ASNR

AMERICAN SOCIETY OF NEUROREHABILITATION

2022 Annual Meeting

ST. LOUIS • MARCH 31 - APRIL 2

Ritz Carlton St. Louis Hotel

GENERAL MEETING INFORMATION

TABLE OF CONTENTS

ANNUAL MEETING EVALUATION

Please complete the Annual Meeting survey throughout or following the meeting. The meeting evaluation can be found by scanning the QR code on the bottom of this page, or on any meeting signage. Your responses will prove crucial to the future success of ASNR. Thank you!

REGISTRATION HOURS

Thursday, March 31....7:00 am – 5:00 pm
Friday, April 1....7:00 am – 5:00 pm
Saturday, April 2....7:00 am – 9:00 am

FOOD INCLUDED

All food will be set up in the Pre-Function Ballroom.

Thursday, March 31....7:00 am – 5:00 pm
Friday, April 1....7:00 am – 5:00 pm
Saturday, April 2....7:00 am – 9:00 am

CONNECT WITH ASNR!

@ASNRehabilitation

@ASNRehab **#ASNR2022**

2022 ASNR ANNUAL MEETING CME INFORMATION

Activity Overview
This two and a half day meeting is focused on advances in the basic and clinical science of neurorehabilitation, providing opportunities to share knowledge, experience, and developments in the field.

Target Audience
This activity is designed for an audience of neurorehabilitation clinicians and scientists.

Learning Objectives
Upon completion of the educational activity, participants should be able to:

Between Thinking and Doing: Cognitive Influences on Motor Abilities
- Recognize that motor learning is not a unitary process, but involves the contribution of multiple learning processes.
- Identify how selection of task-appropriate and optimal motor actions is influenced by cognitive competition.
- Describe how a range of cognitive factors (e.g., strategy, knowledge, expectations, attention) can influence motor actions.

Lessons Learned: Lab Leadership and Management
- Recognize the difference between leadership and management
- Identify best practices for leading a research team

Invasive & Non-invasive Brain Stimulation in Stroke: How Can We Improve Efficacy?
- Describe the importance of measuring electrical fields for modulating brain networks and how neuromodulation approaches interact with neural activity patterns.
- Discuss severity-specific targeting of rTMS defined based on clinical, imaging and physiologic biomarkers in chronic stroke.
- Discuss rationale and results of novel DBS targets to enhance chronic, post-stroke motor rehabilitation in humans.
- Compare the differences between invasive and non-invasive approaches to brain stimulation.

Lateralizations in the Brain, Behavior, and Rehabilitation
- Explain how lateralization serves as a fundamental organizing principle of the human brain's sensorimotor and cognitive functions, and how this relates to lateralized movement.
- Recognize how typical aging is associated with both adaptive and maladaptive changes in brain lateralization and interhemispheric interactions.
- Discuss how brain lateralization affects rehabilitation of lateralized conditions such as stroke and peripheral nerve injury.

Vagus Nerve Stimulation with Rehabilitation for Stroke and SCI
- Discuss the preclinical studies that revealed the potential of the vagus nerve stimulation to improve outcomes in animal models of brain and spinal cord injury as well as the biological mechanism of action.
- Explain how vagus nerve stimulation has been delivered in people with stroke and how the addition of vagus nerve stimulation improves the benefits of rehabilitative training.
- Describe the ongoing studies of vagus nerve stimulation in people with spinal cord injury.

Designing Pre-Clinical Studies for Clinical Translation
- Identify some challenges that animal models have with representing a (human) condition

Targeted Neurorehabilitation Strategies in Post-Stroke Aphasia
- Explain the neural correlates of linguistic impairments in stroke survivors with aphasia using structural (lesion-symptom mapping), perfusion, and functional (fMRI) neuroimaging methods.
- Explain physiological correlates of linguistic impairments in stroke survivors with aphasia using noninvasive electrophysiological (MEG) methods.
- Explain the current evidence and discuss considerations for targeting noninvasive neuromodulatory strategies informed by functional and electrophysiological approaches to augment language recovery.

Stroke recovery and rehabilitation over time and place: A memorial to Dr. Alexander Dromerick, Jr.
- Discuss the comparative impact of rehabilitation interventions at different stages of recovery after stroke onset
- Explain the process of recovery of function after stroke, including changes in brain activation and gene expression
- Demonstrate how to be an effective mentor to others in the area of neurorehabilitation.

2022 ASNR ANNUAL MEETING CME INFORMATION

Criteria for Success
There is no fee to participate in this activity. Statements of credit will be awarded based on the participant's attendance.

A statement of credit will be available upon completion of an online evaluation/claim credit form available at:

akhcme.com/ASNR

Please claim your credit by April 30, 2022.

If you have questions about this CE activity, please contact AKH Inc at JGoldman@akhcme.com.

CE credit provided by AKH Inc., Advancing Knowledge in Healthcare.

In support of improving patient care, this activity has been planned and implemented by AKH Inc., Advancing Knowledge in Healthcare and American Society of Neurorehabilitation (ASNR). AKH Inc., Advancing Knowledge in Healthcare is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

Physicians
AKH Inc., Advancing Knowledge in Healthcare designates this live activity for a maximum of 11.5 AMA PRA Category 1 Credit(s)™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Commercial Support
There is no commercial support for this activity.

Disclosures
It is the policy of AKH Inc. to ensure independence, balance, objectivity, scientific rigor, and integrity in all of its continuing education activities. The author must disclose to the participants any significant relationships with ineligible companies whose products or devices may be mentioned in the activity or with the commercial supporter of this continuing education activity. Identified conflicts of interest are mitigated by AKH prior to accreditation of the activity. AKH planners and reviewers have no relevant financial relationships to disclose.

Disclosure of Unlabeled Use and Investigational Product
This educational activity may include discussion of uses of agents that are investigational and/or unapproved by the FDA. Please refer to the official prescribing information for each product for discussion of approved indications, contraindications, and warnings.

Disclaimer
This course is designed solely to provide the healthcare professional with information to assist in his/her practice and professional development and is not to be considered a diagnostic tool to replace professional advice or treatment. The course serves as a general guide to the healthcare professional, and therefore, cannot be considered as giving legal, nursing, medical, or other professional advice in specific cases. AKH Inc. specifically disclaim responsibility for any adverse consequences resulting directly or indirectly from information in the course, for undetected error, or through participants misunderstanding of the content.

WELCOME

TO THE 2022 ASNR ANNUAL MEETING

On behalf of the American Society of Neurorehabilitation (ASNR), we are excited you are joining us for the 2022 Annual Meeting. Our meeting provides interactions among neurorehabilitation clinicians, basic scientists, industry representatives, & funders in a dynamic environment of presentations & discussion. This year symposia topics include:

- Social Determinants in Health & Rehabilitation
- Racial Disparities in Neurorehabilitation Outcomes
- Biomedical Engineering/Technology in Rehabilitation
- Impact of COVID on neurorehabilitation/Tele-and virtual rehab
- Pharmacology and neurorehab trials
- Cognitive Influences on Motor Function & Cognitive-Motor Disorders (e.g., limb apraxia, spatial neglect, Parkinson's Disease, Cortico-basal Syndrome)
- Treatment of Aphasia & Motor-Speech Disorders
- Precision Rehabilitation: Understanding underlying mechanisms of deficit to develop targeted treatments

This two and a half day meeting is focused on advances in the basic and clinical science of neurorehabilitation, providing opportunities to share knowledge, experience, and developments in the field. All sessions will address methods and concepts applicable across several neurological disease entities. The scientific program will include distinguished invited speakers, engaging symposia, and poster sessions. This year ASNR will be honoring Dr. Alexander Dromerick with a memorial symposia “Stroke Recovery & Rehabilitation over time & Place - A memorial to Dr. Alexander Dromerick ”.

Sincerely,
Jason Carmel, MD PhD
ASNR Program Chair

MISSION
To improve the lives of people with neurological disorders through advances in basic and clinical research.

VISION - Neurorecovery through discovery

2022 PROGRAM COMMITTEE

Ahmet Arac, MD
Cathrin Buetefisch, MD, PhD, FASNR
Laurel Buxbaum, PsyD
Matthew Edwardson, MD
Kathleen Friel, PhD
Bernadette Gillick, PT, PhD, MSPT
Kate Hayward, PhD
Teresa Kimberley, PT, PhD
Sangeetha Madhavan, PT, PhD
Kelsey Potter-Baker, PhD
Heidi Schambra, MD
Lewis Wheaton, PhD
Steve Zeiler, MD, PhD

WEDNESDAY PRE-PROGRAMMING

Join us!

Attend the NIH K12 Neurorehabilitation and Restorative Neuroscience Symposium.

All are welcome to attend!

Neuroplasticity & Recovery Across the Translational Spectrum

Wednesday, March 30, 2022 • 3:30 – 5:30 pm • The Pavilion Room (Second Floor)

SPEAKERS: Vibhu Sahni, PhD, Matthew Edwardson, MD, Theresa Jones, PhD, Shashwati Geed, PT, PhD.

COURSE DESCRIPTION This symposium will examine CNS plasticity & recovery across the translational spectrum from cellular & molecular, animal models & human clinical trials. We will examine where principles of repair & recovery overlap & where they differ across the platforms.

PROGRAM AT-A-GLANCE

THURSDAY, MARCH 31

Professional Development Session
9am-1pm

BREAK
1pm-2pm

Between Thinking & Doing: Cognitive Influences on Motor Abilities
Course Director: Laurel Buxbaum
2pm-3:30pm

BREAK
3:30pm-4pm

Keynote Speaker:
Amy Bastian, PT, PhD
4pm-5pm

Award Presentations
5pm-6pm

Welcome Reception & Poster Session
6pm-8pm

FRIDAY, APRIL 1

Mentoring Breakfast
7am-8am

Invasive & Non-Invasive Brain Stimulation in Stroke
Course Directors: Ela Plow & Karunesh Ganguly
8am-10am

BREAK
10am-10:30am

Lateralizations in the Brain, Behavior & Rehabilitation
Course Director: Benjamin Philip
10:30am-12pm

Business Meeting & Lunch
12pm-1pm

Poster Session & Exhibit Hall
1pm-2pm

Vagus Nerve Stimulation with Rehabilitation for Stroke & SCI
Course Director: Seth Hays
2pm-3:30pm

BREAK
3:30pm-4:00pm

Diversity Session
4pm-5pm

BREAK
5:00pm-5:30pm

Foundation Reception
5:30pm-7pm

SATURDAY, APRIL 2

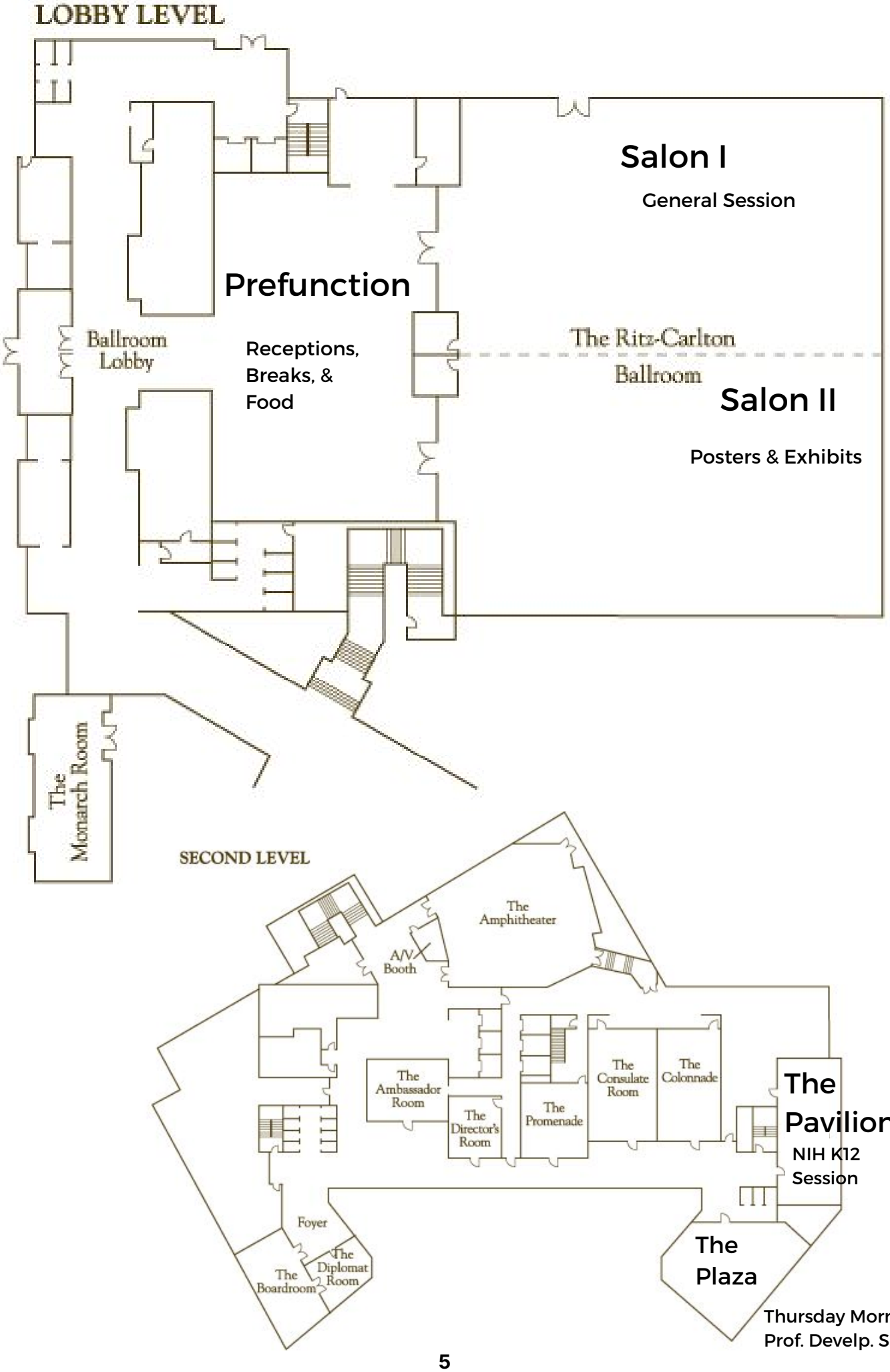
Mentoring Breakfast
7am-8am

Oral Abstract Session
8am-9am

Targeted Neurorehabilitation Strategies in Post-Stroke Aphasia
Course Director: Priyanka Shan-Basak
9am-10:30am

BREAK
10:30am-11:00am

Stroke Recovery & Rehabilitation over time & Place - A memorial to Dr. Alexander Dromerick
Course Director: George Wittenberg
11am-12:30pm


LOBBY LEVEL
Salon I
General Session
Prefunction
Receptions, Breaks, & Food
Ballroom Lobby
The Ritz-Carlton Ballroom
Salon II
Posters & Exhibits
The Monarch Room
SECOND LEVEL
The Amphitheater
A/V Booth
The Ambassador Room
The Director's Room
The Promenade
The Consulate Room
The Colonnade
The Pavilion
NIH K12 Session
Foyer
The Boardroom
The Diplomat Room
The Plaza
Thursday Morning Prof. Develp. Session

THURSDAY PROGRAM DETAILS

PROFESSIONAL DEVELOPMENT ROUNDTABLES

Thursday, March 31, 2022 • 9:00 am – 11:00 am • The Plaza (Second Floor)

Table 1: Work Life Balance *from the perspective of Trainee/ Junior Faculty*

Oluwole O. Awosika, MD, MSCR, FAAN

Jessica Cassidy, PT, DPT, PhD

Table 2: Work Life Balance *from the perspective of Mid-Career Faculty*

Nicolas Schweighofer, PhD

Bernadette Gillick, PT, PhD, MSPT

Table 3: How to Keep Learning, Stay Abreast New Technologies, Incorporate New Technologies

Michael Borich, PT, DPT, PhD

Ela B Plow, PhD, PT

Table 4: Markers of Good Research: What are things to look for in papers outside of your research area *from the perspective of Tech/Clinical Scientist*

Catherine Lang, PT, PhD, FASNR FAPTA

Jyutika Mehta, PhD

Table 5: Markers of Good Research: What are things to look for in papers outside of your research area *from the perspective of a Basic Scientist*

Karunesh Ganguly, MD, PhD

Jason Carmel, MD, PhD

Table 6: Reviewing Papers Well – Providing Good reviews, your job as a reviewer, editor input

Randolph J. Nudo, PhD, FAHA, FASNR

Teresa Kimberley, PhD, PT, FAPTA

THURSDAY PROGRAM DETAILS

Introduction to Neurorehab Technologies
Thursday, March 31, 2022 • 11:30 am – 1:00 pm • The Plaza (Second Floor)

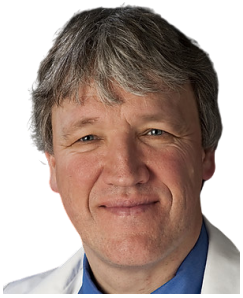
MODERATORS:

Keith R. Lohse, PhD, PStat

Noam Harel, MD, PhD

PANELISTS:

Maria del Mar Cortes, MD



Gottfried Schlaug, MD, PhD

Alex Carter, MD, PhD

DESCRIPTION:

Experts will discuss the strengths and limitations of different rehabilitation research technologies. Our panel will focus specifically on transcranial direct current stimulation (tDCS), transcranial magnetic stimulation, structural and functional MRI. The focus is on the application of these tools rather than a lecture about their basic neurophysiological principles or recent scientific findings, making this a great session for trainees who might be new to these technologies, or investigators looking to expand their lab toolbox.

THURSDAY PROGRAM DETAILS

Between Thinking and Doing: Cognitive Influences on Motor Abilities
Thursday, March 31, 2022 • 2:00 pm – 3:30 pm • Salon 1
Course Director: Laurel J. Buxbaum, PsyD

SPEAKERS:

Laurel J. Buxbaum, PsyD

Richard Ivry, PhD

Rebecca Lewthwaite, PhD

DESCRIPTION:

Neurorehabilitation is often conducted with separate foci on motor function and cognitive capacities. There is growing recognition, however, that cognitive factors intimately inform action selection, movement quality, and skill learning. This symposium will provide an overview of recent research on the intersection of cognition and motor function at three points along the translational neurorehabilitation continuum. Rich Ivry will review research on the role of cognition in elementary forms of motor learning. Recent work has revealed that even simple sensorimotor adaptation tasks can benefit from and may even require strategic processes. His talk will highlight how motor learning involves the interaction of multiple learning processes that respond to different types of error signals to solve distinct computational problems, drawing on a distributed neural network. Laurel Buxbaum will review research on the role of cognitive competition in the performance of skilled motor tasks. Her talk will highlight how the functional-neuroanatomic study of disorders at the cognitive-motor interface, such as limb apraxia and limb non-use, can help identify behavioral and neuroanatomic targets for treatment. Rebecca Lewthwaite will describe how the recovery of motor capabilities after neurological insult depends on motivational and attentional influences. She will discuss a pragmatic theoretical approach, OPTIMAL (Optimizing Performance through Intrinsic Motivation and Attention for Learning). This theory identifies three factors (autonomy support, enhanced expectancies for rewarding experience and outcomes, and external focus of attention) that affect motor performance and learning in healthy and clinical populations.

SCHEDULE:

2:00 - 2:20pm: *Multiple Learning Processes in Motor Learning* – Richard Ivry, PhD

2:20 – 2:40pm: *The Role of Competition in Motor Planning* – Laurel Buxbaum, PsyD

2:40 – 3:00pm: *Motivational & Attentional Influences on Motor Performance & Learning* – Rebecca Lewthwaite, PhD

3:00 -3:30pm: *Discussion* - ALL

THURSDAY KEYNOTE SPEAKER

Learning and Relearning Human Movement

Thursday, March 31, 2022 • 4:00 pm – 5:00 pm • Salon 1

Amy J Bastian, PhD, PT
CSO Kennedy Krieger Institute
Professor of Neuroscience,
Neurology and PM&R
The Johns Hopkins School of Medicine

DESCRIPTION:

Human motor learning depends on a suite of brain mechanisms that are driven by different signals and operate on timescales ranging from minutes to years. Understanding these processes requires identifying how new movement patterns are normally acquired, retained, and generalized, as well as the effects of distinct brain lesions. The lecture will focus on normal and abnormal motor learning, and how we can use this information to improve rehabilitation for individuals with neurological damage.

2022 ASNR AWARD CEREMONY

Thursday, March 31, 2022 • 5:00 pm – 6:00 pm • Salon 1

Albert Lo, MD, PhD

2022 FELLOW OF AMERICAN SOCIETY OF NEUROREHABILITATION RECIPIENT

The title of Fellow of the American Society of Neurorehabilitation is reserved for individuals who have contributed significantly to the field of Neurorehabilitation, and also to the American Society of Neurorehabilitation.

Michael Ellis, PT, DPT

2022 OUTSTANDING NEUROREHABILITATION CLINICIAN-SCIENTIST AWARD RECIPIENT

The award, based on the evaluation of his or her peers, honors scholarly achievements and contributions to knowledge about mechanisms of neural repair, translational research from mechanisms of repair to clinical practice, or clinical Neurorehabilitation. Nominations are invited from the membership of the American Society of Neurorehabilitation. The American Society of Neurorehabilitation Education Foundation Board of Directors, made up of Past Presidents of the American Society of Neurorehabilitation (ASNR) selects the recipient of the award.

Robert Chen, MA, MSc, MB BCh, MB BChir

2022 KENNETH VISTE, JR., MD MEMORIAL LECTURESHIP AWARD RECIPIENT

Kenneth M. Viste, Jr., MD was a tireless advocate for Neurorehabilitation and ASNR, and was active in the organization since its inception as President, Membership Committee Chair and a member of the Practice Issues Committee. ASNR honors his memory by presenting the award annually to an individual that has supported the mission and vision of ASNR over the course of his or her career, by supporting neurorehabilitation as a field, engaging in clinical and educational work, and making our medical peers aware of the importance of neurorehabilitation.

2022 ASNR AWARD CEREMONY

Thursday, March 31, 2022 • 5:00 pm – 6:00 pm • Salon 1

Derrick Yoo

Presidential Abstract Award

P.47 A system to test forepaw touch in rodents shows stability in health and loss of function with injury

The ASNR offers the Presidential Award for the best basic science poster presented by a student, resident, post-doctoral fellow, or a clinician within five years of training. The purpose of this award is to encourage research relevant to Neurorehabilitation by young clinicians and/or investigators enrolled in training programs relevant to Neurorehabilitation. While the contestant must be the senior author of the abstract, there are no restrictions on co-authorship.

Isha Vora, MS, OT

Fletcher H. McDowell Abstract Award

P. 55 The Use of Transcranial Magnetic Stimulation for Upper Extremity Motor Assessment at the Bedside During Acute Stroke Hospitalization: A Feasibility Study

The ASNR offers the Fletcher H. McDowell Award for the best clinical science poster presented by a student, resident, or post-doctoral fellow, or a clinician within five years of training. The purpose of this award is to encourage research relevant to Neurorehabilitation by young clinicians and/or investigators enrolled in training programs relevant to Neurorehabilitation. While the contestant must be the senior author of the abstract, there are no restrictions on co-authorship.

2022 DIVERSITY TRAVEL FELLOWSHIP RECIPIENT

This Fellowship will now support up to three underrepresented individuals, for three years. During the last year of the fellowship, each Diversity Fellow will be required to serve as a mentor to a first-year awardee. This format is designed to provide a sustained opportunity for our Diversity Fellows to become more fully immersed in the meeting & establish long-term, meaningful relationships within ASNR.

Nicole Haikalis

Ermyntrude Adjei, PhD Student

2021 DIVERSITY TRAVEL FELLOWSHIP RECIPIENT'S

Maria Bandres

Caitlin Banks, MS

Ephrem Zewdie, PhD

POSTER SESSION I

Thursday, March 31, 2022 • 6:00 pm – 8:00 pm • Salon II

P.1 Decoding speech from human motor cortex using an intracortical brain computer interface
Daniel Rubin1,2, Tommy Hosman3, Anastasia Kapitonava1, John Simeral4,3, Sydney Cash1,2, Leigh Hochberg4,3,1,2
1Massachusetts General Hospital, Boston, USA. 2Harvard Medical School, Boston, USA. 3Brown University, Providence, USA. 4VA Providence Health Care System, Providence, USA

P.2 Worse Performance of Instrumental Activities of Daily Living Associates with Markers of Neurodegeneration
Audrey Keleman, Rebecca Bollinger, Julie Wisch, Beau Ances, Susan Stark
Washington University School of Medicine, St. Louis, MO, USA

P.3 Association between online motor-cognitive game performance and APOE e4 carrier status among older adult Mindcrowd users
Andrew Hooyman1, Matt Huentelman2, Sydney Schaefer1
1Arizona State University, Tempe, USA. 2The Translational Genomics Research Institute, Pheonix, USA

P.4 Phonological Component Analysis augmented by anodal HD-tDCS: A case study examining behavioral and fMRI data in a patient with aphasia
Sara Pillay1, Cindy Li1, Priyanka Shah-Basak1, Joe Heffernan1, Lisa Conant1, Anna Frieberg1, Shelley Laitinen1, Samantha Hudson1, Jed Mathis1, Sabine Heuer2, Roy Hamilton3, Jeffrey Binder1
1Medical College of Wisconsin, Milwaukee, USA. 2University Wisconsin-Milwaukee, Milwaukee, USA. 3University of Pennsylvania, Philadelphia, USA

P.5 Efficacy of Corsi Block Tapping Task as a viable visuospatial training approach: A proof-of-concept
Sydney Schaefer, Andrew Hooyman, Nicole Haikalis, Randy Essikpe, Peiyuan Wang
Arizona State University, Tempe, USA

P.6 Identifying Cognitive Predictors to Reactive Step Training in People with Parkinson's Disease
Andrew Monaghan1, Jessica Trevino1, Jordan Barajas1, Lee Dibble2, Shyamal Mehta3, Daniel Peterson1,4
1Arizona State University, Phoenix, USA. 2University of Utah, Salt Lake City, USA. 3Mayo Clinic, Scottsdale, USA. 4Phoenix VA Health Care Center, Phoenix, USA

P.7 Paired stimulation targeting spinal cord is more effective than targeting sensorimotor cortex
Ahmet Asan, Ajay Pal, Jason Carmel
Columbia University, New York, USA

P.8 Improvement in capacity for activity vs. improvement in performance of activity in daily life during outpatient neurorehabilitation
Catherine E. Lang1, Carey L. Holleran1, Michael J Strube1, Terry D. Ellis2, Caitlin A. Newman3, Meghan Fahey3, Tamara R. DeAngelis2, Timothy Nordahl2, Darcy S. Reisman4, Gammon M. Earhart1, Keith R. Lohse1, Marghuretta D. Bland1
1Washington University School of Medicine, Saint Louis, USA. 2Boston University, Boston, USA. 3Shirley Ryan Ability Lab, Chicago, USA. 4University of Delaware, Newark, USA

P.9 A Novel Trunk-based Index of Performance as a Biomarker of Upper Limb Motor Impairment in Stroke
Daniele Piscitelli1,2, Melanie C. Baniña1,2, Timothy K. Lam3, Kay-Ann Allen3, Joyce L. Chen3,4, Mindy F. Levin1,2
1School of Physical and Occupational Therapy, McGill University, Montreal, Canada. 2Feil/Oberfeld Jewish Rehabilitation Hospital/CRIR Research Centre, Laval, Canada. 3Hurvitz Brain Sciences Research Program, Sunnybrook Research Institute, Toronto, Canada. 4Faculty of Kinesiology and Physical Education, University of Toronto, Toronto, Canada

P.10 Willed movements versus passive observation during Mirror Therapy and Video Therapy in hemiplegic patients: a behavioral and EEG maps comparison.
Davy Luneau, Pascal Giraux1,2, Ahmed Adham2, Clara Pfenninger3, Diana Rimaud1, Julia Touly1
1Adult PRM department, University Hospital of Saint-Etienne, Saint-Etienne, France. 2Lyon Neuroscience Research Center (CRNL), Trajectoires team, INSERM UMR-S U1028, CNRS UMS 5292, Lyon, France. 3Laboratoire Inter-Universitaire de Biologie de la Motricité, EA 7424, Univ Lyon, UJM-Saint-Etienne, Saint-Etienne, France

POSTER SESSION I

Thursday, March 31, 2022 • 6:00 pm – 8:00 pm • Salon II

P.12 Relating Reactive Step Length and Step Latency to Falls in People with Multiple Sclerosis
Andrew Monaghan1, Avril Mansfield2,3,4, Jessie Huisinga5, Daniel Peterson1,6
1Arizona State University, Phoenix, USA. 2KITE- Toronto Rehabilitation Institute, Toronto, Canada. 3University of Toronto, Toronto, Canada. 4Sunnybrook Research Institute, Toronto, Canada. 5University of Kansas Medical Center, Kansas City, USA. 6Phoenix VA Health Care Center, Phoenix, USA

P.13 Sensor-based categorization of upper limb performance in daily life.
Jessica Barth, Keith Lohse, Jeffrey Konrad, Marghuertta Bland, Catherine Lang
Washington University in St. Louis, St. Louis, USA

P.14 A Systematic Decomposition of Upper-Body Dressing
Emily Fokas1, Avinash Parnandi1, Zuha Ahmed1, Anita Venkatesan1, Natasha Pandit1, Audre Wirtanen1, Dawn Nilsen2, Heidi Schambra1
1NYU Langone, New York, USA. 2Columbia University, New York, USA

P.15 omparing the accuracy of open-source pose estimation methods for measuring gait kinematics
Edward Washabaugh1,2, Thanikai Adhithiyan Shanmugam2, Rajiv Ranganathan3, Chandramouli Krishnan2,4
1Wayne State University, Detroit, USA. 2Michigan Medicine, Ann Arbor, USA. 3Michigan State University, East Lansing, USA. 4Michigan Robotics Institute, Ann Arbor, USA

P.16 Exoskeletons increase paretic limb use in stroke survivors during a bimanual virtual reality reaching task
Alexander Brunfeldt1, Barbara Bregman1, Peter Lum2
1Georgetown University, Washington, USA. 2Catholic University of America, Washington, USA

P.17 Motor Imagery has Variable Effects on Peripheral Nerve Recovery
Taewon Kim1, Susan Mackinnon1, Jana Dengler2,3, Benjamin Philip1
1Washington University School of Medicine, Saint Louis, USA. 2Sunnybrook Health Sciences Centre, Toronto, Canada. 3University of Toronto, Toronto, Canada

P.18 Feasibility and Impact of transcranial photobiomodulation on fine hand motor skill learning in non-disabled young adults.
Alexandra Messur, Jocelyn Penteck, Bokkyu Kim
SUNY Upstate Medical University, Syracuse, USA

P.19 Predicting a functional rehabilitation outcome in chronic stroke survivors via a hierarchical Bayesian model of motor learning.
Nicolas Schweighofer1, Dongze Ye2, David, Z. D'Argenio3, Carolee Winstein1
1Biokinesiology and Physical Therapy, University of Southern California, Los Angeles, USA. 2Computer Science, University of Southern California, Los Angeles, USA. 3Biomedical Engineering, University of Southern California, Los Angeles, USA

P.20 Targeted Plasticity Therapy for Upper Limb Rehabilitation in Spinal Cord Injury
Emmanuel Adehunoluwa1,2, Joe Epperson1,3, Chad Swank4, Christie Stevens4, Dannae Arnold4, Jaime Gillespie4, Erina Sarker4, Jane Wigginton1, Michael Foreman4, Richard Naftalis4, Rita Hamilton4, Amy Porter1, Robert Rennaker1,2, Seth Hays1,3, Michael Kilgard1,2
1Texas Biomedical Device Center, University of Texas at Dallas, Richardson, USA. 2School of Behavioral and Brain Sciences, University of Texas at Dallas, Richardson, USA. 3Erik Jonsson School of Engineering and Computer Science, University of Texas at Dallas, Richardson, USA. 4Baylor Scott & White Institute for Rehabilitation, Dallas, USA

P.21 Improved Post-Stroke Motor Recovery with Alternate Day Fasting in Mice.
Mahlet Mersha, Robert Hubbard, Steven Zeiler
Johns Hopkins, Balitmore, USA

POSTER SESSION I

Thursday, March 31, 2022 • 6:00 pm – 8:00 pm • Salon II

P.22 A preliminary investigation of the neural correlates of balance performance in healthy adults.
Vyoma Parikh, Ann Medley, Hui-Ting Goh
Texas Woman's University, Dallas, USA

P.23 Interaction of transcranial direct current stimulation (tDCS) & visual feedback in an ankle motor control task
Mark Cummings, Aditi Doshi, Farid Ihmoud, Lubna Shah, Sangeetha Madhavan
University of Illinois at Chicago, Chicago, USA

P.24 Feasibility of error augmentation feedback for upper limb rehabilitation in stroke survivors
Caroline Rajda1, Sigal Berman2, Shelly Levy-Tzedek2, Philippe Archambault1, Farnaz Ghazali Jahromi1, Mindy Levin1
1McGill University, Montreal, Canada. 2Ben-Gurion University, Negev, Israel

P.25 Sing for your Saunter: Musical Cues to Improve Gait in People With Parkinson Disease With and Without Dementia
Lauren Tueth, Gammon Earhart, Elinor Harrison
Washington University School of Medicine, St Louis, USA

P.26 An objective method for analyzing ipsilateral motor evoked potentials (iMEPs) in stroke survivors with severe upper limb hemiplegia
Akhil Mohan1, Xin Li1, Jayme S Knutson2, Morgan Widina1, Bei Zhang3, Ela B Plow1, David A Cunningham2
1Cleveland Clinic Lerner Research Institute, Cleveland, USA. 2MetroHealth Rehabilitation Institute, Cleveland, USA. 3Case Western Reserve University, Cleveland, USA

P.27 Multimodal Longitudinal Assessment of Infant Brain Organization and Recovery in Perinatal Brain Injury
Ellen Sutter1,2, Catarina Saiote2, Ryan McAdams2, Douglas Dean III2, Raghavendra Rao1, Michael Georgieff1, Bernadette Gillick2,1
1University of Minnesota, Minneapolis, USA. 2University of Wisconsin-Madison, Madison, USA

P.28 Enabling Unsupervised Closed-loop Vagus Nerve Stimulation During Rehabilitation for Stroke or Spinal Cord Injury
Joseph Epperson1,2, Eric Meyers1, David Pruitt1, Joel Wright1, Rachael Hudson1,3, Emmanuel Adehunoluwa1,3, Y-Nhy Nguyen-Duong1,3, Chad Swank4, Christi Stevens4, Jaime Gillespie4, Dannae Arnold4, Jane Wigginton1,4, Robert Rennaker1,2,3, Michael Kilgard1,3, Seth Hays1,2
1Texas Biomedical Device Center, Richardson, USA. 2Erik Jonsson School of Engineering and Computer Science, Richardson, USA. 3School of Behavioral and Brain Sciences, Richardson, USA. 4Baylor Scott and White Institute for Rehabilitation, Dallas, USA

P.29 Unraveling neuro-motor control deficits in healthy aging: Implications for neurorehabilitation
Daniele Piscitelli1, Rachael Walton-Mouw2, Stanislaw Solnik2,3
1School of Physical and Occupational Therapy, McGill University, Montreal, Canada. 2University of North Georgia, Dahlonega, USA. 3University of Health and Sport Sciences in Wrocław, Wrocław, Poland

P.30 Effects of Rhythmic-Based and Tonal-Based Music Interventions on Upper Extremity Movements in Individuals with Parkinson's Disease: A Scoping Review
Yi-An Chen, Emily Bell, Julia Baker, Meredith Parrott, Jessica Rosales
Georgia State University, Atlanta, USA

P.31 Age Related Differences in Kinematic Responses While Walking Over A Compliant Surface
Nesreen Alissa, Woohyoung Jeon, Ruth Akinlosotu, Kelly Westlake
University of Maryland, Baltimore, USA

P.32 The Impact of SSRIs on Motor and Visual Recovery in Stroke Patients Undergoing BCI Intervention
Anthony Bui1, Alexander Remsik2, Vivek Prabhakaran2
1University of Wisconsin School of Medicine and Public Health, Madison, USA. 2University of Wisconsin School of Medicine and Public Health - Department of Radiology, Madison, USA

POSTER SESSION I

Thursday, March 31, 2022 • 6:00 pm – 8:00 pm • Salon II

P.33 NeuroCuresNY: A Novel Clinical Trial Platform to Find Treatments for Chronic Neurologic Disability
M. Cristina Falo1, Marissa Wuennemann1, Amy Bialek1, Susan Wortman-Jutt1, Jeremy Hill2,3, Russell Hardesty2, Timothy Fake2, Jonathan Wolpaw2,3, Bradford Berk4,5, Rajiv Ratan1,6, Tomoko Kitago1,7
1Burke Neurological Institute, White Plains, USA. 2National Center for Adaptive Neurotechnologies, Stratton VA Medical Center, Albany, USA. 3State University of New York at Albany, Albany, USA. 4Aab Cardiovascular Research Institute, Department of Medicine, University of Rochester School of Medicine and Dentistry, Rochester, USA. 5University of Rochester Neurorestoration Institute, University of Rochester School of Medicine and Dentistry, Rochester, USA. 6Feil Family Brain and Mind Research Institute, Weill Cornell Medicine, New York, USA. 7Department of Neurology, Weill Cornell Medicine, New York, USA

P.34 Absence of perilesional neuroplastic recruitment in chronic post-stroke aphasia
Andrew DeMarco, Candace van der Stelt, Sachi Paul, Elizabeth Dvorak, Elizabeth Lacey, Sarah Snider, Peter Turkeltaub
Georgetown University, Washington, DC, USA

P.35 Magnetic and electrical stimulation of the corticospinal pathway to assess residual connectivity in individuals with severe hemiparesis post-stroke: Preliminary results of a feasibility study
Mary Ellen Stoykov1,2, Carley Butler2, George F Wittenberg3,4, Carolee J Winstein5, Monica Perez1,2
1Shirley Ryan Abilitylab, Chicago, USA. 2Northwestern University, Chicago, USA. 3University of Pittsburgh, Pittsburgh, USA. 4VA Pittsburgh HS, Pittsburgh, USA. 5University of Southern California, Los Angeles, USA

P.36 Identifying racial and ethnic outcome disparities after discharge from acute inpatient rehabilitation.
Amanda Herrmann1,2, Ella Chrenka1,2, Marny Farrell1,3, Leah Hanson1,2, Steven Jackson1,2,3
1HealthPartners Neuroscience Center, St. Paul, USA. 2HealthPartners Institute, Bloomingon, USA. 3Regions Hospital, St. Paul, USA

P.37 Expectation- and suggestibility-related placebo effects of tDCS on cognitive and motor training
Nicole Haikalis, Andrew Hooyman, Peiyuan Wang, Sydney Schaefer
Arizona State University, Tempe, USA

P.38 Wearable activity monitors as part of physical activity intervention for people with neurodegenerative diseases: opportunities and considerations
Hai-Jung Steffi Shih1, Philippa Morgan-Jones2, Katrina Long3, Abigail Schreier1, Lori Quinn1,4, Ciaran Friel5
1Teachers College, Columbia University, New York, USA. 2Cardiff University, Cardiff, United Kingdom. 3San Jose State University, San Jose, USA. 4Columbia University Irving Medical Center, New York, USA. 5Northwell Health, New York, USA

P.39 Higher amyloid correlates to greater loneliness during the COVID-19 pandemic
Abigail Kehrer-Dunlap, Rebecca Bollinger, Beau Ances, Susan Stark
Washington University in St. Louis, St. Louis, MO, USA

P.40 Ecological momentary assessment of post-amputation pain as an accurate and complementary alternative to traditional pain assessment
Kelli Buchanan, Binal Motawar, Scott Frey
University of Missouri, Columbia, USA

P.41 Taking the Assessment of Freezing of Gait from the Lab into the Clinic and the Real World
David May, Gammon Earhart, Pietro Mazzoni
Washington University in St. Louis, St. Louis, MO, USA

P.42 Evidence of excessive hip extension during a step-up task as compensation for distal joint impairment in individuals with bilateral cerebral palsy
Vatsala Goyal, Theresa Sukal-Moulton
Northwestern University, Chicago, IL, USA

P.43 Development of a rehabilitation data repository: the first step to creating a learning health system focused on precision rehabilitation
Margaret French1, Kelly Daley2, Preeti Raghavan1, Stephen Wegener3, Pablo Celnik1
1Johns Hopkins University, Baltimore, USA. 2Johns Hopkins Hospital, Baltimore, USA. 3Johns Hopkins Universirty, Baltimore, USA

POSTER SESSION I

Thursday, March 31, 2022 • 6:00 pm – 8:00 pm • Salon II

P.44 Healthcare Resource Utilization and Costs in Adult Patients With Spasticity – A Matched Cohort Analysis
Michael Hull1, Vamshi Ruthwik Anupindi1, Jing He1, Natalya Danchenko2, Mitchell DeKoven1, Jonathan Bouchard3
1IQVIA, Falls Church, USA. 2Ipsen, Boulogne-Billancourt, France. 3Ipsen, Cambridge, USA

P.45 Daily life upper limb use asymmetric in below-elbow amputees
Binal Motawar, Kelli Buchanan, Scott Frey
University of Missouri, Columbia, USA

P.46 Role of the Vestibular System in the control of locomotion
Carl Tchoumi1, Mindy Levin1, Anatol Feldman2
1McGill University, Montreal, Canada. 2Université de Montreal, Montreal, Canada

P.47 A system to test forepaw touch in rodents shows stability in health and loss of function with injury
Derrick Yoo1, Aditya Ramamurthy1, Justin Lee1, Tong Chun Wen1, Andrew Sloan2, Jason Carmel1
1Columbia University, New York, USA. 2Vulintus Inc, Lafayette, USA

EXHIBIT HOURS

OPEN HOURS

Thursday, March 31st
6:00 - 8:00 pm --- Opening Reception & Poster Session

Friday, April 1st
7:00 - 8:00 am --- Mentoring Breakfast
10:00 - 10:30 am --- Break
1:00 - 2:00 pm --- Poster Session & Lunch
3:30 - 4:00 pm --- Break
5:00 - 5:30 pm --- Break

Saturday, April 2nd
07:00 - 8:00 am --- Mentoring Breakfast
10:30 - 11:00 am --- Break

FRIDAY MORNING PROFESSIONAL DEVELOPMENT SESSION

Lessons Learned: Lab Leadership and Management
Friday, April 1, 2022 • 7:00 am – 8:00 am • Salon 1

MODERATORS:

Heidi Schambra, MD

Jason Carmel, MD, PhD

SPEAKERS:

Teresa Jones, PhD
Basic Scientist

Jill Stewart, PT, PhD
Clinical Scientist

Eric Leuthardt, MD
Translational/Engineering Scientist

DESCRIPTION:

Join our discussion with several very successful investigators from different avenues of research (from basic science, to clinical research, to translational research and engineering). These investigators will discuss issues they have faced as lab leaders, the evolution of their management style, and lessons they have learned along the way.

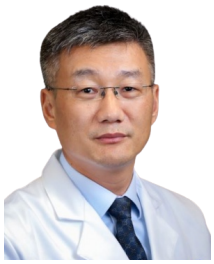
FRIDAY PROGRAM DETAILS

Invasive & Non-invasive Brain Stimulation in Stroke: How Can We Improve Efficacy?
Friday, April 1, 2022 • 8:00 am – 10:00 am • Salon 1
Course Directors: Karunesh Ganguly, MD, PhD & Ela Plow, PT, PhD

SPEAKERS:

Karunesh Ganguly, MD PhD

Ela B Plow, PhD, PT



Wuwei (Wayne) Feng, MD

Charlotte Stagg, MRCP, DPhil

Kenneth Baker PhD

DESCRIPTION:

Variety of brain-modulation technologies have been integrated into neuro-psychiatric practice, including rTMS for medication-refractory depression and basal-ganglia DBS for movement disorders. There is greater need to expand indications to stroke. A large body of literature has examined the effects of brain-modulation using electrical or magnetic fields on motor behavior in stroke. However, it remains unclear precisely how such fields affect nervous system function; what are the optimal parameters; who benefits from what type of targeting and alternate/novel targets and underlying rationale. Such knowledge is important for refining neuromodulatory approaches as well as improving efficacy. This expert panel will help address these research gaos by examining the effects of both invasive and non-invasive approaches to brain stimulation.

SCHEDULE:

8:00 - 8:05 am: *Introduction* – Karunesh Ganguly, MD, PhD & Ela Plow, PhD, PT

8:06 – 8:23am: *Transcranial Direct Current for post-stroke motor recovery: Translation from Phase I to multi-center phase II clinical trial* – Wayne Feng, MD

8:24 – 8:41 am: *Direct Current Stimulation to Modulate Cortical Dynamics in Rodents and Non-Human Primates* – Karunesh Ganguly, MD, PhD

8:42 – 8:59am: *Theta-gamma coupling stimulation patterns enhance plasticity in rodents and humans: behavioural and physiological evidence* – Charlotte Stagg, MRCP, DPhil

9:00 – 9:17am: *Severity-Specific rTMS for post-stroke upper limb motor recovery* – Ela Plow, PhD, PT

9:18 – 9:35am: *Phase I trial investigating safety, feasibility, preliminary efficacy & mechanisms of dentato-thalamocortical pathway (cerebellar) DBS to promote post-stroke rehabilitation outcome* – Kenneth Baker, PhD

9:36 – 10:00am: *Panel Discussion* - ALL

FRIDAY PROGRAM DETAILS

Lateralizations in the Brain, Behavior, and Rehabilitation
Friday, April 1, 2022 • 10:30 am – 12:00 pm • Salon 1
Course Director: Benjamin Philip, PhD

SPEAKERS:

Benjamin Philip, PhD

Robert Sainburg, PhD, OTR

Rachael Seidler, PhD

DESCRIPTION:

Lateralization is a fundamental organizing principle of the human brain and behavior. However, rehabilitation science and practice have frequently under-emphasized the role of lateralization in human movement and cognition. Of the many lateralizations in the brain, at least three aspects are relevant for rehabilitation: motor control ("limb dominance"), hand preference, and interhemispheric compensation. In motor control, the left and right hemisphere are specialized for different aspects of movement, leading to asymmetric patterns of motor deficits after unilateral stroke. Hand preference appears relatively fixed, even after impairment or forced use: when asymmetrical deficits change which hand is more functional, patients rarely compensate by changing which hand they prefer. Interhemispheric compensation may provide a route by which the non-dominant hand can improve via the "non-dominant hemisphere" drawing on mechanisms in the "dominant hemisphere," a process that also models some compensatory and maladaptive changes in the aging brain. In this symposium, we will explore how brain lateralization serves as a fundamental evolutionary and functional perspective that is broadly recognized in other scientific fields, and how to measure and apply this principle to improve clinical research and practice.

SCHEDULE:

10:30 - 10:35am: *Introduction* – Benjamin Philip, PhD

10:35 – 10:55am: *The impact of motor lateralization on deficits & recovery following stroke* – Robert Sainburg, PhD

10:55 – 11:15am: *Compensation with non-dominant hand, & how people don't do it after peripheral nerve injury unless forced* – Benjamin Philip, PhD

11:15 – 11:35am: *Lateralization & compensation over aging* – Rachael Seidler

11:35 – 12:00pm: *Discussion* -ALL

POSTER SESSION II

Friday, April 1, 2022 • 1:00 pm – 2:00 pm • Salon II

P.48 Assessing sensorimotor function after stroke. A survey of neurorehabilitation clinicians
Joanna Eskander1,2, Michael Borich3, Trisha Kesar3, Darcy Reisman1,4, Jennifer Semrau1,2
1Department of Biomechanics and Movement Science Program, University of Delaware, Newark, DE, USA. 2Department of Kinesiology and Applied Physiology, University of Delaware, Newark, DE, USA. 3Division of Physical Therapy, Department of Rehabilitation Medicine, Emory University, Atlanta, GA, USA. 4Department of Physical Therapy, University of Delaware, Newark, DE, USA

P.49 Mapping the Human Cervical Spinal Cord with Electrical Stimulation for Neurorehabilitation
James R. McIntosh1,2, Evan F. Joiner1, Jacob L. Goldberg2, Lynda M. Murray3,4, Bushra Yasin1,2, Anil Mendiratta1, Steven C. Karceski2, Earl Thuet5, Oleg Modik2, Evgeny Shelkov2, Christopher Mandigo1,5, K. Daniel Riew1,2,5, Noam Y. Harel3,4, Michael S. Virk2,5, Jason B. Carmel1,2
1Columbia University, New York, USA. 2Weill Cornell Medicine, New York, USA. 3Icahn Sch. of Med. at Mount Sinai, New York, USA. 4James J. Peters VA Med. Ctr., Bronx, USA. 5New York Presbyterian, New York, USA

P.50 Spinal Cord Injury: Do Residual Tissue Bridges Effect Neurophysiology and Functional Recovery?
Alyssa Canales, Marylu Cabello, Alondra Medina, Kelsey Baker
University of Texas Rio Grande Valley, Edinburg, USA

P.51 Motor Cortical Map Reorganization in Persons with Cervical Spinal Cord Injury (SCI) is Related to Upper Limb Prehension Capability
Jia Liu1, Tarun Arora2, Kyle O'Laughlin1, Gail Forrest3, Svetlana Pundik4, Kevin Kilgore5, Anne Bryden5, Steven Kirshblum3, Ela Plow1
1Cleveland Clinic, Cleveland, USA. 2University Health Network, Toronto, Canada. 3Kessler Foundation, West Orange, USA. 4Louis Stokes Cleveland VA Medical Center, Cleveland, USA. 5MetroHealth System, Cleveland, USA

P.52 Intraspinal microstimulation intended for motor rehabilitation modulates spinal nociceptive neural transmission.
Maria Bandres, Jefferson Gomes, Jacob McPherson
Washington University in St. Louis, St. Louis, USA

P.53 Evaluating the Microbiome to Boost Recovery from Stroke: The EMBRS Study
Tyler Hammond1, Arnold Stromberg1, Lumy Sawaki1, Ai-Ling Lin2
1University of Kentucky, Lexington, KY, USA. 2University of Missouri, Columbio, MO, USA

P.54 Aphasia outcomes are modulated by lesion size and race in chronic stroke survivors
Davetrina Gadson, Candace van der Stelt, Elizabeth Lacey, Andrew DeMarco, Sarah Snider, Peter Turkeltaub
Georgetown University School of Medicine, Washington DC, USA

P.55 The Use of Transcranial Magnetic Stimulation for Upper Extremity Motor Assessment at the Bedside During Acute Stroke Hospitalization: A Feasibility Study
Isha Vora1, David Lin2,3,4, Yi-Ling Kuo5, Russell Banks6, Julie DiCarlo2,3,4, Leigh Hochberg2,3,4, Teresa Kimberley1
1MGH Institute of Health Professions, Boston, USA. 2MGH Center for Neurotechnology and Neurorecovery, Massachusetts General Hospital, Boston, USA. 3Department of Neurology, Massachusetts General Hospital, Boston, USA. 4RR&D Center for Neurorestoration and Neurotechnology, Providence VA Medical Center, Providence, USA. 5SUNY Upstate Medical University, Syracuse, USA. 6Linus Health, Boston, USA

P.56 Abnormal motor control in the arm and not in the finger is linked to increased CReST activity during an arc pointing task in chronic stroke patients
Myriam Taga1, Yoon N. G. Hong2, Charalambos C. Charalambous3, Sharmila Raju1, Jing Lin1, Pietro Mazzoni4, Jinsook Roh2, Heidi M. Schambra1
1Department of Neurology, NYU Langone, School of Medicine, New York, USA. 2Department of Biomedical Engineering, University of Houston, Houston, USA. 3Department of Basic and Clinical Sciences, Medical School, University of Nicosia, Nicosia, Cyprus. 4Department of Neurology, Washington University, School of Medicine in St. Louis, St. Louis, USA

POSTER SESSION II

Friday, April 1, 2022 • 1:00 pm – 2:00 pm • Salon II

P.57 Polarity dependent effects of bi-hemispheric tDCS when paired with contralaterally controlled functional electrical stimulation (CCFES) on chronic post stroke corticospinal output: A TMS study

David A. Cunningham1,2, Kevin H. Cheng1,2, Amy Friedl2, Ela B. Plow3, Kenneth B. Baker3, Richard D. Wilson1,2, Jayme S. Knutson1,2

1Case Western Reserve University, Cleveland, USA. 2MetroHealth Center for Rehabilitation Research, Cleveland, USA. 3Cleveland Clinic, Cleveland, USA

P.58 Transcallosal Inhibition in hand and arm muscles of chronic stroke and healthy controls

Leticia Hayes1, Myriam Taga1, Charalambos Charalambous2,3, Sharmila Raju1, Jing Lin1, Elisa Stern1, Heidi Schambra1

1Department of Neurology, NYU Langone, School of Medicine, New York, USA. 2Department of Basic and Clinical Sciences, Medical School, University of Nicosia, Nicosia, Cyprus. 3Center for Neuroscience and Integrative Brain Research (CENIBRE), Medical School, University of Nicosia, Nicosia, Cyprus

P.59 Sensitivity to change & responsiveness of the upper-extremity Fugl-Meyer in individuals with acute stroke

Baothy Huynh1, David Lin2, Julie DiCarlo2, Teresa Kimberley1, Perman Gochyyev1, Jessica Ranford2

1MGH Institute of Health Professions, Boston, USA. 2Massachusetts General Hospital, Boston, USA

P.60 Effects of repetitive transcranial magnetic stimulation of contralesional dorsal premotor cortex on interhemispheric functional connectivity in severe chronic stroke

Xin Li1, David Cunningham1,2,3,4, Ken Sakaie5, Mark Lowe5, Yin-Liang Lin1,6, Steven Wolf7, Adriana Conforto8, Andre Machado9, Akhil Mohan1, Kyle O'Laughlin1, Xiaofeng Wang10, Morgan Widina1, Ela Plow1,9

1Cleveland Clinic Lerner Research Institute, Cleveland, USA. 2Case Western Reserve University, Cleveland, USA. 3MetroHealth Medical Center, Cleveland, USA. 4Cleveland Functional Electrical Stimulation Center, Cleveland, USA. 5Cleveland Clinic Imaging Institute, Cleveland, USA. 6National Yang Ming Chiao Tung University, Taipei, Taiwan. 7Emory University School of Medicine, Atlanta, USA. 8Hospital Das Clínicas/São Paulo University, São Paulo, Brazil. 9Cleveland Clinic Neurological Institute, Cleveland, USA. 10Cleveland Clinic Quantitative Health Sciences, Cleveland, USA

P.61 Contributions of the more affected arm and hand for bimanual tasks: insights about action selection and performance in chronic stroke survivors

Marika Demers, Lauri Bishop, Amelia Cain, Nicholas Schweighofer, Carolee Winstein

University of Southern California, Los Angeles, USA

P.62 Contralesional M1 reorganization depends on stroke lesion volume and functional output of M1 of the lesioned hemisphere.

Cathrin Buetefisch1, Marc Haut2, Kate Revill3, Scott Shaeffer4, Lauren Edwards4, Deborah Barany4,5, Samir Belagaje4,6, Fadi Nahab4, Neeta Shenvi7, Kirk Easley7

1Departments of Neurology, Rehabilitation Medicine, Radiology, Emory University, Atlanta, USA. 2Departments of Behavioral Medicine and Psychiatry, Neurology, Radiology West Virginia University, Morgantown, USA. 3Department of Psychology, Emory University, Atlanta, USA. 4Department of Neurology, Emory University, Atlanta, USA. 5Department of Kinesiology, University of Georgia, Athens, USA. 6Marcus Stroke and Neuroscience Center, Grady Memorial Hospital, Atlanta, USA. 7Rollins School of Public Health, Emory University, Atlanta, USA

P.63 Estimated functional connectivity derived from clinical MRI predicts performance on a cognitive-IADL measure after acute stroke

Abhishek Jaywant1, Joan Toglia2, Zijin Gu3, Keith Jamison1, Faith Gunning1, Amy Kuceyeski1

1Weill Cornell Medicine, New York, USA. 2Mercy College, Dobbs Ferry, USA. 3Cornell University, Ithaca, USA

P.64 Persistent asymmetry of aperiodic resting-state neural activity in both cortical and sub-cortical strokes

Richard Hardstone1, Lauren Ostrowski1, Aliceson N. Dusang2, Catherine Chu1, Sydney S. Cash1, Steven C. Cramer3,4, Leigh R. Hochberg1,2, David J. Lin1,2

1Center for Neurotechnology and Neurorecovery, Department of Neurology, Massachusetts General Hospital, Boston, MA, USA. 2VA RR&D Center for Neurorestoration and Neurotechnology, Department of Veterans Affairs Medical Center, Providence, RI, USA. 3Department of Neurology, University of California, Los Angeles, CA, USA. 4California Rehabilitation Institute, Los Angeles, CA, USA

POSTER SESSION II

Friday, April 1, 2022 • 1:00 pm – 2:00 pm • Salon II

P.65 Examining the Relationships between Measures of Activity Behavior and Physical Health in Individuals with Chronic Stroke
Allison Miller, Zachary Collier, Darcy S. Reisman
University of Delaware, Newark, USA

P.66 Comorbid anxiety disorder as the strongest predictor of post-stroke depression
Amber Criswell, BA, Timea Hodics, MD, Camila Quintero, BS, Mario Dulay, PhD
Houston Methodist Neurological Institute, Houston, USA

P.67 The fastest may not be the best: Analysis of the effects of gait speed on multiple biomechanical gait variables post-stroke
Michael Rosenberg1, Justin Liu1, Taniel Winner1,2, Gordon Berman1, Lena Ting1,2, Trisha Kesar1
1Emory University, Atlanta, USA. 2Georgia Institute of Technology, Atlanta, USA

P.68 Motor overflow in the leg after stroke: minimal role for corticomotor pathways
Brice Cleland, Sangeetha Madhavan
University of Illinois at Chicago, Chicago, USA

P.69 Impairment estimation from high dimensional motion data during functional task performance
Avinash Parnandi1, Anita Venkatesan1, Natasha Pandit1, Audre Wirtanen1, Emily Fokas1, Grace Kim2, Dawn Nilsen3, Heidi Schambra1
1NYU Langone, New York, USA. 2NYU Steinhardt, New York, USA. 3Columbia University Medical Center, New York, USA

P.70 Detection of Stroke-Induced Spatial Neglect and Prediction of Neglected Visual Targets with an Augmented Reality (AR)-Encephalography (EEG) System
Jennifer Mak1, Deniz Kocanaogullari1, Xiaofei Huang2, Minmei Shih1, Emily Grattan1, Sarah Ostadabbas2, George F. Wittenberg1, Elizabeth Skidmore1, Murat Akcakaya1
1University of Pittsburgh, Pittsburgh, USA. 2Northeastern University, Boston, USA

P.71 Effect of Gamification with Social Incentives on Increasing Daily Steps after Stroke: A Randomized Clinical Trial
Kimberly Waddell1,2, Mitesh Patel1,3, Kayla Clark1, Tory Harrington1,4, S. Ryan Greysen1,2
1University of Pennsylvania, Philadelphia, USA. 2Crescenz VA Medical Center, Philadelphia, USA. 3Ascension Health, St. Louis, USA. 4Continuum Clinical, Philadelphia, USA

P.72 Virtual Reality Assessment of Arm Choice Under Cognitive Load
Cory Potts1, Shailesh Kantak1,2, Laurel Buxbaum1
1Moss Rehabilitation Research Institute, Jefferson University, Elkins Park, USA. 2Department of Physical Therapy, Arcadia University, Elkins Park, USA

P.73 The impact of the COVID-19 pandemic on rehabilitation outcomes and care post-stroke in Quebec
Palak Vakil1,2,3, Perrine Ferré4, Johanne Higgins2,5,6, Louis-David Beaulieu7, Claude Vincent8,9, Kimberley Singerman3, Diana Zidarov2,5,6, Marie-Hélène Milot10, Marie-Hélène Boudrias1,2,3
1McGill University, Montreal, Canada. 2Centre for Interdisciplinary Research in Rehabilitation of Greater Montreal, Montreal, Canada. 3Jewish Rehabilitation Hospital, CISSS-Laval, Laval, Canada. 4Villa Medica Rehabilitation Hospital, Montreal, Canada. 5University of Montreal, Montreal, Canada. 6Institut de réadaptation Gingras-Lindsay-de-Montréal, CIUSSS-CSMTL, Montreal, Canada. 7University of Quebec at Chicoutimi, Saguenay, Canada. 8Center for Interdisciplinary Research in Rehabilitation and Social Integration, Quebec, Canada. 9Laval University, Quebec, Canada. 10Centre de recherche sur le vieillissement, University of Sherbrooke, Sherbrooke, Canada

POSTER SESSION II

Friday, April 1, 2022 • 1:00 pm – 2:00 pm • Salon II

P.74 Structural Neural Correlates of Objective and Patient-Reported Measures of Function and Health Status After Stroke

Julie DiCarlo1,2, Kimberly Erler3, Abhishek Jaywant4, Perman Gochyyev3, Jessica Ranford1, Steven Cramer5,6, David Lin1,2
1Massachusetts General Hospital, Boston, USA. 2Department of VA Medical Center, Providence, USA. 3MGH Institute for Health Professions, Boston, USA. 4Weill Cornell Medicine, New York, USA. 5University of California, Los Angeles, USA. 6California Rehabilitation Hospital, Los Angeles, USA

P.75 The Feasibility of a Remote Physical Activity Monitoring Program for Rural Veterans with Stroke or Parkinson's Disease

Kimberly Waddell1,2, Mitesh Patel2,1,3, Jayne Wilkinson1,2, Robert Burke1,2, Sreelatha Koganti1, Stephanie Wood1, James Morley1,2
1Crescenz VA Medical Center, Philadelphia, USA. 2University of Pennsylvania, Philadelphia, USA. 3Ascension Health, St. Louis, USA

P.76 Functional Implications of Lower Extremity Transcortical Reflex Responses Post-Stroke

Caitlin Banks1,2,3,4, Elliott Perry1,2,4, Wandasun Sihanath1,2, Theresa McGuirk1,2,4, Carolynn Patten1,2,3,4
1Biomechanics, Rehabilitation, and Integrative Neuroscience Lab, Department of Physical Medicine & Rehabilitation, UC Davis Health, Sacramento, CA, USA. 2UC Davis Center for Neuroengineering & Medicine, Davis, CA, USA. 3UC Davis Biomedical Engineering Graduate Group, Davis, CA, USA. 4VA Northern California Health Care System, Martinez, CA, USA

P.77 The Anatomical Tracings of Lesions After Stroke (ATLAS) Dataset – Release 2.0

Sook-Lei Liew1, Bethany Lo1, Miranda Donnelly1, Artemis Zavaliangos-Petropulu1, Jessica Jeong1, Giuseppe Barisano1, Alexandre Hutton1, Julia Simon1, Julia Juliano1, Anisha Suri2, Tyler Ard1, Nerisa Banaj3, Michael Borich4, Lara Boyd5, Amy Brodtmann6, Cathrin Buetefisch7, Lei Cao8, Jessica Cassidy9, Valentina Ciullo3, Adriana Conforto10,11, Steven Cramer12, Rosalia Dacosta-Aguayo13, Ezequiel de la Rosa14,15, Martin Domin16, Adrienne Dula17, Wuwei Feng18, Alexandre Franco8,19,20, Fatemeh Geranmayeh21, Alexandre Gramfort22, Chris Gregory23, Colleen Hanlon24, Brenton Hordacre25, Steven Kautz23,26, Mohamed Salah Khlif27, Hosung Kim1, Jan Kirschke28, Jingchun Liu29, Martin Lotze16, Bradley MacIntosh30,31, Maria Mataró13,32, Feroze Mohamed33, Jan Nordvik34,35, Gilsoon Park1, Amy Pienta36, Fabrizio Piras37, Shane Redman36, Kate Revill7, Mauricio Reyes38, Andrew Robertson39,40, Na Jin Seo41, Surjo Soekadar42, Gianfranco Spalletta3, Alison Sweet36, Maria Telenczuk22, Gregory Thielman43, Lars Westlye44,45, Carolee Winstein1, George Wittenberg46,2, Kristin Wong47, Chunshui Yu29,29
1University of Southern California, Los Angeles, USA. 2University of Pittsburgh, Pittsburgh, USA. 3IRCCS Santa Lucia Foundation, Rome, Italy. 4Emory University School of Medicine, Atlanta, USA. 5University of British Columbia, Vancouver, Canada. 6University of Melbourne, Melbourne, Australia. 7Emory University, Atlanta, USA. 8Child Mind Institute, New York, USA. 9University of North Carolina at Chapel Hill, Chapel Hill, USA. 10São Paulo University, Sao Paulo, Brazil. 11Hospital Israelita Albert Einstein, Sao Paulo, Brazil. 12University of California Los Angeles, Los Angeles, USA. 13University of Barcelona, Barcelona, Spain. 14icometrix, Leuven, Belgium. 15Technical University of Munich, Munich, Germany. 16University of Greifswald, Greifswald, Germany. 17The University of Texas Austin, Austin, USA. 18Duke University School of Medicine, Durham, USA. 19Nathan Kline Institute for Psychiatric Research, Orangeburg, USA. 20NYU Grossman School of Medicine, New York, USA. 21Imperial College London, London, United Kingdom. 22Université Paris-Saclay, Palaiseau, France. 23The Medical University of South Carolina, Charleston, USA. 24Wake Forest School of Medicine, Winston Salem, USA. 25University of South Australia, Adelaide, Australia. 26Ralph H Johnson VA Medical Center, Charleston, USA. 27The Florey Institute of Neuroscience and Mental Health, Heidelberg, Australia. 28Technical University Munich, Munich, Germany. 29Tianjin Medical University General Hospital, Tianjin, China. 30University of Toronto, Toronto, Canada. 31Hurvitz Brain Sciences Program, Toronto, Canada. 32Institut de Recerca Sant Joan de Déu, 08950 Esplugues de Llobregat, Spain. 33Jefferson Magnetic Resonance Imaging Center, Philadelphia, USA. 34CatoSenteret Rehabilitation Center, SON, Norway. 35Oslo Metropolitan University, Oslo, Norway. 36University of Michigan, Ann Arbor, USA. 37IRCCS Santa Lucia Foundation, Rome, USA. 38University of Bern, Bern, Switzerland. 39University of Waterloo, Waterloo, Canada. 40Sunnybrook Research Institute, Toronto, Canada. 41Medical University of South Carolina, Charleston, USA. 42Charité -Universitätsmedizin Berlin, Berlin, Germany. 43University of the Sciences, Philadelphia, USA. 44University of Oslo, Oslo, Norway. 45Oslo University Hospital, Oslo, Norway. 46Department of Veterans Affairs, Pittsburgh, USA. 47University of Texas at Austin, Austin, USA

P.79 Feasibility and compliance of remote monitoring of physical, cognitive, and emotional function in individuals after stroke

Margaret French1, Junyao Li2, Ryan Roemmich1, Meghan Beier1, Peter Searson1, Stephen Wegener1, Pablo Celnik1, Preeti Raghavan1
1Johns Hopkins University, Baltimore USA. 2Johns Hopkins University, Baltimore, USA

POSTER SESSION II

Friday, April 1, 2022 • 1:00 pm – 2:00 pm • Salon II

P.80 Pre-training neural correlates for predicting gains from robot-assisted finger training after stroke
Sebastian Rueda Parra1, Joel C. Perry2, Eric T. Wolbrecht3, David Reinkensmeyer4,5, Disha Gupta6,7
1Electrical Engineering, University of Idaho, Moscow, ID, USA. 2Mechanical Engineering, University of Idaho, Moscow,ID, USA. 3Mechanical Engineering, University of Idaho, Moscow, ID, USA. 4Biomedical Engineering, University of California, Irvine, CA, USA. 5Anatomy and Neurobiology, University of California, Irvine, CA, USA. 6National Center for Adaptive Neurotechnology, Stratton Veterans Affairs Medical Center, Albany, NY, USA. 7Electrical and Computer Engineering, University of Albany, State University of NY, Albany, NY

P.81 Different cortical oscillatory signatures during reactive balance are associated with distinct aspects of balance control post-stroke
Jasmine Mirdamadi1, Jacqueline Palmer1, Aiden Payne1, Lena Ting1,2, Michael Borich1
1Emory University, Atlanta, USA. 2Georgia Tech, Atlanta, USA

P.82 Wearable Myoelectric Interface for Neurorehabilitation (MINT) of Arm Function in Chronic Stroke
Abed Khorasani, Vivek Paul, Nathan Hung, Prashanth Prakash, Torin Kovach, Joel Hulsizer, Marc Slutzky
Northwestern University, Chicago, USA

P.83 Towards individualized Transcranial Magnetic Stimulation for motor recovery from hemiparesis: study of Corticomuscular Network
Gansheng Tan1,2, Jixian Wang1, Jinbiao Liu1, Yixuan Sheng1, Qing Xie1, Peter Brunner2, Honghai Liu3
1Shanghai Jiao Tong University, Shanghai, China. 2Washington University in St. Louis, St. Louis, USA. 3Harbin Institute of Technology (Shenzhen), Shenzhen, China

P.84 Validating the measurement of upper extremity sensorimotor behavior utilizing a tablet device in neurologically intact and stroke populations
Devin S Austin, Makenna Dixon, Joshua GA Cashaback, Jennifer A Semrau
University of Delaware, Newark, DE, USA

P.85 Are there wrist-worn sensor metrics that are a better proxy for functional arm/hand behaviors than "activity counts" for chronic stroke survivors?
Marika Demers1, Lauri Bishop1, Justin Rowe2, Daniel Zondervan2, Carolee Winstein1
1University of Southern California, Los Angeles, USA. 2Flint Rehabilitation Devices, Irvine, USA

P.86 Voluntary Muscle Activation Increases the Threshold at which an Electrical Stimulus Is Detected Post-Hemiparetic Stroke: Preliminary Findings
Ninghe Cai, Alan Duong, Eileen Medina, Netta Gurari
Northwestern University, Chicago, USA

P.87 Characterizing upper extremity movement smoothness in patients with acute stroke
Sarah Cavanagh1,2, Taya Hamilton2, Nicole Dusang1,2, Perman Gochyyev2, Julie DiCarlo1,2, Sydney McKiernan2, Hannah Jacobs2, Rashida Nayeem3, Steven Kautz4,5, Dagmar Sternad3, Leigh Hochberg1,2, David Lin1,2
1VA Medical Center, Providence, USA. 2Massachusetts General Hospital, Boston, USA. 3Northeastern University, Boston, USA. 4Medical University of South Carolina, Charleston, USA. 5VA Medical Center, Charleston, USA

P.88 Understanding the effects of cross-priming using non-paretic leg movement in severe stroke
Hyosok Lim1,2, Sangeetha Madhavan1
1Brain Plasticity Laboratory, Department of Physical Therapy, University of Illinois at Chicago, Chicago, USA. 2Graduate program in Rehabilitation Sciences, College of Applied Health Sciences, University of Illinois at Chicago, Chicago, USA

P.89 Motor control and cognitive deficits impact gait coordination in individuals with stroke
Prakruti Patel, Neha Lodha
Colorado State University, Fort Collins, USA

POSTER SESSION II

Friday, April 1, 2022 • 1:00 pm – 2:00 pm • Salon II

P.90 A Case Study – The effect of the use of an EMG-driven FES device for Hand function recovery in an individual with moderate hemiparetic stroke

Jasmine Benitez1, Justin Drogos, PT, DPT1, Ray Arceo1, Carolina Carmona, PT, DPT, NCS1, Julius P.A. Dewald, PT, PhD1,2,3, Jun Yao, PhD1
1Department of Physical Therapy and Human Movement Sciences. 2Department of Biomedical Engineering. 3Department of Physical Med & Rehab., Northwestern University

P.91 A gamified electromyographic computer interface to measure specific motor control abnormalities in healthy controls and individuals with arm impairment due to stroke

Danielle Marouni1, Yiyun Wang1, David Cunningham2, Ania Busza3
1Univeristy of Rochester, Rochester, USA. 2Case Western, Cleveland, USA. 3University of Rochester, Rochester, USA

P.92 Bilateral upper extremity motor priming (BUMP) plus task specific training for severe, chronic upper limb hemiparesis: Study protocol for a randomized clinical trial.

Mary Ellen Stoykov, Olivia M. Biller, Alexandra Wax, Erin King, Jacob M. Schauer, Louis F. Fogg, Daniel M. Corcos
1Northwestern University, Chicago, USA. 2Northwestern University, Chicago. 3Shirley Ryan Ability Lab, Chicago, USA

P.93 Corticomuscular Coherence and Corticospinal Tract Injury Associations During Early Stroke Recovery

Rachana Gangwani, Jasper Mark, Rachel Vaughn, Jessica Cassidy
University of North Carolina at Chapel Hill, Chapel Hill, USA

P.94 Early diagnosis of spasticity in acute post-stroke patients.

Mindy F. Levin1,2, Alice Misana1,2, Marie-Hélène Boudrias1,2, Alexander Thiel3,4, Theodore Wein3,5,6
1School of Physical and Occupational Therapy, McGill University, Montreal, Canada. 2Centre for Interdisciplinary Research in Rehabilitation, Montreal, Canada. 3Department of Neurology and Neurosurgery, McGill University, Montreal, Canada. 4Jewish General Hospital, Montreal, Canada. 5Montreal Neurological Hospital, Montreal, Canada. 6McGill University Health Center, Montreal, Canada

FRIDAY PROGRAM DETAILS

Vagus Nerve Stimulation with Rehabilitation for Stroke and SCI
Friday, April 1, 2022 • 2:00 pm – 3:30 pm • Salon 1
Course Director: Seth Hays, PhD

SPEAKERS:

Seth Hays, PhD

Teresa Kimberley, PhD, PT, FAPTA

Michael Kilgard, PhD

DESCRIPTION:

This symposium will focus on the use of vagus nerve stimulation to improve hand function in chronic ischemic stroke patients. The first presenter will describe the preclinical studies that revealed the potential of vagus nerve stimulation to improve outcomes in animal models of brain and spinal cord injury. These studies also demonstrate how vagus nerve stimulation promotes the formation of new synaptic connections through the release of pro-plasticity neurotransmitters during therapeutic exercises. The second presenter will describe the randomized human trials that confirmed the clinical benefits of vagus nerve stimulation and led the U.S. Food and Drug Administration to approve vagus nerve stimulation during rehabilitation therapy to treat moderate to severe upper extremity motor deficits associated with chronic ischemic stroke. The third presenter will explain ongoing studies of vagus nerve stimulation in people with stroke and spinal cord injury. These studies are designed to optimize clinical benefits and to facilitate therapy delivery in patient homes using telerehabilitation.

SCHEDULE:

2:00 - 2:25pm: *Preclinical VNS studies* – Seth Hays, PhD

2:25 – 2:50pm: *Clinical VNS stroke studies* – Teresa Kimberly, PhD, PT, FAPTA

2:50 – 3:15pm: *Ongoing VNS clinical trials* – Michael Kilgard, PhD

3:15 – 3:30pm: *Discussion* - ALL

FRIDAY PROGRAM DETAILS

Diversity Session
Friday, April 1, 2022 • 4:00 pm – 5:00 pm • Salon 1

SPEAKERS:

Lewis Wheaton, PhD

Tom Carmichael, MD, PhD

Jason Carmel MD, PhD

DIVERSITY, EQUITY, INCLUSION & BLACK LIVES MATTER STATEMENT

ASNR outlines five values that we hold true to our society. One of which is Diversity, Equity, & Inclusivity. ASNR values our members and welcomes everyone who shares the same passion for neurorehabilitation. ASNR embraces people of all backgrounds and believes strongly in the variance and difference of ideas.

ASNR's mission as a society and organization is "to improve the lives of people with neurological disorders through advances in basic and clinical research"; In order to fulfill our mission as a society we must also value how to improve the lives of all. Therefore, ASNR believes black, and other underrepresented groups, lives need to be improved. Which is why ASNR believes it to be incredibly important and necessary to create a non-exhaustive list of concrete and specific action plans we will uphold as an organization to truly honor our Diversity & Inclusivity value, as well as our mission.

SCHEDULE:

4:00 - 4:20pm: Lewis Wheaton, present the Nature Neuroscience findings & any aspects of work that increases representation in science & academic societies.

4:20 – 4:40pm: Tom Carmichael, present the work that ASNR has done & plans to continue to do in DEI

4:40 - 4:55pm: Discussion from audience

4:55 – 5:00pm: Jason Carmel, recognizes 2021 & 2022 ASNR Diversity Fellows

DIVERSITY, EQUITY, & INCLUSIVITY (DEI) STRATEGY & IMPLEMENTATION PROCESS

ASNR
AMERICAN SOCIETY OF NEUROREHABILITATION

GOALS

To foster greater engagement & enhanced communication in issues of DEI within the ASNR

To enhance training & support for members & trainees to better develop diversity in the ASNR

STRATEGIES

(the overall goal & longer term approach)

Build networks of members & scientists with direct connection to DEI or disability issues

Leverage the connections & un-explored resources of current ASNR leaders who work at minority institutions (with focus on true partnership)

Consider diversity in terms of neuro-disabilities (the people we exist to serve) in addition to ethnic & racial diversity

Explore opportunities for outreach in conjunction with the Annual Meeting

Collaborate, present or exhibit in programs that are geared towards underrepresented individuals in STEM

TACTICS

(individual steps & actions that will get the strategy accomplished)

Invite scientists with personal experience in neurological disease for NNR or meeting

Identify these organizations & be present—submit proposal & attend meeting & be available for activities of that meeting

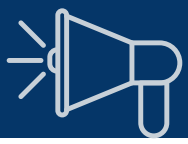
Develop social media to convey these efforts—such as orgs. that we have partnerships with, meeting features in the DEI space—appoint social media communicator that is dedicated to this

NNR questions of special issue or invited articles —for Health Serv Research in disparities, social determinants of health in neurorehab

NNR highlight of individual scientists

Engagement at the meeting, & also to see that the science addresses their needs, National MS Society, Park Dz, Alz Assoc (with advent of new drugs), TBI, ALS, Amputee assoc's, CP, SCI, State vocational rehab org's

Advocacy that is direct to patients & invite to meeting (support groups), national orgs & local chaps of national orgs, State Vocational Rehab Agency



Identify these institutions & its members in ASNR

Structure a registration deal for the meeting in which colleagues of ASNR members at these institutions can attend

Structure this as elements (sequential?) in engagement so that this collaborative/participatory (such as mentorship activities)—tactic is to start dialog with Chairs/Leaders of these institutions to identify common values/needs are

Explore partnerships with neurorehabilitation training & program grants (R25, P2Cs)

Incorporate specific needs of URM members, trainees & faculty in mentorship & membership

Program of review & interaction with specific scientists around career progression

Diversity fellowship as a program, with the progression from trainee to mentor over three years (see one, do one, teach one) could be on some of the ASNR committees

Develop mentorship programming specifically around DEI & the experience of this, instead of around the science; additional idea is to identify scientific topics that might align with some DEI areas of scientific focus (ex. imp of self-promotion)

FRIDAY FOUNDATION LECTURE

From Anxiety to Impact: Channeling Parental Energy into Advancing Research
Friday, April 1, 2022 • 5:30 pm – 6:00 pm • Salon 1

Paul Gross, BA
President & CEO
Cerebral Palsy Research Network

DESCRIPTION:

Paul Gross is a former Microsoft executive who had retired young (40) and had his first kid at age 42. When his son William was born at 30 weeks, he had a rough start in the NICU including a pulmonary hemorrhage, medical NEC and a bilateral grade III intraventricular hemorrhage. When his son began being treated for the resultant hydrocephalus, Mr. Gross and his wife, both highly analytical from their tech jobs, were mortified by the lack of scientific evidence behind the treatment decisions. Mr. Gross came out of retirement to alter the pace of discovery in neuroscience -- a field he knew nothing about. Now, 17 years later, he has a track record for innovating in the process of advancing clinical and translational research. He has founded three clinical research networks and one basic and translational network and continues to advise NIH after a four-year term on the advisory council to the National Institute of Neurological Disorders and Stroke. His presentation is about his family story and how the fear of the unknown drove him to innovate in neuroscience.

FRIDAY FOUNDATION RECEPTION

Friday, April 1, 2022 • 6:00 pm • Prefunction

JOIN US FOR AN EVENING OF NETWORKING AND SNACKS!
Ticketed Event

RECEPTION TICKETS:
$75 for Guests
$25 for Student, Postdoc, and Resident

(Tickets will be available to purchase at registration for the reception.)

MORNING PROFESSIONAL DEVELOPMENT SESSION

Designing Pre-Clinical Studies for Clinical Translation
Saturday, April 2, 2022 • 7:00 am – 8:00 am • Salon 1

MODERATORS:

Seth Hays, PhD

Ahlam Salameh, PhD, MSc

SPEAKERS:

Tom Carmichael, MD, PhD

Steve Zeiler, MD, PhD

DESCRIPTION:

A major concern in biomedical research is successful translational from pre-clinical animal research, to early phase studies, to large efficacy and effectiveness trials. Although we all agree this is a concern, there is less consensus about how to approach these problems and how to design pre-clinical research to facilitate translation and broader impact. Our expert panel will discuss some of the issues and implications of this problem and how they have successfully improved clinical translation in their own work.

ORAL ABSTRACT PRESENTATIONS

Saturday, April 2, 2022 • 8:00 am – 9:00 am • Salon 1

AUTHORS:

Daniel Rubin, MD, PhD

Andrew Monaghan, MS

Ahmet Asan, PhD

Andrew DeMarco, PhD, CCC-SLP

Amanda Herrmann, PhD

Tyler Hammond, MD, PhD Student

Davetrina Seles Gadson, PhD, CCC-SLP

TITLE OF ABSTRACTS:

P.1 Decoding speech from human motor cortex using an intracortical brain computer interface
- Daniel Rubin, MD, PhD

P.6 Identifying Cognitive Predictors to Reactive Step Training in People with Parkinson's Disease
- Andrew Monaghan

P.7 Paired stimulation targeting spinal cord is more effective than targeting sensorimotor cortex
- Ahmet Asan

P.34 Absence of perilesional neuroplastic recruitment in chronic post-stroke aphasia
- Andrew DeMarco, PhD

P.36 Identifying racial and ethnic outcome disparities after discharge from acute inpatient rehabilitation.
- Amanda Herrmann

P.53 Evaluating the Microbiome to Boost Recovery from Stroke: The EMBRS Study
-Tyler Hammond

P.54 Aphasia outcomes are modulated by lesion size and race in chronic stroke survivors
- Davetrina Seles Gadson, PhD

SATURDAY PROGRAM DETAILS

Targeted Neurorehabilitation Strategies in Post-Stroke Aphasia
Saturday, April 2, 2022 • 9:00 am – 10:30 am • Salon 1
Course Director: Priyanka Shah-Basak, PhD

SPEAKERS:

Olga Boukrina, PhD

Aneta Kielar, PhD

Priyanka Shah-Basak, PhD

DESCRIPTION:

This symposium will cover topics related to neural and physiological correlates of language deficits in stroke survivors with aphasia. The neural correlates are explored from the subacute into more chronic post-stroke period and using different spatiotemporally resolved neuroimaging and electrophysiological methods. Using data gathered across timepoints and methods, we will discuss how targeted and personalized neuromodulation strategies (e.g., real-time fMRI neurofeedback, transcranial electrical and magnetic stimulation) can be used to promote post-stroke language recovery. We will discuss the current evidence and evolving strategies for aphasia treatment approaches using transcranial direct current (tDCS) and transcranial magnetic stimulation (TMS). We will summarize the existing literature (including our own studies) using one-size-fits-all approach, and recent advancements (e.g., high-definition tDCS) to promote targeted and personalized treatments in individual survivors. Subtopics will include a detailed discussion on current theories of language recovery after stroke, empirical evidence from fMRI and electrophysiological studies of recovery, and pertinent tDCS/TMS study design characteristics. Finally, we will discuss a recently developed framework for personalized stimulation therapies that is guided by fMRI or EEG/MEG correlates of linguistic abilities, paired with targeted language therapies, for the most optimal results.

SCHEDULE:

9:00 - 9:20am: *Neural correlates of reading deficits in aphasia* – Olga Boukrina, PhD

9:20 – 9:40am: *Reorganization of language networks after stroke: Evidence from MEG* – Aneta Kielar, PhD

9:40 – 10:00am: *Individualized neurorehabilitation of post-stroke aphasia* – Priyanka Sha-Basak, PhD

10:00 – 10:30am: *Discussion* - ALL

SATURDAY PROGRAM DETAILS

Stroke recovery and rehabilitation over time and place: A memorial to Dr. Alexander Dromerick, Jr.
Saturday, April 2, 2022 • 11:00 am – 12:30 pm • Salon 1
Course Director: George Wittenberg, MD, PhD

SPEAKERS:

Steven Wolf, PT, PhD

George Wittenberg, MD, PhD

Lisa Tabor Connor, PhD, MSOT, OTR/L

Shashwati Geed, PT, PhD

Matthew Edwardson, MD

Alex Carter, MD, PhD

Tom Carmichael, MD, PhD

Catherine Lang, PT, PhD, FASNR, FAPTA

Jessica Barth, PhD Candidate

Dorothy Edwards, PhD

Laurie Dromerick

DESCRIPTION:

This is a symposium with the goal of memorializing Dr. Alex Dromerick's legacy in the areas of mentorship by featuring Dr. Dromerick's mentees from different times in his career. By doing so, we will present work that addresses timing and mechanisms of recovery after stroke, with an emphasis on optimizing practice and impact on patient lives. Themes will include: 1. Changes in brain activation after stroke over time and prediction of recovery, 2. The effect of rehabilitation interventions at different times after stroke onset, 3. Molecular markers of recovery, and 4. Cognitive and social factors influencing activity and participation. The core presentations will be approximately 20' by four investigators who worked with Dr Dromerick at different stages of his academic career. The symposium will conclude with a series of short presentations (1-2 slides) by some of Dr. Dromerick's mentees and collaborators that highlight his effect on their research and careers.

SCHEDULE:

11:00 - 11:05 am: *Introduction* – Steven Wolf, PhD, PT

11:05 – 11:25 am: *Remapping of motor function after stroke and rehabilitation* – George Wittenberg, MD, PhD, FASNR

11:25 – 11:45 am: *Advancing the science of daily living after stroke & community reintegration* – Lisa Connor, PhD, MSOT, OTR/L

11:45 – 12:05 pm: *Critical periods for interventions after stroke* – Shashwati, Geed, PT, PhD

12:05 – 12:25pm: *Molecular markers of stroke recovery and mentorship in rehab* – Matthew Edwardson, MD, **Former Mentees share a few words:** Alex Carter, MD, PhD, Tom Carmichael, MD, PhD, Catherine Lang, PT, PhD, FASNR, Jessica Barth, & Peter Turkleltaub, MD, PhD

12:25 - 12:30pm: *Closing Remarks & Video* - Dorothy Edwards, PhD & Laurie Dromerick

MEET THE EXPERTS

Speakers, Panelists, Moderators, & Program Committee

Ahmet Arac, MD
Assistant Professor of Neurorehabilitation
University of California Los Angeles

Laurel Buxbaum, PsyD
Associate Director of
Moss Rehabilitation Research Institute

Oluwole O. Awosika, MD, MSCR, FAAN
Assistant Professor of Neurology &
Rehabilitation Medicine
University of Cincinnati Health

Jason Carmel, MD, PhD
Associate Professor of Neurology
Columbia University

Kelsey Baker, PhD
Assistant Professor of Molecular Science
University of Texas Rio Grande Valley

Tom Carmichael, MD, PhD
Department Chair of Neurology
University of California Los Angeles

Kenneth Baker, PT, PhD
Associate Professor of Neurology
Columbia University

Alex Carter, MD, PhD
Associate Professor of Neurology
Washington University School
of Medicine in St. Louis

Jessica Barth
Occupational Therapist & PhD Candidate
in Movement Science
Washington University in St. Louis

Jessica Cassidy, PT, DPT, PhD
Assistant Professor of Physical Therapy
University of North Carolina at Chapel Hill

Michael Borich, PT, DPT, PhD
Associate Professor of Rehabilitation
Medicine, Division of Physical Therapy
Emory University

Lisa Tabor Connor, PhD, MSOT, OTR/L
Professor of Occupational Therapy
Washington University School
of Medicine in St. Louis

Olga Boukrina, PhD
Senior Research Scientist for Stroke
Rehabilitation Research
Kessler Foundation

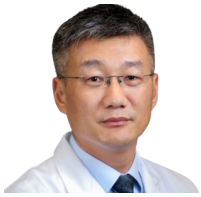
Maria del Mar Cortes, MD
Assistant Professor of
Rehabilitation & Human Performances
Mount Sinai

Cathrin Buetefisch, MD, PhD, FASNR
Professor of Neurology &
Rehabilitation Medicine
Emory Univ. School of Medicine

Matthew Edwardson, MD
Assistant Professor of Neurology
Georgetown University Medical Center

MEET THE EXPERTS

Speakers, Panelists, Moderators, & Program Committee



Wayne Feng, MD
Professor of Neurology
Duke University School of Medicine

Kathleen Friel, PhD
Associate Professor of Neuroscience
Burke Neurological Institute

Karunesh Ganguly, MD, PhD
Associate Professor of Neurology
University of California San Francisco

Shashwati Geed, PT, PhD
Assistant Professor of
Rehabilitation Medicine
Georgetown University

Bernadette Gillick, PT, PhD, MSPT
Associate Professor of Developmental
Pediatrics & Rehabilitation Medicine
Waisman Center

Noam Harel, MD, PhD
Associate Professor of Neurology,
Rehabilitation & Human Performance
Mount Sinai

Dorothy Edwards, PhD
Professor of Occupational Therapy
University of Wisconsin - Madison

Seth Hays, PhD
Associate Professor of
Bioengineering
Univ. of Texas at Dallas

Kate Hayward, PT, PhD
Senior Research Fellow
in Stroke Recovery
University of Melbourne

Rich Ivry, PhD
Professor of Psychology & Neuroscience
University of California Berkeley

Theresa Jones, PhD
Professor of Behavioral Neuroscience
University of Texas at Austin

Aneta Kielar, PhD
Assistant Professor of Speech,
Language & Hearing Sciences
University of Arizona

Michael Kilgard, PhD
Professor of Neuroscience
School of Behavioral & Brain Sciences,
University of Texas at Dallas

Teresa Kimberley, PT, PhD
Professor & Director of the Brain Recovery
Lab of Physical Therapy School of Health &
Rehabilitation Sciences at the MGH Institute

Catherine Lang, PT, PhD, FASNR, FAPTA
Professor of Physical Therapy
Washington University School
of Medicine in St. Louis

Eric C. Leuthardt, MD
Professor of Neurosurgery, Neuroscience,
Biomedical Engineering & Mechanical
Engineering
Washington University School
of Medicine in St. Louis

MEET THE EXPERTS

Speakers, Panelists, Moderators, & Program Committee

Rebecca Lewthwaite, PhD
Professor of Clinical Physical Therapy
University of Southern California

Keith Lohse, PhD, PStat
Associate Professor of Physical Therapy
Washington University
School of Medicine in St. Louis

Sangeetha Madhavan, PT, PhD
Professor of Physical Therapy
University of Illinois at Chicago

Jyutika Mehta, PhD
Professor of Communication
Sciences and Disorders
Texas Woman's Universit

Richard Nichols, PhD
Professor of Rehabilitation
Medicine & Applied Physiology
Georgia Tech

Randolph J. Nudo, PhD, FAHA, FASNR
Professor & Vice Chair
of Rehabilitation Medicine
University of Kansas Medical Center

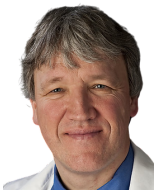
Benjamin Philip, PhD
Assistant Professor of Occupational Therapy
Washington University School
of Medicine in St. Louis

Ela Plow, PT, PhD
Associate Staff of Biomedical Engineering
Lerner Research Institute

Robert Sainburg, PhD, OTR
Professor of Kinesiology and Neurology,
Pennsylvania State University

Ahlam Salameh, PhD, MSc
Assistant Professor of Neurology
Case Western Reserve University

Heidi Schambra, MD
Associate Professor of Neurology &
Rehabilitation Medicine
NYU Langone



Gottfried Schlaug, MD, PhD
Professor of Neurology
& Biomedical Engineering
Baystate - UMMS

Nicolas Schweighofer, PhD
Associate Professor of
Biokinesiology & Physical Therapy
University of Southern California

Rachael Seidler, PhD
Professor of Applied Physiology & Kinesiology
University of Florida

Priyanka Shah-Basak, PhD
Assistant Professor of Neurology & Biomedical
Engineering
Medical College of Wisconsin (MCW)

Charlotte Stagg, MRCP, DPhil
Professor of Human Neurophysiology
University of Oxford

MEET THE EXPERTS

Speakers, Panelists, Moderators, & Program Committee

Priyanka Shah-Basak, PhD
Assistant Professor of Neurology &
Biomedical Engineering
Medical College of Wisconsin (MCW)

Jill Stewart, PT, PhD
Associate Professor of Exercise Science
University of South Carolina

Peter Turkeltaub, MD, PhD
Associate Professor of Neurology
& Rehabilitation Medicine
Georgetown University

Lewis Wheaton, PhD
Associate Professor
Biological Sciences at Georgia Tech

George Wittenberg, MD, PhD
Professor of Neurology
University of Pittsburg School of Medicine

Steven Wolf, PT, PhD
Professor of Rehabilitation Medicine
Emory University School of Medicine

Steve Zeiler, MD, PhD
Associate Professor of Neurology
Johns Hopkins School of Medicine

THANK YOU

TO OUR

SPEAKERS, PANELISTS, MODERATORS & PROGRAM COMMITTEE

THAT MADE THIS MEETING HAPPEN!

EXHIBITORS

Dessintey

Created within a public-private cooperation ecosystem, Dessintey develops intensive rehabilitation technologies to help patients recover and regain improved levels of autonomy. Our solutions aim at increasing, diversifying & personalizing their daily practice program from the moment they join the rehabilitation center until they return home. The system IVS3 is based on the fundamental principles of visuomotor simulation training. It replaces the image of the paralyzed arm with a positive image of movement performed by the healthy arm. Reinstating coherence between what the patient intends to do & what sensations they perceive, improves motor command & prompts relearning.

The Motion Monitor

...The Total Solution in Motion Capture®

The MotionMonitor integrated system provide real-time visualization, synchronous data collection & analysis with support for motion capture, EMG, force, eye-tracking, EEG, virtual reality & more. The MotionMonitor provides the ability to present user-defined visual & auditory biofeedback, without programming efforts, in a flexible, student-friendly interface. A wide variety of technologies are integrated, including markerless motion capture, cameras, IMUs & electromagnetics. Any technology can be used standalone or in combination, providing unique hybrid motion capture solutions. The MotionMonitor team provides full systems complete with hardware, software & training, or can work you to integrate existing technologies into a software-only package

ARETECH

Aretech is an advanced rehabilitation technologies leader with a strong commitment to quality, innovation, & developing technology based on evidence-based research. Aretech's ZeroG Gait & Balance System is a robotic body-weight support system that offers safety to patients as they practice balance & functional activities with dynamic body-weight support & fall protection. Aretech also offers Ovation, an interactive treadmill system designed for patients up to 700 lbs.

WWi®

Baseline rapid 15-minute EEG and P300 plus standard testing for NeuroRehab
Acquired Brain Injury Tracking: Pre and Post Intervention
• Cortical auditory P300 voltage amplitude plus brainstem N100
• P300 cortical processing delay time
• Physical reaction time
• Left – right frontal processing ratios
• Coherence – cortical region comparison
• PLUS: Standardized tests incl. Trails A&B, MoCA, SCAT, Depression/Anxiety
Objective testing for CVA, TBI, MS, Parkingson's, Concussion, Cognitive Decline, Depression, Chronic Pain, PTSD as well as Wellness, Behavioral and Aging.

NATIONAL CENTER OF NMAR Neuromodulation for Rehabilitation

An NIH Medical Rehabilitation Research Resource
Network Center at Medical University of South Carolina

The National Center of Neuromodulation for Rehabilitation works to develop the emerging science of neuromodulation, focusing this knowledge on enhancing rehabilitation. To that end, the Center offers a range of learning opportunities, such as workshops, conferences, and webinars. We invite researchers to visit the Center and make use of our extensive facilities to conduct research or to consult or collaborate with our faculty. We also provide several funding opportunities to support work in neuromodulation for rehabilitation.

MR3 Medical Rehabilitation Research Resource
NETWORK

The Medical Rehabilitation Research Resource (MR3) Network comprises six Rehabilitation Research Resource Centers that provide infrastructure and access to expertise, technologies, and resources to foster clinical and translational research in medical rehabilitation. MR3 Network centers offer expertise from the cell to whole body across the lifespan to implementation into practice with expertise in regenerative rehabilitation, neuromodulation, pediatric rehabilitation, technology for real-world assessment, and translation/ dissemination research.

ASNR FINANCIAL DISCLOSURES

Ahmet Arac, MD
None

Kelsey Baker, PhD
None

Kenneth Baker, PT, PhD
Stock - Enspire, DBS

Jessica Barth
None

Olga Boukrina, PhD
None

Cathrin Buetefisch, MD, PhD, FASNR
None

Laurel Buxbaum, PsyD
None

Jason Carmel, MD, PhD
None

Tom Carmichael, MD, PhD
None

Alex Carter, MD, PhD
None

Lisa Tabor Connor, PhD, MSOT, OTR/L
None

Matthew Edwardson, MD
None

Wayne Feng, MD
None

Kathleen Friel, PhD
None

Karunesh Ganguly, MD, PhD
None

Shashwati Geed, PT, PhD
None

Bernadette Gillick, PT, PhD, MSPT
None

Seth Hays, PhD
None

Kate Hayward, PhD
None

Rich Ivry, PhD
None

Aneta Kielar, PhD
None

Michael Kilgard, PhD
Consultant - MicroTransponder, Inc
Stock - MicroTransponder, Inc

Teresa Kimberley, PT, PhD
Contracted Research - Microtransponder, Inc

Catherine Lang, PT, PhD, FASNR
None

Rebecca Lewthwaite, PhD
None

Keith Lohse, PhD, PStat
None

Sangeetha Madhavan, PT, PhD
None

Benjamin Philip, PhD
Licensing Agreement - Platforms STL

Ela Plow, PT, PhD
None

Robert Sainburg, PhD
None

Heidi Schambra, MD
None

Rachael Seidler, PhD
None

Priyanka Shah-Basak, PhD
None

Charlotte Stagg, MRCP, DPhil
None

Peter Turkeltaub, MD, PhD
None

Lewis Wheaton, PhD
None

George Wittenberg, MD, PhD
Consultant - Myomo, Inc

Steven Wolf, PT, PhD
None

Steve Zeiler, MD, PhD
None

Coming Spring 2023 | Dates are TBD