

POSTERS LISTING

All posters will remain up in the Poster Hall for the duration of the conference. However, in order to avoid overcrowding of the Poster Hall during the two receptions, presenters will accompany their posters according to the following schedule:

Poster Reception I - Thursday, April 11, 6:00-8:00pm - Odd-numbered posters

Poster Reception II - Friday, April 12, 6:00-8:00pm - Even-numbered posters

P. 1 Referent data for investigations of upper limb motor behavior: harmonized accelerometry data from three cohorts of typically-developing children

Catherine Lang, Catherine Hoyt, Jeffrey Konrad, Kayla Bell, Natasha Marrus, Marghuretta Bland, Keith Lohse, Allison Miller

Washington University School of Medicine, Saint Louis, USA.

P. 2 The Neural Underpinnings and Sensory Feedback Augmentation During Split-belt Treadmill Adaptation in People with Multiple Sclerosis

Andrew Hagen, Jaclyn Stephens, Brett Fling

Colorado State University, Fort Collins, USA.

P. 3 Correlation between walking function and transcranial magnetic stimulation derived measures in spinal cord injury

Avery Foreman¹, Elliot Frost², Faith Meza², Chad Swank², Hui-Ting Goh¹

¹Texas Woman's University, Dallas, USA. ²Baylor Scott & White Institute for Rehabilitation, Dallas, USA.

P. 4 Behavioral and Neural Correlates of Post-Stroke Fatigue: a randomized controlled trial protocol

Kuan-Chun Liao¹, Isabelle Christian¹, Jill Stewart², Elaine Trudelle-Jackson¹, Wanyi Wang³, Ty Shang⁴, Hui-Ting Goh¹

¹Texas Woman's University, Dallas, USA. ²University of South Carolina, Columbus, USA. ³Texas Woman's University, Houston, USA. ⁴University of Texas Southwestern Medical Center, Dallas, USA

P. 6 Advancing the Field of Neurorehabilitation through Data Harmonization: Harmonizing 10+ Years of Upper Limb Accelerometry Data

Allison Miller, Keith Lohse, Marghuretta Bland, Jeffrey Konrad, Catherine Hoyt, Catherine Lang

Washington University in St. Louis, St. Louis, USA.

P. 8 Magnetic Resonance Imaging Indicators of Post-Stroke Spasticity

Katharine A. Scarlat^{1,2}, Theodore Wein^{3,4,5}, Marie-Hélène Boudrias^{2,6}, Alexander Thiel^{3,7}, Anatol G. Feldman^{2,8}, Mindy F. Levin^{2,9}

¹Integrated Program in Neuroscience, McGill University, Montreal, Canada. ²Jewish Rehabilitation Hospital, Centre for Interdisciplinary Research in Rehabilitation, Montreal, Canada. ³Department of Neurology and Neurosurgery, McGill University, Montreal, Canada. ⁴McGill University Health Center, Montreal, Canada. ⁵St Mary's Hospital, Montreal, Canada. ⁶School of Physical and Occupational Therapy, Montreal, Canada. ⁷Jewish General Hospital, Montreal, Canada. ⁸Department of Neuroscience, University of Montreal, Montreal, Canada. ⁹School of Physical and Occupational Therapy, Montreal, Canada.

P. 9 Botulinum Toxin Type A vs Dry Needling in the management of lower limb spasticity in patients post-stroke: A controlled proof-of-concept trial

Joy Khayat^{1,2}, Clara Pujol-Fuentes³, Pablo Herrero⁴, Wim Saeys⁵, Barte Eeckhout⁶, Theodore Wein¹, Mindy Levin^{1,7}

¹McGill University, Montreal, Canada. ²Jewish Rehabilitation Hospital, Montreal, Canada. ³Universidad Europea de Valencia, Valencia, Spain. ⁴IIS ARAGON, University of Zaragoza, Zaragoza, Spain. ⁵University of Antwerp (ANT), Wilrijk, Belgium. ⁶University of Antwerp, Turnhout, Belgium. ⁷Jewish Rehabilitation Hospital, Montreal, Canada.

P. 11 Combining cerebellar transcranial direct current stimulation (tDCS) with constraint-induced language therapy (CILT) in individuals with non-fluent aphasia: a novel approach for targeting discourse

Madelyn Graham, Marie Meysembourg, Sharyl Samargia-Grivette, Lynette Carlson, Rebecca Gilbertson

University of Minnesota Duluth, Duluth, USA.

P. 12 Can working memory be impacted by combining cerebellar tDCS and Constraint-Induced Language Therapy in non-fluent aphasia?

Haley Evans, Sharyl Samargia-Grivette, Lynette Carlson, June Lee

University of Minnesota Duluth, Duluth, USA.

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P. 13 Within-session changes in propulsion asymmetry have minimal effect on overall gait asymmetry in individuals post-stroke

Sarah Kettlety, James Finley, Kristan Leech
University of Southern California, Los Angeles, USA.

P. 14 A Novel Approach to Patients with Maladaptive Behavior on an Acute Inpatient Rehabilitation Unit Following Acquired Brain Injury (ABI) : The Utility of Applied Behavior Analysis (ABA) in the Rehabilitation Setting.

Arielle Reindeau¹, Michael Makley^{1,2}, Benjamin Ingraham¹, Eric Spier^{1,2}
¹Craig Rehabilitation and Research Hospital, Englewood, USA. ²University of Colorado Department of Physical Medicine and Rehabilitation, Aurora, USA.

P. 15 Transition State Disorders following Moderate to Severe Brain Injury: A Novel Framework for Understanding Agitation, Confabulation, and Maladaptive Behavior after Acquired Brain Injury (ABI). A Series of 3 Case Studies

Michael Makley^{1,2}, Eric Spier¹, Matthew Loftspring¹, Benjamin Ingraham¹
¹Craig Rehabilitation and Research Hospital, Englewood, USA. ²University of Colorado Department of Physical Medicine and Rehabilitation, Aurora, USA.

P. 16 Bimanual and Unimanual Rehabilitative Training After Stroke: Patterns of Activity-Dependent Structural Plasticity in Peri-lesion and Contra-lesion Cortices

Victoria Nemchek, Celeste J. Hoang, Vinuthna Mallampaty, Morgan McCrea, Nikita Potdar, Vennila Satheesh, Deekshita Sundararaman, Theresa A. Jones
The University of Texas at Austin, Austin, USA.

P. 18 Assessing the Feasibility of Collecting Reliable Center-out Reaching Measures at the Bedside and Clinic Using Accessible Single Camera Motion Capture Systems in the First Three Months Following Stroke

Megan McCune¹, Julia Moon¹, Tullia Lieb², Dominica Randazzo¹, Robert Matthew¹
¹University of California at San Francisco, San Francisco, USA. ²University of Southern California, Los Angeles, USA.

P. 19 Lower limb resistance exercise and treadmill training best improve walking in multiple sclerosis: Results of a systematic review and meta-analysis

Syamala Buragadda¹, Syed Raza¹, Abby Blaney¹, Amber Critch¹, Evan MacKenzie¹, Sydney Hiller¹, Leah Peckham¹, Hannah Murphy¹, Jaideep Melam^{1,2}, Kristen Romme³, Michelle Ploughman¹
¹Recovery and Performance Laboratory, Faculty of Medicine, Memorial University of Newfoundland, St. John's, Canada. ²Prince of Wales Collegiate, St. John's, Canada. ³Health Sciences Library, Faculty of Medicine, Memorial University of Newfoundland, St. John's, Canada.

P. 20 A Sensor-Derived Metric to Differentiate Between Upper Extremity Impairment Levels Following Stroke

Megan McCune, Robert Matthew
University of California at San Francisco, San Francisco, USA.

P. 21 Perception of transcranial electrical stimulation (TES) affects blinding efficacy in young children differently than young adults

Sophia Bertrand¹, Tonya Rich², Samuel Nemanich¹
¹Marquette, Milwaukee, USA. ²Minneapolis VA Healthcare, Minneapolis, USA.

P. 22 Assessment and treatment of bimanual function in children with cerebral palsy: a scoping review

Anne Claire David¹, Laura Fournier-Poisson¹, Maxime Robert², Marika Demers³
¹Université de Montréal Montreal, Montreal, Canada. ²Université Laval, Quebec, Canada. ³Université de Montréal Montreal, Montreal, Canada. Centre de recherche interdisciplinaire en réadaptation du Montréal métropolitain - IURDPM, Montreal, Canada.

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P. 23 Home-based Self-Delivered Prehabilitation Intervention to Proactively Reduce Fall Risk in Older Adults: A Pilot Randomized Controlled Trial of Transcranial Direct Current Stimulation and Motor Imagery

Clayton Swanson¹, Sarah Vial², Audrey Whiteman², Todd Manini², Kimberly Sibille², David Clark¹
1University of Florida, Gainesville, USA. Malcom Randall VA Medical Center, Gainesville, USA. 2University of Florida, Gainesville, USA.

P. 24 Applying Elastic Resistance Bands for Gait Training: A Simulation-Based Study to Determine How Band Configuration Affects Gait Biomechanics and Muscle Activation

Sierra Foley, Edward Washabaugh
Wayne State University, Detroit, USA.

P. 25 Perception of task duration impacts locomotor patterns and energy expenditure during split belt adaptation and de-adaptation

Samantha Jeffcoat¹, Adrian Aragon², Andrian Kuch¹, Shawn Farrokhi¹, Natalia Sanchez¹
1Chapman University, Irvine, USA. 2Chapman University, Orange, USA.

P. 26 VNS-Enhanced Tactile Rehabilitation: A Pathway to Improved Somatosensation Post-Neurological Injury

Saeid Kian¹, Michael Kilgard¹, Seth Hays², Robert Rennaker^{1,2}, Joseph Epperson², Kaitlyn Malley¹, Zachary Bynum¹, Spencer Stinson², Emmanuel Adehunuoluwa¹, Rachael Hudson¹
1Texas Biomedical Device Center, Richardson, USA. School of Behavioral and Brain Science, University of Texas at Dallas, Richardson, USA. 2Texas Biomedical Device Center, Richardson, USA. Erik Jonsson School of Engineering and Computer Science, Richardson, USA.

P. 27 Are there Differences in Walking Exercise Dose between Subgroups of People with Chronic Stroke?

Kiersten McCartney, Duncan Thibodeau Tulimieri, Ryan Pohlig, Darcy Reisman
University of Delaware, Newark, USA.

P. 28 Exploring Neuroplasticity Changes in Neurotoxin-induced Parkinson's Disease: A Preliminary Analysis using Transcranial Magnetic Stimulation

Tomas Gomez¹, Kelsey Baker², Nawaz Hack², Daniel Salinas², Ramu Vadakupuram²
1University of Texas Rio Grande Valley, Brownsville, USA. 2University of Texas Rio Grande Valley - Institute of Neuroscience, Harlingen, USA.

P. 29 Vagus nerve stimulation delivered during at-home, task-specific training improves function after spinal cord injury or stroke

Kaitlyn Malley¹, Joseph Epperson², Zachary Bynum¹, Saeid Kian¹, Benjamin Stanislav¹, Joel Wright³, Emmanuel Adehunuoluwa^{1,3}, David Pruitt³, Chad Swank⁴, Christi Stevens⁴, Jaime Gillespie⁴, Danae Arnold⁴, Jane Wigginton³, Robert Rennaker³, Seth Hays^{2,3}, Michael Kilgard^{1,3}
1School of Behavioral and Brain Sciences, The University of Texas at Dallas, Richardson, USA. Texas Biomedical Device Center, Richardson, USA. 2Erik Jonsson School of Engineering and Computer Science, The University of Texas at Dallas, Richardson, USA. 3Texas Biomedical Device Center, Richardson, USA. 4Baylor Scott & White Research Institute, Dallas, USA.

P. 30 Quantifying the Effect of Trunk Postural Control on Reaching Deficits post Hemiparetic Stroke

Kathleen Suvada¹, Jasjit Deol², Julius Dewald¹, Ana Maria Acosta¹
1Northwestern University, Evanston, USA. 2University of Alberta, Edmonton, Canada.

P. 31 Repetitive transcranial magnetic stimulation combined with multi-modality aphasia therapy for chronic post-stroke aphasia: A randomized clinical trial

Trevor Low¹, Kevin Lindland², Adam Kirton^{1,3,4,5}, Helen Carlson^{1,3,4,5}, Ashley Harris^{4,5,6}, Bradley Goodyear^{1,4,6}, Oury Monchi^{1,4,6,7,8}, Michael Hill^{1,4,6}, Miranda Rose⁹, Sean Dukelow^{1,4,10}
1Department of Clinical Neurosciences, Cumming School of Medicine, University of Calgary, Calgary, Canada. 2Department of Allied Health, Alberta Health Services, Calgary, Canada. 3Department of Pediatrics, Cumming School of Medicine, University of Calgary, Calgary, Canada. 4Hotchkiss Brain Institute, University of Calgary, Calgary, Canada. 5Alberta Children's Hospital Research Institute, University of Calgary, Calgary, Canada. 6Department of Radiology, Cumming School of Medicine, University of Calgary, Calgary, Canada. 7Centre de recherche de l'institut universitaire de gériatrie de Montréal, Montreal, Canada. 8Département de radiologie, radio-oncologie et médecine nucléaire, Faculté de médecine, Université de Montréal, Montreal, Canada. 9School of Allied Health, Human Services and Sport, La Trobe University, Melbourne, Australia. 10Division of Physical Medicine and Rehabilitation, University of Calgary, Calgary, Canada.

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P. 32 Transcallosal inhibition in recovering stroke subjects

Emily Fokas1, Myriam Taga1, Leticia Hayes1, Charalambos Charalambous1,2, Sharmila Raju1, Heidi Schambra1
1NYU Grossman School of Medicine, New York, USA. 2University of Nicosia Medical School, Nicosia, Cyprus

P. 33 Deficits in cognitive aspects of movement control differ based on the side of brain damage in chronic stroke survivors

Pramisha Thapa1, Lelti Asgedom1, Mark Folkertsma1, Scott Lunos1, Diane Chappuis2, Shanie Jayasinghe1
1University of Minnesota, Minneapolis, USA. 2Courage Kenny Rehabilitation Institute, Minneapolis, USA.

P. 34 Electrical stimulation-based treadmill training modulates spinal reflex excitability in people with stroke.

Jasmine Hope1, Fisayo Aloba1, Jacob Spencer2, Catherine Mason1, Alejandro Lopez1, Trisha Kesar1
1Emory University, Atlanta, USA. 2Georgia Tech, Atlanta, USA.

P. 35 Descending ipsi- and contralateral projections benefit motor behavior in chronic stroke

Myriam Taga1, Yoon N. G. Hong2, Charalambos C. Charalambous3, Sharmila Raju1, Leticia Hayes1, Jing Lin1, Yian Zhang4, Michael Houston2, Yingchun Zhang2, Pietro Mazzone5, Jinsook Roh2, Heidi M. Schambra1
1Department of Neurology, New York University Grossman School of Medicine, New York, USA. 2Department of Biomedical Engineering, University of Houston, Houston, USA. 3Department of Neurology, Duke University School of Medicine, Durham, USA. 4Department of Population Health, New York University Grossman School of Medicine, New York, USA. 5Department of Movement Disorders, Ohio State University, Ohio, USA.

P. 36 The effect of post-acute rehabilitation setting on 90-day mobility function after stroke

Margaret French1, Heather Hayes1, Joshua Johnson2, Daniel Young3, Ryan Roemmich4, Preeti Raghavan5
1University of Utah, Salt Lake City, USA. 2Cleveland Clinic, Cleveland, USA. 3University of Nevada Las Vegas, Las Vegas, USA. 4Kennedy Krieger Institute, Baltimore, USA. 5Johns Hopkins Hospital, Baltimore, USA.

P. 37 Machine learning reveals ipsilateral brain activation during a manual dexterity task in people with multiple sclerosis without disability

Sadman Saumik Islam, Bruna D Baldasso, Michelle Ploughman, Xianta Jiang
Memorial University of Newfoundland, St. John's, Canada.

P. 38 Intraoperative Testing of High Frequency Electrical Motor Nerve Block in Humans: Case Report

Jayne Knutson1,2,3, Kyle Chepla1,2,3, Richard Wilson1,2,3, Michael Fu1,2,3, Emily Imka3, Shane Bender2, John Chae1,2,3, Kevin Kilgore1,2,3, Niloy Bhadra1,2,3
1The MetroHealth System, Cleveland, USA. 2Case Western Reserve University, Cleveland, USA. 3Cleveland FES Center, Cleveland, USA.

P. 39 Operant conditioning of stimulus-triggered EMG evoked potentials to improve sensorimotor functions in chronic incomplete spinal cord injury.

Krista Fjeld, Blair Dellenbach, Alan Phipps, Allison Lewis, Roland Cote, AikoThompson
Medical University of South Carolina, Charleston, USA.

P. 40 Relationship between resting state sensorimotor network connectivity and lower limb performance after stroke; analysis using graph theory approach

Margaret Skelly1, Sarah Carr2, Jessica McCabe1, Ahlam Salameh1, Lisa Leonhart1, Kelsey Rose Duncan1,3, Svetlana Pundik1,4
1Cleveland VA Medical Center, Cleveland, USA. 2Kings College London, London, United Kingdom. 3University Hospitals of Cleveland, Cleveland, USA. 4Case Western Reserve University school of Medicine, Cleveland, USA.

P. 41 Fast training improves short-term motor performance of the paretic arm in chronic stroke survivors: The FAST Randomized Clinical Trial

Yannick Darmon1, Shailesh Kantak2, Hannah Cone3, Carolee Winstein1, Emily Rosario3, Nicolas Schweighofer1
1University of Southern California, Los Angeles, USA. 2Moss Rehabilitation Research Institute, Elkins Park, USA. 3Casa Colina Research Institute, Pomona, USA.

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P. 42 Larger infarct volume and greater lesion load of the corticospinal tracts correlate with higher fractional anisotropy of the contralesional frontal and parietal white matter

Svetlana Pundik^{1,2}, Kelsey Rose Duncan^{1,3}, Jessica McCabe¹, Ahlam Saleme¹, Margaret Skelly¹, Trenley Anderson², Pragnya Iyengar², Lisa Leonhardt¹, Terri Hise¹, Sarah Carr⁴
¹Cleveland VA Medical Center, Cleveland, USA. ²Case Western Reserve University School of Medicine, Cleveland, USA. ³University Hospitals of Cleveland, Cleveland, USA. ⁴King's College London, London, United Kingdom.

P. 43 APOE genotype alters cerebrovascular response to orthostasis over the course of Alzheimer's disease progression

Jacqueline Palmer¹, Carolyn Kaufman², Alicen Whitaker-Hilbig³, Sandra Billinger²
¹University of Minnesota, Minneapolis, USA. ²University of Kansas Medical Center, Kansas City, USA. ³Medical College of Wisconsin, Madison, USA.

P. 44 Determining the Impact of Cognitive Load on Brain-Muscle Functional Connectivity in Individuals with Chronic Stroke

Rachana Gangwani, Elizabeth Loftus, Umesh Radhakrishnan, Harshita Gudipudi, Jessica Cassidy
University of North Carolina, Chapel Hill, USA.

P. 45 Real-time feedback improves performance of vestibular rehabilitation exercises

Riley Sheehan¹, Timothy Zehnbauer¹, Alan Register¹, Jackson Cornelius¹, Nathan Pickle¹, Linda D'Silva², Karen Skop³, Paulien Roos¹
¹ICFD Research Corporation, Huntsville, USA. ²University of Kansas Medical Center, Kansas City, USA. ³James A. Haley Veterans' Hospital, Tampa, USA.

P. 46 Diagnostic accuracy of a novel motor learning test for Alzheimer's disease screening

Alexandra Reed¹, Kevin Duff², Lee Dibble³, Sydney Schaefer¹
¹Arizona State University, Tempe, USA. ²Oregon Health and Science University, Portland, USA. ³University of Utah, Salt Lake City, USA.

P. 47 Metabolics of a Novel Asymmetric Walking Paradigm Using a Single Belt Treadmill

Caitlin Banks^{1,2}, Brooke Hall¹, Junyao Li^{2,3}, Jan Stenum², Ryan Roemmich^{1,2}
¹Kennedy Krieger Institute, Baltimore, USA. ²Johns Hopkins University School of Medicine, Baltimore, MD, USA. ³Northwestern University Feinberg School of Medicine, Chicago, IL, USA.

P. 48 Developing Personalized Medicine Strategies to Increase Daily Steps for Veterans with Parkinson's Disease: A remote gamification intervention

Kimberly Waddell^{1,2}, S. Ryan Greysen^{1,2}, Madison Smith², Stephanie Wood², James Morley^{1,2}
¹University of Pennsylvania, Philadelphia, USA. ²Crescenz VA Medical Center, Philadelphia, USA.

P. 49 When complexity doesn't equal specificity: The utility of the Boston Qualitative Scoring System for the Rey-Osterrieth Complex Figure in detecting right hemisphere stroke

Kasey Stack, Sarah Haile, Anna Seydell-Greenwald
Georgetown University Medical Center, Washington, DC, USA.

P. 50 Scalability of Asymmetric Gait Changes Induced by a Dynamic Treadmill Controller

Brooke Hall¹, Caitlin Banks^{1,2}, Ryan Roemmich^{1,2}
¹Kennedy Krieger Institute, Baltimore, USA. ²Johns Hopkins University School of Medicine, Baltimore, USA.

P. 51 Cardiorespiratory fitness does not protect against changes in manual dexterity over two years in persons with multiple sclerosis (MS)

Sarah Duraid, Basel Mohamed, Nick Bray, Michelle Ploughman
Memorial University of Newfoundland and Labrador, St. John's, Canada.

P. 52 The link between reward and movement during a music task: effects of musical composition and preliminary fMRI findings among stroke survivors

Anna Palumbo¹, Eva Luna Munoz Vidal¹, Karleigh Groves¹, Alan Turry¹, Robert Codio¹, Heidi Schambra², Gerald Voelbel¹, Pablo Ripolles¹
¹New York University, New York City, USA. ²NYU Grossman School of Medicine, New York City, USA.

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P. 53 Tactile Examination at the Upper Extremity in Individuals with Stroke: A Scoping Review for Neuroengineers

Arco Paul1, Karan Nayak2, Lindsey Sydnor3, Nahid Kalantaryardebily3, [Kevin Parcetchi1](#), Daniel Miner1, Eileen Wafford2, Jane Sullivan2, Netta Gurari3
1Radford University, Radford, USA. 2Northwestern University, Evanston, USA. 3Virginia Tech, Blacksburg, USA.

P. 54 Feasibility of passively monitoring real-world mobility and interpersonal communication among individuals with stroke using smartphone technology

[Grace Bellingher1](#), Julie DiCarlo2, Sydney McKiernan2, Jamie Nam1, Ryan Roemmich1,3, Carolee Winstein4, Lee Schwamm5, David Lin2,6
1Johns Hopkins University School of Medicine, Baltimore, USA. 2Massachusetts General Hospital, Boston, USA. 3Kennedy Krieger Institute, Baltimore, USA. 4University of Southern California, Los Angeles, USA. 5Yale School of Medicine, New Haven, USA. 6Harvard Medical School, Boston, USA.

P. 55 Operant Up-Conditioning of the Quadriceps Motor Evoked Torque as a Means to Improve Quadriceps Function after Anterior Cruciate Ligament Reconstruction

[Kazandra Rodriguez](#), Riann Palmieri-Smith, Chandramouli Krishnan
University of Michigan, Ann Arbor, USA

P. 56 White matter disconnection predicts visually guided reaching performance in chronic stroke

[Matthew Chilvers](#), Trevor Low, Sean Dukelow
University of Calgary, Calgary, Canada.

P. 57 Precision control of the non-dominant left hand depends on inhibition of dominant right hand mechanisms in the left superior parietal lobule

[Taewon Kim1,2,3](#), Samah Gassass1, Ruiwen Chen1, Alex Carter1, Ian Dobbins1, Lei Liu1, Mark McAvoy1, Zhexion Sun1, Yong Wang1, Benjamin Philip1
1Washington University School of Medicine, St. Louis, USA. 2The Pennsylvania State University, University Park, USA. 3Penn State College of Medicine, Hershey, USA.

P. 58 Quantitative activity assessment becomes useful when targeted at the motor skill demands following peripheral nerve injuries in the upper extremity

[Samah Gassass](#), Ruiwen Zhou, Hattori Robin, Lei Liu, Lisa Connor, Benjamin Philip
Washington University in St. Louis, St. Louis, USA.

P. 59 Altered cerebellar functional connectivity differentially affects reactive stability in cognitively intact versus impaired older adults

[Jessica Pitts](#), Lakshmi Kannan, Rudri Purohit, Tanvi Bhatt
University of Illinois Chicago, Chicago, USA.

P. 60 Differences in motor recovery prediction based on lesion size using degree of corticospinal tract injury from acute stroke imaging

[Alexander Brunfeldt](#), Andrew DeMarco, Matthew Edwardson
Georgetown University Medical Center, Washington DC, USA.

P. 61 Feasibility of a scalable, home-based, full-body training program in chronic stroke patients using the MindMotion GO

[Spencer Arbuckle1](#), Anna Knill2,3, Gabriela Rozanski4, Jenna Tosto-Mancuso4, Anastasia Ford1, Louis Derungs1, Michelle Chan-Cortés1, David Putrino4, Meret Branscheidt2,5
1MindMaze, Lausanne, Switzerland. 2ETH Zurich, Zurich, Switzerland. 3Lake Lucerne Institute, Vitznau, Switzerland. 4Icahn School of Medicine at Mount Sinai, New York, USA. 5Cerenzo, Weggis, Switzerland.

P. 62 A data fusion approach to improve accuracy and robustness of home and community mobility assessment after stroke.

[George Fulk1](#), Karen Klingman2, Emily Peterson1
1Emory University, Atlanta, USA. 2Upstate Medical University, Syracuse, USA.

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P. 63 Obstacle-crossing as Predictor of Future Fall Status after Stroke: Comparison of Three Obstacle conditions

Prudence Plummer, Megan Schliep, Lina Jallad, Ehsan Sinaei
MGH Institute of Health Professions, Boston, USA.

P. 64 Stroke impairs proactive balance control in response to predictable gait perturbations

Tara Cornwell, James Finley
University of Southern California, Los Angeles, USA.

P. 65 Time-series clustering using gait kinematics can distinguish between neurotypical controls and subgroups of gait behaviors post-stroke

Andrian Kuch1, Alison McKenzie1, Nicolas Schweighofer2, James Finley2, Yuxin Wen1, Natalia Sánchez1
1Chapman University, Irvine, USA. 2University of Southern California, Los Angeles, USA.

P. 66 Community Participation and Fear of Falling in Ambulatory Stroke Survivors After Hospital Discharge: A Pilot Study

Lina Jallad, Megan Schliep, Ehsan Sinaei, Prudence Plummer
MGH Institute of Health Professions, Boston, USA.

P. 67 Diffusion Tensor Imaging correlates with Fugl-Meyer but not gait speed or other measures of clinical gait performance in chronic stroke

Jessica McCabe1, Ahlam Salameh1,2, Sarah Carr3, Kelsey Rose Duncan4, Margaret Skelly1, Trenley Anderson5, Pragna Iyengar5, Lisa Leonhart1, Terri Hise1, Svetlana Pundik1,5
1Cleveland VA Medical Center, Cleveland, USA. 2Kent State University, Kent, USA. 3King's College London, London, United Kingdom. 4University Hospitals of Cleveland, Cleveland, USA. 5Case Western Reserve University School of Medicine, Cleveland, USA.

P. 68 Stance-phase-targeted gait training can improve lower limb function with a 10-session protocol

Lisa Leonhardt1, Jessica McCabe1, Margaret Skelly1, Ahlam Salameh1,2, Kelsey Rose Duncan3, Terri Hise1, Elizabeth Hardin van den Bogert1, Svetlana Pundik1,4
1Cleveland VA Medical Center, Cleveland, USA. 2Kent State University, Kent, USA. 3University Hospitals of Cleveland, Cleveland, USA. 4Case Western Reserve University School of Medicine, Cleveland, USA.

P. 69 Bi-hemispheric tDCS Paired with Contralaterally Controlled Functional Electrical Stimulation(CCFES) for Chronic Stroke Motor Recovery: A Study Protocol for a Randomized Controlled Trial

David Cunningham1,2,3, Patrick Tomko1,2, Rifeng Jin 1,2, Shreya Ramani1,2, Amy Fried1,2, Shannon Hogan2, Terri Hise1,2, Doug Gunzler1,2, Richard Wilson1,2, Jayme Knutson1,2,3
1Case Western Reserve University, Cleveland, USA. 2MetroHealth Center for Rehabilitation Research, Cleveland, USA. 3Functional Electrical Stimulation Center, Cleveland, USA.

P. 70 Overground slip-perturbation training among people with stroke: Associations between long-term retention of reactive balance control and physical activity and balance confidence

Rudri Purohit1, Shuaijie Wang1, Shamali Dusanee2, Rachana Gangwani3, Tanvi Bhatt1
1The University of Illinois at Chicago, Chicago, USA. 2Northwestern University, Chicago, USA. 3The University of North Carolina at Chapel Hill, USA.

P. 71 Overall gait asymmetry is associated with the metabolic cost of walking in individuals with chronic stroke

Amelia Cain1, Sarah Kettlety1, Natalia Sánchez2, James Finley1, Kristan Leech1
1University of Southern California, Los Angeles, USA. 2Chapman University, Irvine, USA.

P. 72 The Influence of Risk on Decision-Making during Walking

Shreya Jain, Nicolas Schweighofer, James Finley
University of Southern California, Los Angeles, USA.

P. 74 Electrocortical dynamics during post-stroke gait: a preliminary analysis

Chang Liu1, Teng Peng1, Dorian Rose1,2,3, Daniel Ferris1
1University of Florida, Gainesville, USA. 2Brooks Rehabilitation, Jacksonville, USA. 3Malcolm Randall Veterans Affairs Medical Center, Gainesville, USA.

P. 76 Determining the role of sensory circuits for neurorehabilitation targeting after pediatric brain injury

Michelle Corkrum, Tong Wen, Jason Carmel
Columbia University, New York, USA.

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P. 77 A Double-Blinded, Randomized, Sham-Controlled Trial of Vagus Nerve Stimulation Paired with Rehabilitation to Enhance Upper Limb Recovery after Spinal Cord Injury

Emmanuel Adehunuoluwa^{1,2}, Joseph Epperson^{1,3}, Kaitlyn Malley^{1,2}, Joel Wright¹, Rachael Hudson^{1,2}, Saeid Kian^{1,2}, Jaime Gillespie⁴, Christie Stevens⁴, Danae Arnold⁴, Chad Swank⁴, Richard Naftalis⁴, Michael Foreman⁴, Rita Hamilton⁴, David Pruitt¹, Jane Wigginton¹, Amy Porter¹, Seth Hays^{1,3}, Robert Rennaker^{1,2}, Michael Kilgard^{1,2}
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. 78 Race/ethnicity and physical activity in stroke survivors

Balsam J Alammari, Neva Kirk-Sanchez, Eduard Tiozzo, Marti Flothmann, Tatjana Rundek, Sebastian Koch, Lauri Bishop
University of Miami, Coral Gables, USA.

P. 79 Effect of task-oriented arm training in standing on bimanual and unimanual arm use in stroke: a preliminary study

Rushali Pandya¹, Olivia Lockhart¹, Allison Lewis², Kathryn Maxwell¹, Stacy Fritz¹, Jill Stewart¹
¹University of South Carolina, Columbia, USA. ²Medical University of South Carolina, Charleston, USA.

P. 80 Differential neural activations between mental imagery and action observation of slipping among healthy older adults.

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¹The University of Illinois at Chicago, Chicago, USA. ²Northeastern University, Boston, USA.

P. 82 Rural Access to Pediatric Teleneuromodulation in the Home Setting

Sam Nemanich¹, Daniel Lench², Preston Christopher³, Gwendolyn Nytes⁴, Chrysanthy Ikonomidou⁵, Melissa Villegas⁶, Bernadette Gillick^{3,4}
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P. 83 Conceptualizing Gait Initiation in Parkinson's Disease using Linear Mixed Models

Jessica Bath, Kenneth Louie, Jannine Balakid, Hamid Fekri Azgomi, Doris Wang
University of California, San Francisco, San Francisco, USA.

P. 84 A single-session of Corsi Block Tapping Task training does not improve visuospatial skills in people with chronic stroke

Giuliet Kibler¹, Christina Holl¹, Sarah Kettlety¹, Sydney Schaefer², Kristan Leech¹
¹University of Southern California, Los Angeles, USA. ²Arizona State University, Tempe, USA.

P. 85 Implicit locomotor learning and retention may not be related to cognition in post-stroke individuals

Sylwia Lipior, Morgan Kelly, Amelia Cain, Kristan Leech
University of Southern California, Los Angeles, USA.

P. 86 Disproportionate deficits in spatial working memory compared to verbal working memory in adults with chronic right hemisphere stroke

Sarah Haile, Kasey Stack, Anna Seydell-Greenwald
Georgetown University Medical Center, District of Columbia, USA.

P. 87 Biopsychosocial factors and cognitive reserve predict return-to-work or disability after stroke

Caitlin Dulay¹, Veronica Burton², Mario Dulay^{2,3}, Timea Hodics²
¹Texas A & M University, College Station, USA. ²Houston Methodist Neurological Institute, Houston, USA. ³The Houston Institute for Neuropsychological Knowledge (THINK) lab.

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P. 88 Understanding the influence of action observation on error reduction during movement in stroke

Layla Abdullatif1, Maria Lindsey1, Veronica Rowe2, Lewis Wheaton1
1Georgia Institute of Technology, Atlanta, USA. 2Georgia State University, Atlanta, USA.

P. 89 Characterization of bilateral reaching abilities in typically developing children using computer vision and augmented reality assessments

Shelby Ziccardi, Stephen Guy, Rachel Hawe
University of Minnesota, Minneapolis, USA.

P. 90 Home-based, Wearable Myoelectric Interface for Neurorehabilitation (MINT) Conditioning to Improve Arm Function in Chronic Stroke: A Randomized Controlled Trial

Abed Khorasani1, Vivek Paul1, Cynthia Gorski1, Joel Hulsizer1, Prashanth Prakash1, Marc Slutzky1,2,3,4
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P. 91 A randomized, double-blind, placebo-controlled study of ReStore, a novel implantable vagus nerve stimulator for stroke recovery

Joseph Epperson1, Amy Porter1, Emmanuel Adehunoluwa1, Holle Gallaway1, Nate Bleker1, Michael Foreman2, Richard Naftalis2, David Pruitt1,3, Katharine Wigginton1,3, Chad Swank2,3, Christie Stevens2, Jaime Gillespie2, Danae Arnold2, Rita Hamilton2, Jane Wigginton1, Joel Wright1, Rachael Hudson1,3, Michael Kilgard1,3, Seth Hays1,3, Robert Rennaker1,3
1Texas Biomedical Device Center, Richardson, USA. University of Texas at Dallas, Richardson, USA. 2Baylor Scott and White, Dallas, USA. 3University of Texas at Dallas, Richardson, USA.

P. 92 Investigating the lateralized role of posterior parietal cortex for fine motor control during a tablet-based tracing task using HD-tDCS

Sydney Sharp, Jessica Manning, Brooke Dexheimer
Department of Occupational Therapy, Virginia Commonwealth University, Richmond, USA.

P. 93 Accuracy of the Berg Balance Scale, Functional Gait Assessment, and Mini-BESTest for Predicting Future Post-stroke Fallers at Discharge from Inpatient Rehabilitation

Ehsan Sinaei, Lina Jallad, Megan Schliep, Prudence Plummer
MGH Institute of Health Professions, Boston, USA.

P. 94 Corticospinal contribution to the control of bilateral intermuscular coordination in healthy and post-stroke subjects

Shiva Nouri1,2, Ti-No Ho2,3, Carl Tchoumi1,2, Anatol G. Feldman2,3, Mindy F. Levin1,2
1McGill University, Montreal, Canada. 2Centre for Interdisciplinary Research in Rehabilitation, Montreal, Canada. 3University of Montreal, Montreal, Canada.

P. 95 Conversion from MEP- to MEP+ relates to upper extremity dexterity improvements after acute neurologic injury: a case study of recovery from cervical spinal cord injury due to meningitis-induced tonsillar herniation

Kristi Emerson1, Sydney McKiernan1, Kelly Rische1,2,3, Sara Cavanagh1,2,4, Josephine Buclez1, Maria Nazarova5, Isha Vora6, Denis Balaban1, Teresa Kimberley6, Ziv Williams1, Leigh Hochberg1,2,7, David Lin1
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P. 96 Sharing and aggregation of transcranial magnetic stimulation (TMS) derived data through common data elements: Improved functionality of the TMS Analysis Toolbox

Patrick Tomko1,2, Rifeng Jin1,2, Shreya Ramani1,2, David Cunningham1,2,3
1Case Western Reserve University, Cleveland, USA. 2MetroHealth Center for Rehabilitation Research, Cleveland, USA. 3Cleveland Functional Electrical Stimulation Center, Cleveland, USA.

P. 97 Assessing Spinal Reflex Excitability of Post-Stroke Stiff-Knee Gait During Locomotion

J. Sebastian Correa1,2, Ricardo Siu1,2, Shreya Ramani1,2, David Cunningham1,2, James Sulzer1,2
1Case Western Reserve University, Cleveland, USA. 2The MetroHealth System, Cleveland, USA.

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P. 99 Efficiency of unimanual dexterous performance and task factors influence arm nonuse in chronic stroke survivors

[Shauna Zodrow](#)¹, Brandon Knight¹, Shailesh Kantak^{1,2}, Laurel Buxbaum¹

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P. 100 Assessing Physical Activity Levels and Sedentary Behavior of Stroke Survivors living in the US-Mexican Border: a mix-method pilot study

Leonardo Teixeira Tomé da Silva¹, Jessica Hoffman¹, Angel Melendez¹, Adrian Chavarria¹, Lindy Miller¹, Taylor Chevallier¹, Georgina Sanchez-Garcia¹, Ana Jéssica Pinto², Janaine Poleso³, [Camila Torriani-Pasin](#)¹

¹The University of Texas at El Paso, El Paso, USA. ²University of Colorado Anschutz Medical Campus, Denver, USA. ³Universidade Federal de Minas Gerais, Belo Horizonte, Brazil.

P. 101 Distinct Influence of Beta- and Gamma-tACS on Grip Force Regulation in Chronic Stroke

[Syed Qadiri](#)¹, Seraphina Culp², Megan Grainger¹, Peter Lum², Shashwati Geed³

¹MedStar National Rehabilitation Hospital, Washington, USA. ²The Catholic University of America, Washington, D.C., USA. ³The University of Texas at El Paso, El Paso, TX, USA.

P. 102 Soft wearable inflatable robot for supporting the shoulder improves arm function in people post-stroke

[Prabhat Pathak](#)¹, James Arnold¹, John Paul Bonadonna¹, Carolin Lehmacher¹, Conor McCann¹, Tanguy Lewko¹, Sarah Cavanagh^{1,2,3}, David Pont-Esteban¹, Kelly Rische^{2,3,4}, David Lin^{2,3}, Conor Walsh¹

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P. 103 One-week test-retest reliability of an unsupervised, online version of the digit symbol modalities task among older adults

[Andrew Hooyman](#)¹, Kevin Duff², Sydney Schaefer¹

¹Arizona State University, Tempe, USA. ²Oregon Health and Science University, Portland, USA.

P. 104 Estimating Trunk and Forearm Movements in Healthy Controls and Patients with Unilateral Weakness due to recent Stroke using Wearable Sensors

[Jack Pettit](#)¹, Catherine Dang², Paige Hepple¹, Linda Riek³, Ania Busza¹

¹University of Rochester, Rochester, USA. ²Vanderbilt University, Rochester, USA. ³University of Nazareth, Rochester, USA.

P. 105 Motor Evoked Potential Operant Conditioning of Wrist Extensors in Individuals with Chronic Stroke: A Case Series

[Blair Dellenbach](#)¹, Manuel Portilla-Jiménez², Allison Lewis¹, Roland Cote¹, Jinsook Roh², Aiko Thompson¹

¹Medical University of South Carolina, Charleston, USA. ²University of Houston, Houston, USA.

P. 106 Alterations in Brain White Matter Tract Integrity Across the Severity Spectrum in Chronic Stroke Survivors: A Tract-Based Spatial Statistics (TBSS) Analysis Approach

[Jia Liu](#)¹, Ken Sakaie¹, Xin Li¹, Kelsey Potter-Baker², David Cunningham³, Mark Lowe¹, Akhil Mohan¹, Kyle O'Laughlin¹, Morgan Widina¹, Jayme Knutson³, Ela Plow¹

¹Cleveland Clinic, Cleveland, USA. ²University of Texas Rio Grande Valley, Edinburg, USA. ³MetroHealth Center for Rehabilitation Research, Cleveland, USA. Case Western Reserve University, Cleveland, USA.

P. 107 Pairing Intensive Training with Neuromodulation to Augment Hand Function in Persons with Hemiparesis

[Susan Duff](#)^{1,2,3}, Alison McKenzie¹, Brooke Stein¹, Bailey Advincula¹, Isaac Ian¹, Annie Jeon¹, Casey McWilliam¹, Will Potter¹, Virginia Ruano¹, Paulina Vokulich¹, Rahul Soangra¹

¹Chapman University, Irvine, USA. ²Rancho Research Institute, Downey, USA. ³Cedar Sinai Medical Center, Los Angeles, USA.

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P. 108 Exploring Machine Learning Approaches for Predicting Parkinsonian Gait: A Focus on Synthetic Minority Over-sampling Technique (SMOTE)

Daniel Salinas, Gerardo Medelli, Katherine Bolado, Tomas Gomez, Dr. Nawaz Khan Abdul Hack, Dr. Ramu Vadukapuram, Dr. Igor Zwir, Dr. Kelsey Baker
University of Texas Rio Grande Valley, Edinburg, USA.

P. 109 Exploring reference frame utilization and aging effects in a traditional y-maze spatial navigation task

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P. 110 Association of functional motor performance with hand muscle motor evoked potential post-stroke

Jenna Blaschke1, Christian Schranz1, Ja'Quann Gallant1, Arianna Alston1, Na Jin Seo1,2
1Medical University of South Carolina, Charleston, USA. 2Ralph H. Johnson VA Healthcare System, Charleston, USA.

P. 111 Timing matters: Investigating the optimal period for baseline motor assessments in stroke recovery trials

Sydney McKiernan1, Julie A. DiCarlo1, Jennifer D. Hebert1,2, Perman Gochyyev1,3, David J. Lin1,2
1Massachusetts General Hospital, Boston, USA. 2Veterans Affairs Providence Healthcare System Center, Providence, USA. 3Massachusetts General Hospital Institute of Health Professions, Boston, USA.

P. 113 Impacts of exoskeleton on movement characteristics during multi-directional reaching tasks in healthy adults

Yi-Ning Wu, Hannah Allgood, Cooper Ferrari, Lian Orifice
University of Massachusetts Lowell, Lowell, USA.

P. 114 Proximal Upper Extremity Motor Control Analysis in Stroke Patients: A Comparative Study of Principal Component Analysis-Mahalanobis Distance (PCA-MD) and Dynamic Time Warping (DTW)

Liqi Shui1, Sarah K. Cavanagh2,3,4, Perman Gochyyev5, Nicole Dusang6, Karen L. Furiel1, Dagmar Sternad7, Leigh Hochberg3,6,8, David J. Lin3,5,8
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P. 115 Influence of Participant Characteristics on Temporary Deafferentation Effectiveness to the Proximal Upper Limb

Maria Lozano Bonilla, Hunter Butler, Jared Hensley, Daniel Salinas, Monica Lozano Garcia, Chelsea Erazo, Ashley Tijerina, Abdallah Gallah, Victoria Cuello, Kelsey Baker
University of Texas Rio Grande Valley School of Medicine, Harlingen, USA.

P. 116 Assessing Functional Connectivity and its Relationship to Functional Recovery Post-Stroke: Preliminary Findings from a Randomized Controlled Trial of Backwards Walking Training

Dorian Rose1,2,3, Abigail Waters1,2, Kelly Hawkins1,2, Ronald Cohen1,2, John Williamson1,2
1Malcom Randall VAMC, Gainesville, USA. 2University of Florida, Gainesville, USA. 3Brooks Rehabilitation, Jacksonville, USA.

P. 117 Alteration in intermuscular coordination patterns after stroke varies depending on biomechanical conditions in the arm

Manuel Portilla-Jiménez, Yoon N. G. Hong, Jinsook Roh
University of Houston, Houston, USA.

P. 118 Estimating the effect of age on one-year change in individual motor skill among a large, remote online cohort

Andrew Hooyman, Sydney Schaefer
Arizona State University, Tempe, USA.

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P. 119 Associations between neuroimaging predictors and changes in arm impairment in a phase 3 stroke recovery trial of vagus nerve stimulation

Anne Schwarz^{1,2}, Marc Feldman², Vu Le¹, Jesse Dawson³, Charles Y Liu^{4,5}, Gerard E Francisco^{6,7}, Steven L Wolf⁸, Anand Dixit⁹, Jen Alexander³, Rushna Ali¹⁰, Benjamin L Brown¹¹, Wuwei Feng¹², Louis DeMark¹³, Leigh R Hochberg^{14,15,16}, Steven A Kautz^{17,18}, Arshad Majid^{19,20}, Michael W O'Dell²¹, Jessica Redgrave¹⁹, Duncan L Turner²², Teresa J Kimberley²³, Steven C. Cramer¹, 2

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P. 120 Spontaneous Movements and Cortical Activity during Early Infancy

Xiwen Su, Hyun Joon Kim, Evan Yarnall, Marie Kelly, Claudio Ferre
Boston University, Boston, USA.

P. 122 Corticomuscular connectivity after rehabilitation training in subacute stroke

Soha Salehi¹, Michael Glassen¹, Gregory Ames², Kiran Karunakarn², Karen Nolan²
1Rutgers University, Newark, USA. 2Kessler Foundation, West Orange, USA.

P. 123 A Review of Post-Stroke Motor Fatigability

Adarsh Mavathaveedu¹, Paige Hepple², David Cunningham³, Ania Busza²
1University of Rochester Medical Center, Rochester, USA. 2Department of Neurology, University of Rochester, Rochester, USA. 3Department of Physical Medicine and Rehabilitation, Case Western Reserve University, Cleveland, USA.

P. 125 A Preliminary Study of Repetitive Grip Strength Testing in Subjects with Weakness due to Stroke.

Klaury Youchom-Tagheui¹, Adarsh Mavathaveedu², Paige Hepple³, Ania Busza³
1University of Delaware, Newark, USA. 2University of Rochester, Rochester, NY, USA. 3Department of Neurology, University of Rochester, Rochester, NY, USA.

P. 126 Motor Control Abnormalities in the First 6 Months After Stroke – An Ongoing Longitudinal Study

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P. 127 Between thinking and doing: Investigating the relationship between cognition and upper limb motor function after stroke

Julie DiCarlo^{1,2}, Abhishek Jaywant³, Sydney McKiernan¹, Steven Cramer^{4,5}, Nathan Ward², David Lin¹
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