; maintain health; engage safely in basic activities at home and in the community; and fully participate in society; • through increasing knowledge about, availability of, and access to effective, universally-designed technologies. This workshop will present the RERC's current projects and discuss implications for future directions in technologies to support successful aging with disability.

Student Design Competition

Tuesday, July 12 • 3:30pm – 5:30pm • Location: Washington B

NEW THIS YEAR: SDC Judging is open to conference attendees!

The **Student Design Competition (SDC)** promotes innovation and creativity in developing solutions to assist an individual or group of persons with a disability to achieve more independence and an improvement in their quality of life. Entries are judged on originality, quality of design, and usefulness to persons with disabilities. The RESNA SDC has a long history of providing a forum for the body of work of energetic students representing a variety of faculties and disciplines including mechanical, electrical and biomedical engineering, computer information science and technology, design, architecture, and clinical therapeutic programs. We appreciate the support of returning sponsors National Science Foundation and the Center for the Translation of Rehabilitation Engineering Advances and Technology (TREAT), and we welcome our new cash prize sponsor ARM University Worldwide Education Program.

ARM University
Worldwide Education Program



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

Finalists:

- **AlleZ: A Modular One Arm Wheelchair Drive Attachment for Persons with Hemiplegia**
Stephanie Moon, Sheila Lo, and Auggie Nanz, California Institute of Technology
- **Hands-Free Electric Wheelchair Charger**
Morgan Hill, Thomas Peterson, and Omer Subasi, California Institute of Technology
- **Honeycomb Helper: A Device to Help Workers with Disabilities Package Bottles**
Michael Westrom, Rex Sheik, McCrwez Leonce Matchoumboud, University of Toronto
- **Me, Myself, and You**
Devika Patel, Claire Jacobson, and Nina Ligon, Stanford University
- **Music To Movement: Music Therapy Device for Stroke Rehabilitation**
May Liang, Clinton Large, Harley Johnson, Jose Martinez Castro, and Joshua Jessop, University of British Columbia

Thank you to ARM University Worldwide Education Program for sponsoring this year's cash prizes, and to TREAT for sponsorship of the "Technology Most Likely to Become Commercially Available" award. The winner will be announced at the RESNA Awards Luncheon on Wednesday, July 13.

Looking for the perfect candidate?

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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>



■ **WS26: Level up! Accessible Video Gaming for People with Neurological Disabilities**

Erin Muston-Firsch and Patrick Wagner, Craig Rehabilitation Hospital

Level: All Levels Topic: NEW Room: Arlington

In 2014, 59% of Americans reported playing video games, fueling a \$21 billion dollar industry. To accommodate this population we will present an interdisciplinary program matching appropriate types of adaptive gaming technologies to individuals with neurological impairment. This workshop includes a review of commercially available adaptive gaming devices, methods of modifying consumer products, and utilizing custom hardware/software to facilitate access. Case studies will demonstrate these technologies' uses for gaming access and as a therapeutic modality. Participants will have an opportunity to apply this information in an interactive breakout session by demonstrating and discussing potential applications and populations for these technologies.

■ **WS27: Using Metrics for Assessment & Outcomes: Relevance to Practice and Research**

Heidi Koester, KPR; Roger O. Smith, University of Wisconsin-Milwaukee; Marcia Scherer, Institute for Matching Person & Technology; Sajay Arthanat, University of New Hampshire; Meghan Donohue, SVRI; Jeff Jutai, University of Ottawa

Level: All Levels Topic: OUT Room: Fairfax

This workshop explores the status quo and future directions for metrics in AT assessment and outcomes. The goal is to summarize available metrics and their use within AT practice settings. Approximately 6 short presentations will be included, from researchers and practitioners. Each researcher will present on one area of AT metrics, focusing on the purpose and effective application of a particular approach or instrument. The practitioner perspective will present how metrics are used, or not used, in different practice settings. Concrete examples will be included. The discussion will focus on identifying factors that create barriers or opportunities to use metrics.



Opening Reception

Monday, July 11 • 6:30pm – 8:00pm

Walkabout Lunch

Tuesday, July 12 • 12:00pm – 1:00pm

■ **WS28: CRT Legislative and Regulatory Update**

Don Clayback, NCART

Level: All Levels Topic: PP Room: Regency EF

There's a lot going on in the policy world of Complex Rehab Technology. A panel of industry experts will provide a comprehensive update on federal and state issues impacting CRT. Topics will include the Medicare Separate Benefit Category legislation, Medicare's application of Competitive Bid pricing to CRT wheelchair accessories, other Medicare issues, and state CRT legislation.

Wednesday, July 13 • 2:15pm – 3:30pm

■ **Scientific Paper Platform Session #5**

Level: All Levels Topic: NEW Room: Conference Theater

• **Design and Development of an Assistive Robotic Manipulation Evaluation Tool (ARMET)**

Hongwu Wan, Human Engineering Research Laboratory; Chengshiu Chung; Brandon Petrouskie; Dan Ding, University of Pittsburgh; Annmarie Kelleher; Rosemarie Cooper; Rory Cooper

• **Motor-Activated Multi-Functional Wrist Orthotic To Assist Individuals with Cervical Spinal Cord Injuries with Activities of Daily Living**

Shruthi Suresh, Purdue University; Daniel F. Chiquito, National University of Colombia, Palmira; Sudhanshu Manda, Purdue University; Lucas Jacob, Purdue University; Bradley Duerstock, Purdue University

• **Exploring Roles And Responsibilities In The Design Of 3D Printed Prostheses: What Questions Need To Be Asked?**

Elizabeth Delarosa and Claire Davies, Queen's University

• **Sliding Mode Backstepping Control for Upper-Limb Rehabilitation with the ETS-MARSE Exoskeleton Robot**

Brahim Brahmi, Maarouf Saad, École de technologie supérieure, Montreal; Mohammad Rahman, University of Wisconsin Milwaukee; Cristobal Ochoa-Luna; Rasedul Islam

• **Self-Powered Exosuits, a Solution to External Power Supply Limitations? A New Paradigm**

Philibert Kongtcheu, PFK Technologies; Erin Anastasi, United Nations Population Fund (UNFPA)

■ **WS29: Positioning the Head**

Michelle Lange, Access to Independence

Level: Intermediate Topic: CRT Room: Roosevelt

This course will present strategies to support the head in wheelchair seating. Optimizing the position of the head involves far more than finding the best head rest. Head position impacts visual gaze, swallow and breathing. Content will include causes of decreased head control, strategies to improve head control and provide posterior support as well as anterior options for those with no head control. Case studies will be included.

■ **WS30: Clinically Speaking: Evaluation and Documentation for Power Adjustable Seat Height**

Julie Piriano, Pride Mobility

Level: All Levels Topic: CRT Room: Lincoln

There is a misconception that the provision of power adjustable seat height (aka power seat elevation) is not covered by third party payors, which is inaccurate. Many third party payors that implement a prior authorization process will consider this technology on a case-by-case basis and are looking to assure that the medical need for the power seat function has been documented. There is a significant difference between Medicare's coverage criteria and RESNA's position on the need for this power seat function, which will be discussed.

■ **WS31: Communication Technology and Computer Access: Sharing Solutions, Igniting Ideas**

Adina Bradshaw, Shepherd Center; Jill Baldessari, Craig Rehabilitation Hospital

Level: Beginner Topic: CAC Room: Jefferson

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.

■ **WS32: Hybrid Methodology: A Pathway to Scale Wheelchair Service Delivery Training Worldwide**

A Yohali Burrola and Mary Goldberg, University of Pittsburgh

Level: All Levels Topic: INT Room: Kennedy

The International Society of Wheelchair Professionals (ISWP) is developing a Hybrid Course based on the World Health Organization (WHO) Wheelchair Service Training Package - Basic Level. The Hybrid Course reduces 45% of the total cost of training and optimizes resources to allocate them in more regions and to expand the wheelchair service delivery training worldwide. The workshop will consist of an overview of the interactive training modules and in-person demonstration of training. This workshop will highlight new strategies to reach personnel involved in wheelchair service delivery from low income settings.

■ **WS33: “App Factory” Model of Rehab Engineering; An Interactive Workshop on Developing Funding Proposals for Assistive and Accessible Mobile Apps**

John Morris and Mike Jones, Shepherd Center; Frank DeRuyter, and Kevin Caves, Duke University Medical Center

Level: Intermediate Topic: NEW Room: Arlington

This workshop presents the concept, rationale and experiences of the Wireless RERC and LiveWell RERC “App Factory” – an effective model for technology development that entails secondary dispersal of grant funds to external developers through a competitive selection process. The App Factory addresses the need for agility and adaptability of development efforts undertaken in a rapidly-changing technology environment, and it takes advantage of extramural technical expertise. After presentation of the App Factory model and hands-on demos of 2 completed solutions, attendees will be divided into small workgroups to identify an assistive/ accessibility need and develop the outlines of a small-grant proposal.

■ **WS34: So How Does Your Program Measure Up? Quality Assurance Practices in AT Service Delivery**

Paul Schwartz, University of WI-Stout; John Anschutz, Shepherd Center; Bill Boyce, NuMotion; Carrie Clawson, Virginia Division of Rehabilitative Services

Level: All Levels Topic: OUT Room: Fairfax

How do you know that your assistive technology services are meeting the needs of your consumers? What systems do other programs in the field use to track the quality of services and improve services? This session is an interactive panel discussion from four assistive technology service providers representing different areas of the field. These include assistive technology service delivery programs from a university based vocational rehabilitation system, a hospital, a complex rehab technology supplier and a state vocational rehabilitation agency. Each panelist will detail their program’s system to ensure quality assistive technology services for the people they serve.

■ **WS35: Tips for Meeting with Congress**

Don Clayback, NCART

Level: All Levels Topic: PP Room: Regency EF

Everyone should be communicating with Congress to protect access to Assistive Technology. Is this your first time meeting with a Member of Congress? Or maybe you just need a refresher? This session will provide tips on making the most of your time meeting with Members and their staff. Learn the most effective ways to deliver your message.

Wednesday, July 13 • 5:00pm – 6:15pm

■ **Scientific Paper Platform Session #6**

Level: All Levels Topic: CRT Room: Conference Theater

- **Evaluation of Wheelchair Pushing Performance on Simulated Rough Pathways in Under-Resourced Settings Created With Indoor Modular Units**
Kotaro Sasaki and Karen Rispin, LeTourneau University
- **You Got To Move It, Move It! Pressure Reliefs, Weight Shifts, and Wheelchair Mobility In Individuals With SCI**
Sharon Sonenblum, Georgia Institute of Technology; Stephen Sprigle, Georgia Tech
- **Boarding Devices and Aircraft Seats: Increasing Support and Comfort**
Peter Axelson and Seanna Kringen, Beneficial Designs, Inc.; Jessica Presperin Pedersen, Rehabilitation Institute of Chicago, Center for Rehabilitation Outcomes Measure
- **Televideo for Older Adults with Mobility Impairment: A Needs Assessment**
Xian Wu and Jenay Beer, University of South Carolina; Rachel Stuck; Tracy Mitzner, Georgia Tech; Wendy Rogers
- **Design Thinking On the Development of an Improved Concept of Toilet Usage in Airplanes for Persons with Reduced Mobility**
Lucas Osako, Alexandre Rocha, Gustavo Assi, André Fleury, Eduardo Zancul and Fausto Mascia, Polytechnic School, University of São Paulo

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■ **WS36: Update on the Functional Mobility Assessment and Uniform Data Set Registry**

Mark Schmeler and Richard Schein, University of Pittsburgh; Greg Packer, U.S. Rehab; Carmen DiGiovine, The Ohio State University

Level: All Levels Topic: CRT Room: Roosevelt

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.

■ **WS37: When Will The Disabled Community Revolt Against CMS? How Can We Spark The Revolution?**

R Andrews Hicks, Complex Rehab Tech Education; Alexandra Bennewith, United Spinal Association

Level: All Levels Topic: PP Room: Lincoln

If consumers are the driving force to push back against reimbursement and funding cutbacks, how do they get mobilized into action? This can happen when people are educated on the facts, the objective is clear and there is a good number of dedicated people who are organized. The good news is there are consumer organizations that advocate for CRT. To increase participation teachers, social workers as well as healthcare professionals must inspire people on wheels to engage with these organizations. The other benefit consumers and their families is a connection to organizations that can support them with their other daily challenges such as health and wellness, employment opportunities, SSI/SSDI benefits, community integration. 1)Participants will be able to list the challenges regarding access to needed CRT and funding sources. 2)The audience will be able to name the organizations that actively advocate for CRT. 3) People will be able to repeat the strategy to build local advocacy.

■ **WS38: A Geotagged and Crowdsourced Platform for Mapping Accessible Community Resources**

Mohanraj Thirumalai and Sangeetha Padalabalanarayanan, RERC RecTech

Level: All Levels Topic: CAC Room: Jefferson

A primary objective of increased accessibility to resources in a community is to increase participation of people with disabilities. However, there exists no scalable platform to help identify such accessible resources or evaluate if the resource meets the needs of an individual. RERC Rectech has developed a crowdsourced platform, which geotags various community resources with detailed information about the accessibility of the resource. The platform also enables users to provide feedback on the accessibility of the resource. Existing solutions, process of development and ways to utilize this platform will be covered in an interactive manner.

■ **WS39: Can the Do-it-Yourself Movement Increase Access to Assistive Technologies?**

Stephanie Valencia and Alexandra Berrio, Assistive Labs

Level: All Levels Topic: INT Room: Kennedy

The DIY-Maker Movement is disrupting the entrepreneurial world, but how does this affect assistive technologies? 3D printers and solar energy, among others, are reducing costs and increasing access to people living

with disabilities in developing countries. Members of the maker movement and groups working closely in the space will discuss how these advances can democratize access to assistive devices, and enhance resourcefulness and innovation among caregivers and stakeholders. After a quick introduction to the movement, participants will learn of new ways devices and technologies are being created, why it's important, and how we can be a part of it.

■ **WS40: Improving the Quality of Life for Individuals with Disability through Mobile Health**

Andi Saptono, Bambang Parmanto and Dan Ding, University of Pittsburgh

Level: Beginner Topic: NEW Room: Arlington

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 and interactive patient-clinician communications. Mobile health (mHealth) 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 collaboration between RERC on Information and Communication Technology Access and the Human Engineering Research Lab, highlighting research and development of mobile health applications that provide self-management, self-directed goal achievement and interactive education/learning for people with disabilities.

■ **WS41: Seating, Mobility, and CRT Show and Tell**

Erin Michael, Kennedy Krieger Institute

Level: All Levels Topic: CRT Room: Fairfax

This session provides RESNA participants with a chance to share advances in seating and mobility technology and demonstrate to participants how these advances can maximize independence and/or end user health. This session will feature four to five presenters who use photos, video, and/or working models to show examples of such equipment. Seating, mobility and CRT ranges from a backrest or cushion to a power wheelchair base. 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 clinical solutions.

■ **WS42: Assistive Technology Design and Translation into Clinical Practice**

Pooja Viswanathan and Rosalie Wang, Toronto Rehabilitation Institute; Ross Black, The Prince of Wales Hospital; Catherine Holloway, University College London

Level: All Levels Topic: NEW Room: Prince William

Despite the multitude of technologies developed to assist rehabilitation or improve function with people with disabilities, translating these innovations into clinical practice remains challenging. Factors such as collaboration among technology developers, clinicians and end users, inclusive design of assistive technologies, study methods to examine intervention efficacy and effectiveness, and clinical perspectives on openness, acceptance and adoption are explored. This workshop presents contexts in which technologies are designed and used, and presents clinical perspectives on technology integration using case examples. This workshop engages participants in discussion on approaches to support translation of technologies into clinical practice.

Thursday's workshops are intended for people who do not plan to participate in Capitol Hill Day; if you've made plans to go to the Hill, please keep those plans.

Thursday, July 14 • 8:00am – 9:15am

■ **Scientific Paper Platform Session #7**

Level: All Levels Topic: CAC Room: Roosevelt

- **Systematic Review of Text Entry Methods for People with Physical Impairments**
Heidi Koester, KPR; Sajay Arthanat
- **Positive Reinforcement System Design for Therapeutic Devices**
Chase Pfeifer, Judith Burnfield, Srinivas Kota, Thad Buster, Sonya Irons, Douglas Rowen, Madonna Rehabilitation Hospital; Carl Nelson, University of Nebraska-Lincoln
- **Vibration Type Hearing Aid System for Unilateral Deafness Patients**
Katsutoshi Oe, Daiichi Institute of Technolog; Masahito Iwae; Kohji Kariya
- **The Learning Impact of Smart Pens on Students with Disabilities**
Simon Ahern, Maynooth University
- **Design and Testing Of a Haptic Feedback Active Mouse for Accessing Virtual Tactile Diagrams**
Alexandru Lazea, and Dianne Pawluk, Virginia Commonwealth University

■ **WS43: Seating, Mobility, & Vision; More Than Meets the Eye**

Angie Kiger, Sunrise Medical

Level: All Levels Topic: CRT Room: Lincoln

Approximately 40-50% of the brain is involved in vision and 20-40% of individuals who have sustained a brain injury have some degree of visual impairments. In the world of complex rehab we often serve clients who have some degree of brain damage as the result of a brain injury or abnormal development. This presentation will review factors related to vision that may impact a client's ability to successfully utilize a seating and mobility device with a focus on cortical visual impairment (CVI). The presentation will conclude with strategies to assist with making the most appropriate recommendations for clients with CVI.

■ **WS44: Developing and/or Commercializing a New Product? Center on KT4TT is Here to Assist!**

James Leahy, Jennifer Flagg, Joseph Lane, and Michelle Lockett, Center on KT4TT

Level: All Levels Topic: PP Room: Jefferson

A common thread among winning grant proposals is the presentation of sound research and development plans. When those plans include the development and marketplace introduction of new products for people with disabilities, prospective grantees must demonstrate knowledge of best practices in commercialization and technology transfer. This presentation will focus on the technical assistance, new product development (NPD), and technology transfer resources, developed by the KT4TT that are available to NIDILRR and non-NIDILRR grantees at NO-COST. Topics will include models and training modules related to NPD, intellectual property, and market research; sample value propositions and commercialization plans; and a planning template.

■ **WS45: New Directions in Access to Augmentative and Alternative Communication Technologies for Persons with Minimal Movement**

Melanie Fried-Oken, Oregon Health & Science Univer; Susan Fager, Madonna Rehabilitation Hospital; Tom Jakobs, Invotek, Inc.

Level: Intermediate Topic: CAC Room: Kennedy

We describe current research and development on three innovative approaches to improve access to communication for persons with minimal movement: (a) The RSVP Keyboard™ – a noninvasive BCI communication system that acquires brain signals via electroencephalography, and incorporates a predictive language model; (b) multimodal access (new integrated access methods that combine multiple access modalities to control smart technologies); (c) a new app, called SmartPredictor, that is used by persons with severe speech and physical impairment and includes a third party (e.g. caregiver, friend, family member) as one source for language input during message generation.

■ **WS46: Emerging and Innovative Technologies Show and Tell**

Andi Saptano and Richard Schein, University of Pittsburgh; Emma Smith, Jump Start OT

Level: Beginner Topic: NEW Room: Arlington

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.



NRRTS (National Registry of Rehab Technology Suppliers) is a professional

association supporting individuals who provide Complex Rehab wheelchairs and seated positioning systems for people that have postural and/or mobility deficits. NRRTS Registrants provide quality care and service using specialized knowledge, training and skills to match the consumer's needs to appropriate technology.

To learn more about NRRTS, visit www.nrrts.org

■ **WS47: TalentWorks: Accessible Online Job Applications and eRecruiting**

Corinne Weible and Josh Christianson, PEAT

Level: All Levels Topic: JEA Room: Fairfax

TalentWorks is a series of resources and leading practices that enables employers to ensure accessibility of the outreach, recruitment, and hiring stages of eRecruiting. Presenters will present data related to the current state of accessibility and online job applications, and will demonstrate the TalentWorks resources available on www.peatworks.org, including how to create accessible social media outreach efforts, recommendations for use of mobile platforms, and tips and tricks for making online job applications and pre-employment tests accessible to job seekers. Presenters will also engage with participants in an interactive dialogue around these and other workplace technology issues and solutions, such as training and workplace collaboration tools.

Thursday July, 14 • 9:30am – 11:00am

■ **WS60: Your Voice Matters! How Should We Be Collecting Follow-up Data on AT Device Users?**

James Lenker, University at Buffalo; Roger O. Smith, University of Wisconsin-Milwaukee

Level: All Levels Topic: OUT Room: Regency E/F CEU=0.15

RESNA is creating a plan to foster the increased collection of follow-up data on AT device users. Outcomes data collection should become routine, and any new system must be practical. This structured town hall session will summarize the need for data, and solicit attendees' input on recommended directions to pursue and pitfalls to avoid. The session will feature small- and large-group discussions on the trade-offs among existing data collection methods and potential opportunities offered by emerging technologies. As a practitioner, researcher, consumer or manufacturer, your voice matters!

Thursday, July 14 • 11:15am – 12:30pm

■ **WS49: Mobility with ALS; From Simple to Complex**

Amber Ward, Neurosciences Institute Neurol; Robert Flanagan, National Seating and Mobility

Level: All Levels Topic: CRT Room: Roosevelt

This session will focus on the mobility needs of the person with ALS over the course of the disease from symptoms to death. We will discuss mobility at the early stages and the changes and flexibility which are required as the disease progresses. Manual and power mobility will be discussed and the changes in drive and mode control which the power wheelchair must undergo to meet the functional needs. Comfort, positioning and pressure relief will also be addressed as the needs change over time.

■ **WS50: Captioned Video: Making Content Accessible for All**

Patricia Bahr, University of Iowa

Level: All Levels Topic: CAC Room: Lincoln

Universally designed instruction may include the use of accessible videos for content presentation, student engagement, and student expression. At the University of Iowa, we are exploring various methods to produce accessible videos in order to incorporate captioning into our universally designed course materials, and to teach pre-service teachers about tools that they can use in their classrooms. This presentation will provide an overview of universal design for learning as it relates to videos, and review the processes we use to produce accessible videos in the university setting.

■ **WS51: Powered Mounts: Create Powerful Solutions for Your Clients**

Dianne Goodwin and Nicholas Lee, BlueSky Designs; Tamara Vos-Draper and Moriah Kane, Mayo Clinic

Level: All Levels Topic: CAC Room: Jefferson

Powered mounting and positioning technology which enables individuals with significant physical disabilities to reposition devices themselves could significantly increase a person's independence and well-being. This workshop introduces participants to modular powered systems and components which position speech devices, tablets, trays, cameras and other essentials. The technology's configurations will be presented and control options demonstrated. A case study by an occupational therapist from Mayo clinic details the solution implemented for her patient with Spinal Muscular Atrophy. In the hands-on section, participants will set up and control the powered systems using alternate switches and an accessible app.

■ **WS52: Accommodations: Works in Progress**

Cindi Pichler, IndependenceFirst; Linda Vogelmann, Society's Assets, Inc.

Level: All Levels Topic: JEA Room: Kennedy

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.



■ **WS53: Behavioral Informatics to Advance Safe and Independent Living for Persons with TBI-Related Disabilities**

Holly Jimison and Misha Pavel, Northeastern University; Ronald Seel, Shepherd Center

Level: All Levels Topic: NEW Room: Arlington

People with moderate to severe traumatic brain injury (TBI) often have cognitive, physical and neurobehavioral impairments that limit independence and increase the risk of unsafe events in the home. Home and community-based service providers often have limited training in the broad needs of persons with chronic TBI-related impairments. Behavioral informatics has the potential to optimize diagnostics and tailor personalized intervention programs through monitoring; data translation; severity-based, just-in-time, treatment recommendations; and regular, actionable feedback. We will present innovative, scalable, and portable behavioral informatics approaches to delivering safety, health and activity-related diagnostics and intervention programs for people with TBI-related disabilities.

■ **WS54: Adapted Video Game Controllers for People with Mobility Limitations**

Sangeetha Padalabalanarayanan and Mohanraj Thirumalai, RERC RecTech

Level: All Levels Topic: JEA Room: Fairfax

Active video games (AVGs), a category of video games that require whole body movements are inaccessible or offer limited play options for people who are unable to stand, have balance problems, have poor motor control, or cannot use their lower body to perform game required movements. RERC RecTech has developed adaptations for commercial controllers. In this workshop we will be presenting these adaptations, provide hands on experience for users with mobility limitations and discuss the research associated with this development project.

■ **WS55: Evading the Valley of Death**

Richard Greenwald, The Center for the Translation of Rehabilitation Engineering Advances and Technology

Level: Advanced Topic: NEW Room: Prince William

We have developed a Commercialization Methodology to provide a comprehensive product development pathway focused on efficiency and successful outcomes. We take a novel, multi-disciplinary approach focused on critical deliverables and milestones in order to maximize the value of existing capital investment and the expertise of the product development team. At the conclusion of this session, participants will possess a greater understanding of the milestones and objectives that must be achieved at each stage of the product development process. During this highly interactive discussion, the audience can utilize the principles discussed to develop their own custom strategy for an innovation or technology of their choosing.

Thursday, July 14 • 12:45pm – 2:00pm

■ **WS56: Development of a User and Prescriber Feedback Mechanism for Wheelchair Users**

Peter Axelson, Beneficial Designs, Inc.; William Ammer, Ammer Consulting; Teresa Tisdell, NeuroResources Outreach Free Clinic

Level: Advanced Topic: CRT Room: Roosevelt

Many external factors impact the safety, efficiency, and effectiveness of wheeled mobility devices. While wheelchair standards help ensure the safety of mobility devices, two user surveys conducted by Beneficial Designs have identified issues relating to air travel and general safety and performance of wheelchairs. This workshop presents the results of those surveys and identifies the need for a secure way to collect and

disseminate user and prescriber feedback as statistical data to ensure mobility devices meet the needs of mobility device users. Participants will be part of a conversation about possible options, including further surveys or a registry.

■ **WS57: A Case for Core Vocabulary: AAC is only as Good as the Vocabulary Available**

Lauren Bonnet and Amy Bereiter, Arlington Public Schools

Level: All Levels Topic: CAC Room: Arlington

Speech-Language Pathologists, Occupational Therapists, and Physical Therapists frequently evaluate and treat individuals with complex communication needs who require AAC. However, despite advanced technology, AAC systems are only as effective as the vocabulary in them. Therefore, discussion and group activities in this session will focus on vocabulary selection, core vocabulary, and implementation across contexts (e.g., home, school, community). An example of a school-based initiative to implement core vocabulary for students with complex communication needs will also be discussed. This session is intended for therapists who work with individuals with complex communication needs who require/use AAC.

■ **WS58: The Clinically Connected Chair: Technologies for Better Outcomes**

Ginger Walls and Brandon Edmondson, Permobil

Level: All Levels Topic: NEW Room: Jefferson

Using the ICF model to consider the impact of wheelchair technology on wheelchair-users' every-day lives, we see a direct connection to health, function, and participation outcomes. Clinicians and CRT providers are challenged to ensure optimal outcomes for clients in wheelchairs, and we need data to better inform clinical recommendations and to justify complex rehab technology as health-care solutions for clients. This presentation will discuss emerging technology and how clinically connecting the wheelchair (both manual and power) with emerging technology and applications provides new opportunities to facilitate client health, function, compliance, and to provide data to strengthen justifications and fuel research.

■ **WS59: Understanding Wearable Activity Trackers for Wheelchair Users**

Dan Ding and KaLai Tsang, University of Pittsburgh

Level: Beginner Topic: NEW Room: Kennedy

Wearable devices from fitness trackers to smart watches are making their way into our lives. We will give a comprehensive overview of popular commercial wearable products, and discuss if and how these wearable devices can be potentially used by wheelchair users to track the quantity and quality of their activities. Validation results of using these devices among wheelchair users will be described. Custom solutions (hardware, software, and apps) that make activity tracking accessible to wheelchair users will also be demonstrated and discussed in terms of performance and usability.

Scientific Paper Poster Sessions

Tuesday, July 12 and Wednesday, July 13 • Location: Independence Center

Scientific Paper authors will be available to share additional information and answer questions on Tuesday 2:30-4:00pm and Wednesday 3:30-5:00pm.

Tuesday, July 12 • 2:30pm – 4:00pm

Student Scientific Paper Competition Honorable Mentions

- PTUE 1 Seating Interface Characteristics Through Temperature Description**
Julie Faieta, Carmen DiGiovine, Marcia Nahikian-Nelms, Susan White, Matthew Yankie, The Ohio State University
- PTUE 2 Development and Simulation of a Self-Leveling Algorithm for the Mobility Enhancement Robotic Wheelchair**
Sathish Sundaram, Rory Cooper, Jorge Candiotti, University of Pittsburgh; Hongwu Wang, Human Engineering Research Laboratory
- PTUE 3 Analysis of the Effect of a Rear Wall Grab Bar Configuration on the Fall Risk Associated With Toilet Transfers in Older Adults with Mobility Impairment**
Achyuthkumar A. Sanath, Harshal Mahajan, Elena Gonzalez, Jon A. Sanford, Brad Fain Georgia Institute of Technology
- PTUE 4 An Interview-Based Study of Cycle Training In Children with Cognitive Impairment**
Raissa Barros de Carvalho, Clive D'Souza, University of Michigan
- PTUE 5 Evaluation of Shoulder Joint Kinematics and Stroke Cycle Characteristics during Geared and Standard Manual Wheelchair Mobility**
Omid Jahanian, Alyssa Schnorenberg, Lianna Hawi, Brooke Slavens, University of Wisconsin Milwaukee
- PTUE 6 Understanding Movement: Feasibility of Injury Prevention and Rehabilitation with Spinal Sensors**
Daniel Gioia, Claudia Rebola, Rhode Island School of Design
- PTUE 7 VoxVisio – Combining Gaze and Speech for Accessible HCI**
David Rozado, Alex McNeill, Daniel Mazur, Otago Polytechnic
- PTUE 8 Analysis of Assistive Robotic Manipulator (ARM) Performance Based on a Task Taxonomy**
Bethany Langdon, Hongwu Wang, Dan Ding, University of Pittsburgh
- PTUE 9 Access To AAC: Arranging The Interface**
Denis Anson, Erin McGreal, Erin Baker, Jenna Reel, Julie Mikolaichik, Misericordia University
- PTUE 10 The GPII Shopping Aid: The First Working Prototype**
Denis Anson, Misericordia University
- PTUE 11 Challenges in Seating and Mobility in a Home Care Setting**
Debora Wilkinson, Encompass Home Health
- PTUE 12 Reliability and Discriminatory Validity of the Preliminary Version Of Wheelchair Components Questionnaire For Users**
Karen Rispin, Emily Tutt, Sonia Sosa Saenz, Joy Wee, LeTourneau University

- PTUE 13 The Manual Wheelchair Tilt-Rest Skill: A Survey of Awareness, Capacity and Performance among Experienced Wheelchair Users**
Audrey Chen, Ronald Kirby, Dalhousie University
- PTUE 14 Feasibility and Usability of the Rural Health Mate System: Supporting Independence For Rural Seniors**
Stephen Sutter, CreateAbility Concepts, Inc.; Michael Justiss, Indiana University Department of Occupational Therapy
- PTUE 15 Feasibility Analysis of Daily Activities Using Assistive Robotic Manipulators**
Cheng-Shiu Chung, Hongwu Wang, Dan Ding, Rory Cooper, University of Pittsburgh
- PTUE 16 Design of a Custom Heart Rate Control System for the Pediatric Intelligently Controlled Assistive Rehabilitation Elliptical**
Chase Pfeifer, Judith Burnfield, Srinivas Kota, Thad Buster, Sonya Irons, Cassandra Sulski, Madonna Rehabilitation Hospital
- PTUE 17 Preliminary Evaluation of a Mobile App for Everyday Stroke Rehabilitation**
Sonia Lawson, Jin Guo, Ted Smith, Ziyang Tang, Jinjuan Feng, Towson University

Wednesday, July 13 • 3:30pm – 5:00pm

- PWED 1 JACO Assistive Robotic Device: Empowering People With Disabilities Through Innovative Algorithms**
Alexandre Campeau-Lecours, Université Laval; Véronique Maheu, Sébastien Lepage, Hugo Lamontagne, Simon Latour, Laurie Paquet, Neil Hardie, Kinova
- PWED 2 The Need to Knowledge (NtK) Model Variants: A Common Framework For Four Types Of Technology Project Outputs**
Joseph Lane, Center on KT4TT
- PWED 3 Technology Transfer: Plan for Success**
Jennifer Flagg, Michelle Lockett, Center on KT4TT
- PWED 4 Comprehensive, Technology- based, Team Approach for a Patient with Locked-In Syndrome: A Case Report of Improved Function & Quality of Life**
Keara McNair, Kimberly Hreha, Madeline Lutjen, Kara Langhamer, Jeremiah Nieves, Kessler Institute for Rehabilitation
- PWED 5 Visual Cognitive Processing Demands of ABC and Qwerty Onscreen Keyboards: A Preliminary Investigation Of Individuals With SCI/TBI And Typical Individuals**
Susan Fager, David Beukelman, Jessica Gormley, Madonna Rehabilitation Hospital
- PWED 6 Wearable Physiological Telemetry for Individuals with Spinal Cord Injuries to Self-Monitor Secondary Health Complications**
Shruthi Suresh, Brendan Raftery, Bradley Duerstock, Purdue University

PWED 7 Repeatability and Reproducibility of a Procedure for Measuring Color Value Contrast on Products
Stephanie Schnorbus, Seanna Kringen, Peter Axelson, Beneficial Designs, Inc.

PWED 8 Development of An Off-Road Wheelchair
Genaro Gilapa, Tatiane Wadas, Federal University of TechnoT

PWED 9 Development of Distance Education Accessibility Research Tools
Jacqueline Love, Roger Smith, Carly Golden, University of Wisconsin Milwaukee

PWED 10 Assistive Robotic Manipulation Performance Evaluation between Manual and Semi-Autonomous Control
Hyun Ka, Cheng-Shiu Chung, Dan Ding, Khara James, Rory Cooper, University of Pittsburgh

PWED 11 Autobod: Open Hardware for Accessible Web-Based Control of an Electric Bed
Phillip Grice, Charles Kemp, Yash Chitalia, Megan Rich, Georgia Institute of Technology; Henry Clever, NYU

PWED 12 Access Ruler: An Accessible Measurement Application for Determining Accessibility in the Built Environment
Drew Williams, Nadiyah Johnson, Amit Kumar Saha, Marquette University; Nathan Spaeth, Rehabilitation Research Design and Disability (R2D2) Center; Dennis Tomashek, Sheikh Ahamed, University of Wisconsin Milwaukee

PWED 13 Pediatric Intelligently Controlled Assistive Rehabilitation Elliptical For Walking and Fitness: Prototype Development and Biomechanical Analysis
Judith Burnfield, Thad Buster, Sonya Irons, Nicholas Rech, Guilherme Cesar, Chase Pfeifer, Madonna Rehabilitation Hospital

PWED 14 xFACT: Developing Usable Surveys for Accessibility Purposes
Drew Williams, Nadiyah Johnson, Amit Kumar Saha, Sheikh Iqbal Ahamed, Marquette University; Nathan Spaeth, Tereza Snyder, Dennis Tomashek, Roger O. Smith, University of Wisconsin Milwaukee

PWED 15 Usability of Three Wheeled Mobility Device Securement Systems on Public Transit Buses
Brittany Perez, Lydia Kocher, Medha Nemade, Victor Paquet, James Lenker, IDeA Center, University of Buffalo

PWED 16 Incorporation of Data Collection in Computer Access Assessments to Assist With Device Selection
Meghan Donahue, SVRI- Univ of WI Stout

PWED 17 Pilot Study: Best Practices in Online Focus Groups for Assistive Technology
Krystal Pynn, Jonathan Pearlman, Mahender Mandala, Samuel Bucior, University of Pittsburgh

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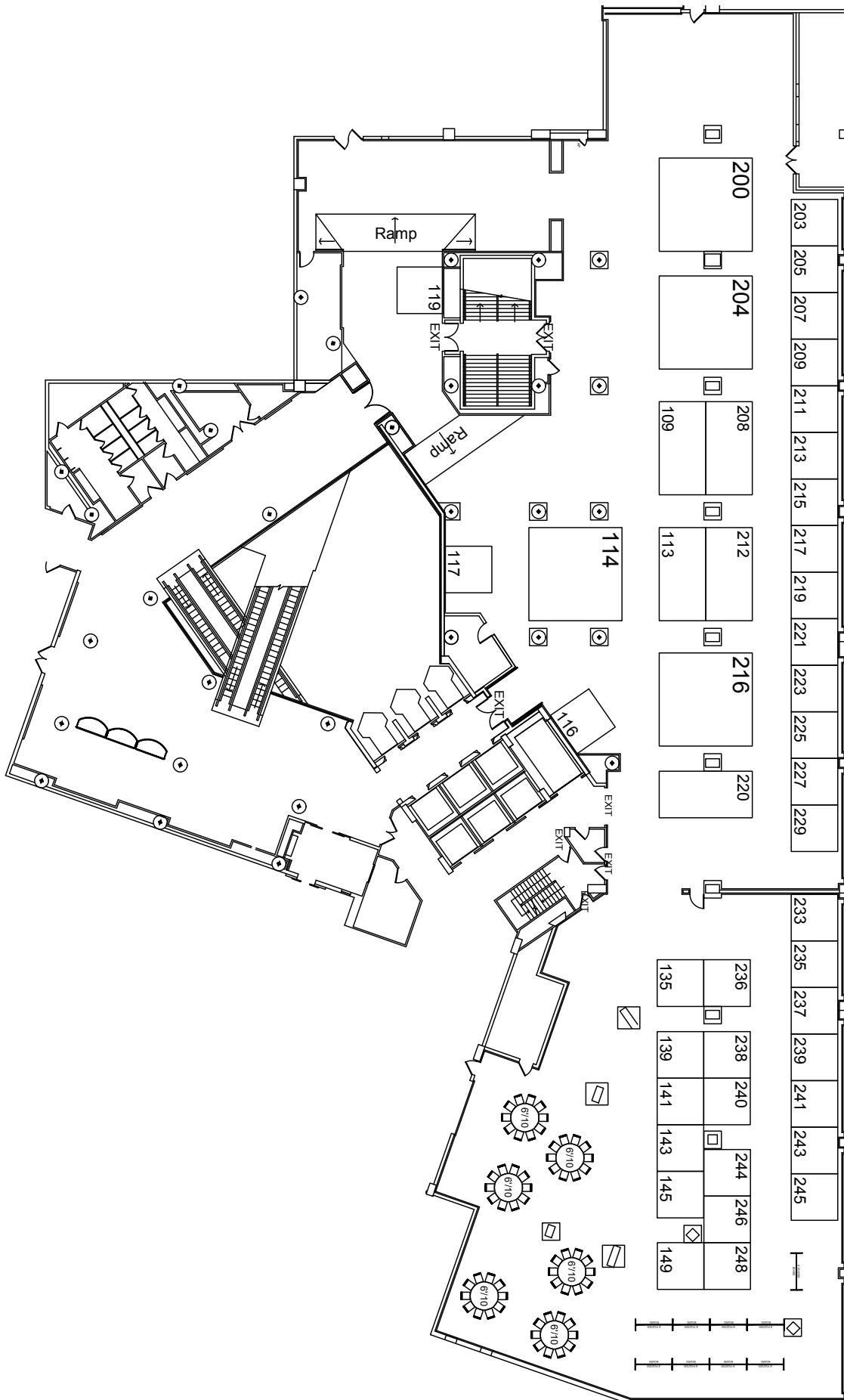


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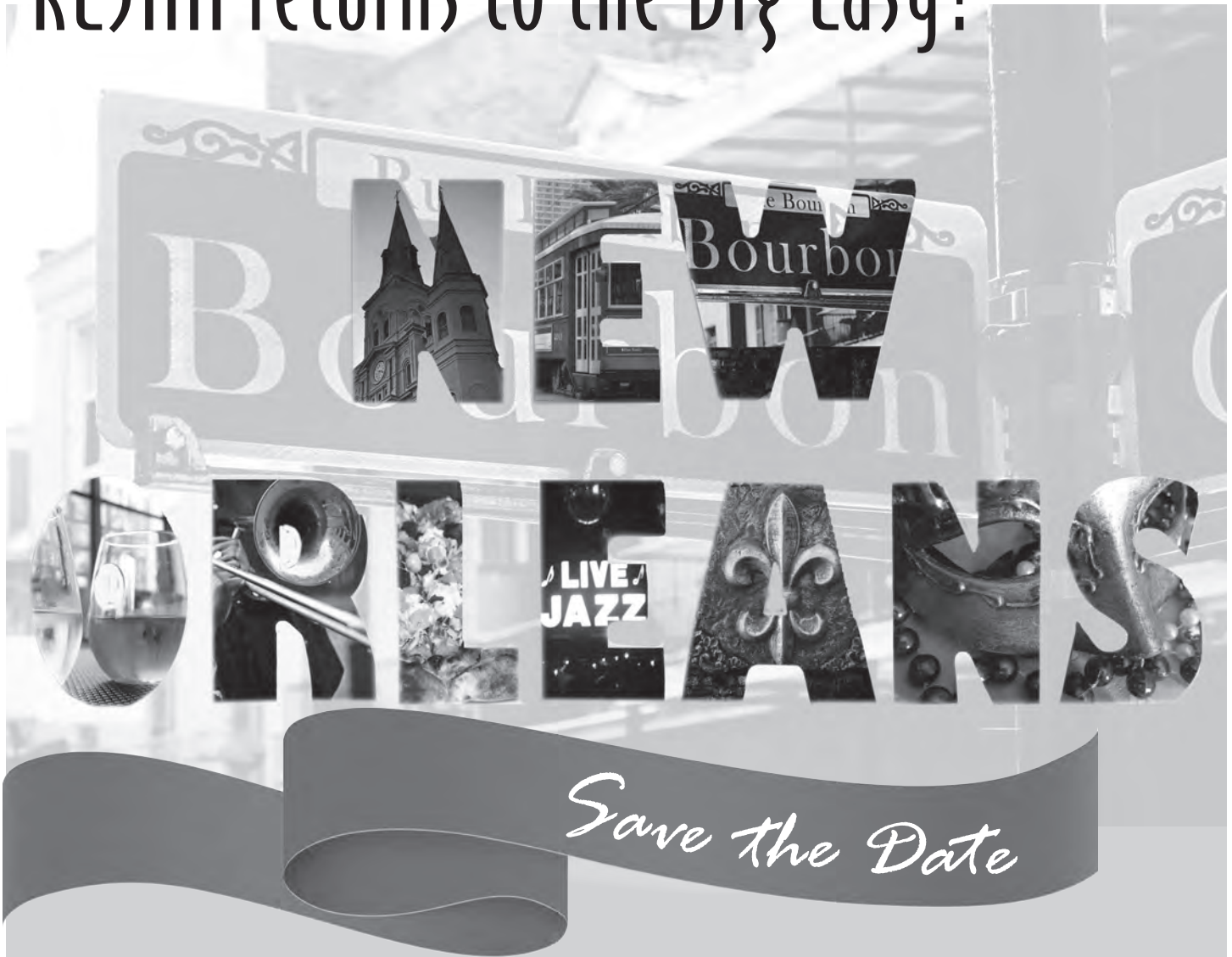
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