

PRANAV J. PARIKH

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SUMMARY

We perform translational research to improve human behavior through a focus on the human brain. Our work determines how the human brain helps us to perform routine tasks such as lifting a cup of coffee or tea without spilling its contents and maintaining dynamic balance while standing on a moving bus or navigating through grocery aisles; to acquire novel skills; to perceive extreme sensory information; and how these abilities are compromised with aging and neurological conditions. We use this knowledge as a foundation to develop novel interventions to reduce disability in neurological patients. Our team uses concepts from neurophysiology and biomechanics and applies a wide range of techniques, including non-invasive brain stimulation, neuroimaging, and electromyography. Another research thrust is to develop novel tools for the quantification of motor function in adults and children with neurological conditions with the intention of a direct clinical translation. Through these activities, we train the next generation of researchers with highly specialized neuro skills for neurorehabilitation and neuro-engineering research. I have successfully supported my work with funding from NIH, NSF, and small foundations. The significance of our work is three-fold: (1) to guide the design of neurorehabilitation approaches that can be introduced in clinical settings; (2) to guide the development of medical devices for objective assessment of behavior in clinical settings; and (3) to develop a workforce for neurorehabilitation and neuro-engineering research with the goals of improving health and well-being of children and adults and meeting the nation's biomedical, behavioral and clinical research needs using emergent technologies.

EDUCATION

Postdoctoral Fellowship, Behavioral and Systems Neuroscience Arizona State University, Tempe, AZ	Sep 2012 – July 2015
Doctor of Philosophy, Human Motor Control/Neuroscience University of Iowa, Iowa City, Iowa	Sep 2008 – Aug 2012
Master of Science, Biomedical Engineering and Biotechnology (with a focus on Biomechanics) University of Massachusetts, Lowell, MA	Jan 2007 – May 2008
Bachelor of Medicine and Bachelor of Surgery (MD equivalent) M. S. University of Baroda, India	Aug 1999 – Oct 2005

POSITIONS

Associate Professor (tenured) of Motor Behavior Center for Neuromotor and Biomechanics Research Department of Health and Human Performance University of Houston, Houston, TX	Sept 2021 - present
Director, Center for Neuromotor and Biomechanics Research Department of Health and Human Performance University of Houston, Houston, TX	Aug 2021 – Sept 2025
Chair, Graduate Research Degrees Committee Department of Health and Human Performance University of Houston, Houston, TX	Aug 2023 – Sept 2025
Assistant Professor (tenure-track) of Motor Behavior Center for Neuromotor and Biomechanics Research Department of Health and Human Performance University of Houston, Houston, TX	Aug 2015 – Aug 2021
Adjunct Professor School of Biological and Health Systems Engineering Arizona State University, Tempe, AZ	Oct 2015 – Aug 2019
Researcher Department of Neurology, Mayo Clinic, Scottsdale, AZ	Mar 2013 – July 2015

HONORS AND AWARDS

Journal publication selected for continuing education offerings by the American Journal of Occupational Therapy, providing occupational therapists with evidence-based learning opportunities (2025)

Ad Hoc member, NIH study sections (2020-present)

Ad Hoc member, NSF CAREER proposals (2024)

Faculty Excellence Award (Undergraduate Research Mentor Award), Univ. of Houston (2021)

Editorial board member, Frontiers in Medical Engineering – Clinical Engineering section

Editorial board member, Frontiers in Neurobotics

Judge, Mission Connect Poster Presentation (2021)

Reviewer, American Heart Association Career Development Award (2021)

Associate Editor, Frontiers in Aging Neuroscience. (2014 – present)

The Provost's Travel Award, University of Houston. (2015, 2016, 2018)

Force and Motion Foundation travel award, AMTI Inc. (2012)

Research article selected for an editorial review, Journal of Applied Physiology. (2012)

Poster presentation award, Aging, Mind and Brain symposium, Iowa. (2012)

Louis E. Alley Graduate Award, Dept. of Health and Human Physiology. Univ. of Iowa. (2010)

Presidential Graduate Fellowship, University of Iowa. (2008 – 2012)

As a faculty mentor

Poster Presentation Award, 1st place, NIH Summer End-of-Program Symposium. Alizah Zaheer (2025)

Poster Presentation Award, 3rd place, NSF Summer End-of-Program Symposium. Aadit Narayanan (2025)

Post-Candidacy HHP award. Komal Kukkar (2025)

Second prize in the Elevator Speech Contest at HHP Research Day. Komal Kukkar (2025)

Tony Jackson Research Excellence Award. Komal Kukkar (2024)

Provost Undergraduate Research Scholarship. Shalaka Dhavalikar (UH BME) (2024)

Third prize in the Elevator Speech Contest at HHP Research Day. Komal Kukkar (2024)

Third prize in the Elevator Speech Contest at HHP Research Day. Komal Kukkar (2023)

UH Presidential Fellowship to pursue a PhD in my laboratory. Mahdis Dadfar (2022-2024)

UH Presidential Fellowship to pursue a PhD in my laboratory. Komal Kukkar (2021-2023)

Society of Neuroscience Trainee Professional Development Award. Nishant Rao (2021)

Finalist, the 3-minute thesis (3MT), the University of Houston. Nishant Rao (2020)

HHP Graduate Research Award, Nishant Rao (2020)

The Cullen Graduate Student Success Fellowship for Academic/Research Projects and Distance Education. Nishant Rao (2020)

Poster Presentation Award, Third Place, Kentucky Academy of Science, Grace McClurg (2020)

Summer Undergraduate Research Fellowship. Hiba Rabieh (2020)

Summer Undergraduate Research Fellowship. Sheel Shah (2020)

Honorary Mention for Best Poster Award and Graduate School Erhardt Scholarship at UH. Nishant Rao (2019)

First prize in the Elevator Speech Contest at HHP Research Day. Nishant Rao (2018)

Audience Choice Poster Award at UH. John Kass (2018)

Summer Undergraduate Research Fellowship. John Kass (2018)

Summer Undergraduate Research Fellowship. Eesha Kundra (2017)

UH Cullen Travel Fellowship. Nishant Rao (2017)

NSF REU summer internship at the Uni. of Wisconsin Madison. Michelle Constante (2017)

UH Presidential Fellowship to pursue a PhD in my laboratory. Nishant Rao (2016-2018)

Provost Undergraduate Research Scholarship. Eesha Kundra (2016)

UH Future Faculty Fellowship. Rahul Goel (2016)

UH Cullen Travel grant. Rahul Goel (2016)

Force and Motion Foundation travel grant. Rahul Goel (2016)

PATENTS (PUBLISHED)

1. **Parikh PJ** (2023). Sensorized Bead-Wire Toy For Studying Finger Force and Manual Dexterity. US20230121081A1, published on April 20, 2023. **US**.

PUBLICATIONS

(* indicates *Parikh* as a lead/senior author)

1. **Rose V***, Kukkar KK, Chen TA, **Parikh PJ*** (2025). Sensorimotor Parameters Predict Performance on the Bead Maze Hand Function Test. *Sensors*, 25, 7670. <https://doi.org/10.3390/s25247670>.
2. Rose V and **Parikh PJ** (2025). Anticipatory Control of Digit Kinematics: A Developmental Milestone for Motor Skill Acquisition. *Experimental Brain Research*. 243, 169. <https://doi.org/10.1007/s00221-025-07113-9>.
3. **Malaya CA**, Parikh PJ, Smith DL, Layne CS (2025). Effects of Simulated Hyper-Gravity on Lower Limb Kinematics and Electromyography During Walking. *Biomechanics (a MDPI journal)*. 5(2), 31; <https://doi.org/10.3390/biomechanics5020031>.
4. Dadfar M, Kukkar K, **Parikh PJ*** (2025). Reduced Parietal to Frontal Functional Connectivity for Dynamic Balance in Late Middle-to-Older Adults. *Experimental Brain Research*. 10; 243(5):111. doi: 10.1007/s00221-025-07070-3.
5. Magruder R, Kukkar K, Contreras-Vidal J, **Parikh PJ*** (2024). Cross-Task Differences in Frontocentral Cortical Activations for Dynamic Balance in Neurotypical Adults. *Sensors*. 24(20), 6645.
6. Kukkar KK, Rao N, Huynh D, Shah S, Contreras-Vidal J, **Parikh PJ*** (2024). Context-dependent Reduction in Corticomuscular Coupling for Balance Control in Chronic Stroke Survivors. *Experimental Brain Research*. doi: 10.1007/s00221-024-06884-x. Epub ahead of print. PubMed PMID: 38963559.
7. Rao N, Paek A, Contreras-Vidal J, **Parikh PJ*** (2024). Entropy in Electroencephalographic signals Modulates with Force Magnitude During Grasping – a Preliminary Report. *Journal of Motor Behavior*. 56(6), 665–677.
8. Rose V, Ajoy A, Johnston C, Gogola G, **Parikh PJ*** (2024). The Bead Maze Hand Function Test for Children. *American Journal of Occupational Therapy*. Vol. 78(4). PubMed PMID: 38900916; PubMed Central PMCID: PMC11220783.
9. Kukkar K, **Parikh PJ**, Kao C, Mohapatra S (2023). Cutaneous tactile sensation and standing balance in children with autism: A Preliminary Report. *International Journal of Autism*: 3(1): 01-05.
10. Malaya CA, **Parikh PJ**, Smith Dean L, Riaz Arshia, Chandrasekaran S, Layne CS (2023). Effects of simulated hypo-gravity on lower limb kinematic and electromyographic variables during anti-gravitational treadmill walking. *Frontiers in Physiology*. doi.org/10.3389/fphys.2023.1141015.
11. Rose V and **Parikh PJ** (2022). Getting a Child a Myoelectric Prosthesis: Did We Miss the Bus? *Journal of Prosthetics and Orthotics*. doi: 10.1097/JPO.000000000000043.
12. Goel R, Nakagome S, Paloski WH., Contreras-Vidal JL, **Parikh PJ*** (2022). Assessment of Biomechanical Predictors of Occurrence of Low-Amplitude N1 Potentials Evoked by

Naturally Occurring Postural Instabilities. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*. 30:476-485. doi: 10.1109/TNSRE.2022.3154707

13. Rao N, Mehta N, Patel P, **Parikh PJ*** (2021). Effects of Aging on Conditional Visuomotor Learning for Grasping and Lifting Eccentrically Weighted Objects. *Journal of Applied Physiology*. <https://doi.org/10.1152/jappphysiol.00932.2020>
14. Young DR, **Parikh PJ**, Layne CS (2020b). The posterior parietal cortex is involved in gait adaptation: A bilateral transcranial direct current stimulation study. *Frontiers in Human Neuroscience*. <https://doi.org/10.3389/fnhum.2020.581026>
15. Young DR, **Parikh PJ**, Layne CS (2020a). Non-invasive brain stimulation of the posterior parietal cortex alters postural adaptation. *Frontiers in Human Neuroscience*. <https://doi.org/10.3389/fnhum.2020.00248>.
16. Rao N, Chen Y, Ramirez R, Tran J, Li S, and **Parikh PJ*** (2020). Time-course of Pain Threshold after Continuous Theta Burst Stimulation of Primary Somatosensory Cortex in Pain-free Subjects. *Neuroscience Letters*. (23)722:134760. doi: 10.1016/j.neulet.2020.134760.
17. **Parikh PJ***, Fine JM, Santello M (2019). Dexterous object manipulation requires context-dependent sensorimotor cortical interactions in humans. *Cerebral Cortex*. 30(5):3087–3101. <https://doi.org/10.1093/cercor/bhz296>.
18. Rao N and **Parikh PJ*** (2019). Fluctuations in Human Corticospinal Activity Prior to Grasp. *Frontiers in Systems Neuroscience*. 13. doi=10.3389/fnsys.2019.00077.
19. Paek A, Gailey A, **Parikh PJ**, Santello M, Contreras-Vidal J (2019). Regression-based reconstruction of human grip force trajectories with noninvasive scalp electroencephalography. *Journal of Neural Engineering*. 16(6):06603. doi: 10.1088/1741-2552/ab4063.
20. Goel R, Nakagome S (co-first author), Rao N, Paloski W, Contreras-Vidal J, **Parikh PJ*** (2019). Fronto-parietal brain areas contribute to the online control of posture during a continuous balance task. *Neuroscience*. (413):135-153. doi: 10.1016/j.neuroscience.2019.05.063.
21. Davare M, **Parikh PJ* (co-first author)**, Santello M (2019). Sensorimotor uncertainty modulates corticospinal excitability during skilled object manipulation. *Journal of Neurophysiology*. 121(4):1162-1170. doi: 10.1152/jn.00800.2018.
22. Goel R, Ozdemir RA, Nakagome S, Contreras-Vidal JL, Paloski WH, **Parikh PJ*** (2018). Effects of speed and direction of perturbation on electroencephalographic and balance responses. *Experimental Brain Research*. (236):2073–83. doi: 10.1007/s00221-018-5284-5.
23. **Parikh PJ*** and Santello M (2017). Role of human dorsal premotor region in learning a conditional visuomotor task. *Journal of Neurophysiology*. 117(1):445-456. doi: 10.1152/jn.00658.2016.

24. **Parikh PJ*** and Cole KJ (2016). Editorial - Effects of Aging: A Hand at Work. *Frontiers in Aging Neuroscience*. 8; 141. doi: 10.3389/fnagi.2016.00141.
25. Paek A, Gailey A, **Parikh PJ**, Santello M, Contreras-Vidal J (2015). Predicting Hand Forces from Scalp Electroencephalography During Isometric Grip and Object Grasping. *IEEE Engineering in Medicine and Biology Society*. 7570-3. doi: 10.1109/EMBC.2015.7320144.
26. **Parikh PJ*** and Cole KJ (2015). Effects of transcranial direct current stimulation on the control of finger force during dexterous manipulation in healthy older adults. *PLOS One*. 10(4): e0124137. doi:10.1371/journal.pone.0124137.
27. Paek A, **Parikh PJ**, Gailey A, Santello M, Contreras-Vidal J (2015). Predicting hand forces from scalp electroencephalography during isometric grip and object grasping. *International Graphonomics Society*.
28. **Parikh PJ***, Davare M, McGurrin P, Santello M (2014). Corticospinal excitability underlying digit force planning for grasping in humans. *Journal of Neurophysiology*. 111(12):2560-9. doi: 10.1152/jn.00815.2013.
29. **Parikh PJ*** and Cole KJ (2014). Research Topic - Effects of Aging: A Hand at Work. *Frontiers in Aging Neuroscience*.
30. **Parikh PJ***, Cole KJ (2014). Effects of transcranial direct current stimulation in combination with motor practice on dexterous grasping and manipulation in healthy older adults. *Physiological Reports*. 2(3). doi: 10.1002/phy2.255.
31. **Parikh PJ***, Cole KJ (2013). Transfer of learning between hands to handle a novel object in old age. *Experimental Brain Research*. 227(1):9-18. doi: 10.1007/s00221-013-3451-2.
32. **Parikh PJ***, Cole KJ (2012). Handling objects in old age: forces and moments acting on the object. *Journal of Applied Physiology*. 112 (7):1095-104. doi: 10.1152/jappphysiol.01385.2011.
- Selected for an editorial review. Latash and Johnston (2012). Why did grandpa drop the glass? Journal of Applied Physiology. 112: 1093-1094.*
33. **Parikh PJ***, Cole KJ (2011). Limited persistence of the sensorimotor memory when transferred across prehension tasks. *Neuroscience Letters*. 494(2):94-8. doi: 10.1016/j.neulet.2011.02.066.
34. Jing X, **Parikh PJ**, Yuan L, Trudeau M, Dennerlein JT, Buchholz B (2009). Biomechanical evaluation of the air stretcher as an alternative for the carpet knee kicker. *Proceedings of the 17th World Congress on Ergonomics*, Beijing, China.

PUBLICATIONS UNDER REVIEW

(* indicates *Parikh* as a lead/senior author)

1. Kukkar K, Li S, Weinberg I, **Parikh PJ** (2025). Neuromechanical Predictors of Clinical Scores of Balance and Functional Mobility in Chronic Stroke Survivors – A Machine Learning Approach. *Under Review Since October 2025*.

PREPRINT (THESE MANUSCRIPTS HAVE NOT BEEN CERTIFIED BY PEER REVIEW)

(* indicates *Parikh* as a lead/senior author)

1. Kukkar K, Li S, Weinberg I, **Parikh PJ** (2025). Neuromechanical Predictors of Clinical Scores of Balance and Functional Mobility in Chronic Stroke Survivors – A Machine Learning Approach. medRxiv.
2. Kukkar KK, Rao N, Huynh D, Shah S, Contreras-Vidal J, **Parikh PJ** (2023). Task-dependent Alteration in Delta Band Corticomuscular Coherence during Standing in Chronic Stroke Survivors. medRxiv. doi.org/10.1101/2023.07.17.23292472.
3. Rao N, Mehta N, Patel P, **Parikh PJ** (2020). Modulation of Grasp Parameters using Arbitrary Cues about Object Property in Older Adults. <https://doi.org/10.1101/2020.10.19.344457>.
4. Rao N and **Parikh PJ*** (2019). Intertrial variability in human corticospinal activity during grasp force planning. bioRxiv (the preprint server for Biology). <https://doi.org/10.1101/676833>.
5. **Parikh PJ***, Fine JM, Santello M (2019). Choice of contact points modulates sensorimotor cortical interactions for dexterous manipulation. *bioRxiv* (the preprint server for Biology). <https://doi.org/10.1101/621466>.
6. Rao N, Cheng Yen-Ting, Ramirez R, Tran J, Li S, and **Parikh PJ*** (2019). Persistent elevation of electrical pain threshold following continuous theta burst stimulation over primary somatosensory cortex in humans. bioRxiv (the preprint server for Biology). <https://doi.org/10.1101/724344>.

RESEARCH SUPPORT

Active external grants

1. *Treating Balance Impairment of the Elderly with TMS-induced Brain Connectivity*
Major Goals: The goal of this study is to use EEG-guided TMS to improve balance in elderly patients with a history of falls, through repair of (or compensation for) abnormal brain connectivity.
Project Number: 1R41AG085838
Name of PD/PI: **Parikh PJ**
Source of Support: NIH/NIA STTR Phase I
Primary Place of Performance: University of Houston
2. *Neuromotor Skill Advancement for Post baccalaureates*
Major Goals: The goal of this study is to provide didactic and hands-on activities focusing on the development of highly specialized and highly sought-after

technical skills to study the brain to complement and enhance the training of therapists, clinical and research fellows, and orthotists and prosthetists from a diverse community for neurorehabilitation and neuro-engineering research with the goals of improving health and well-being of children and adults and meeting the nation's biomedical, behavioral and clinical research needs using emergent technologies.

Project Number: R25HD106896

Name of PD/PI: **Parikh PJ** (MPI: Jose Contreras-Vidal)

Source of Support: NIH/NICHD

Primary Place of Performance: University of Houston

3. *Understanding the effects of TMS on neural tracts in patients with autism spectrum disorder*

Major Goals: The goal of this project is to develop precision, diffusion MRI-guided, personalized TMS neurotechnology based on theta burst stimulation to improve white matter integrity in patients with ASD.

Name of PD/PI: **Parikh PJ**

Source of Support: NSF BRAIN Center Project

Primary Place of Performance: University of Houston

Completed external and Internal grants

1. *Personalized Neuromodulation-based Intervention for the Treatment of Balance Disorders in the Elderly*

NSF BRAIN project

Parikh PJ (PI), Weinberg I (co-I; Weinberg Medical Physics), and Contreras-Vidal JL (co-I)

08/01/2022 – 12/31/2023

2. A Broad-Spectrum Method for Evaluation of Dexterity in Children

C-STAR grant, NIH/NICHD Grand Number P2CHD101899

Parikh PJ (PI), O'Connor D (co-I), Johnston C (co-I)

04/01/2021 – 03/31/2023

3. Neuromodulation Examining the effects of operant conditioning of wrist extensor MEP on arm intermuscular coordination after stroke

National Institutes of Health National Center of Neuromodulation for Rehabilitation, NIH/NICHD Grant Number P2CHD086844

Roh Jinsook (PI), **Parikh PJ (co-I)**, Thompson A (co-I)

07/01/2021 – 06/30/2023

4. Neuromodulation to Improve Dynamic Balance in Stroke

National Institutes of Health National Center of Neuromodulation for Rehabilitation, NIH/NICHD Grant Number P2CHD086844

Parikh PJ (PI), Contreras-Vidal JL (co-I)

July 2019 – April 2021

5. Transcranial Direct Current Stimulation to Reduce Motor Variability in Aging
High Priority Area Research Seed Grant

Parikh PJ (PI)

February 2018 – December 2021

University of Houston DOR/Provost Faculty research invigoration program

6. Dynamic Balance Control in Stroke

Mission Connect COVID-19 Relief funding, The Institute for Rehabilitation and Research (TIRR) Foundation

Parikh PJ (PI)

July 2020 – June 2021

7. Neural mechanisms underlying age-related decline in dexterous manipulation

CAMRI Baylor College of Medicine

Parikh PJ (PI)

December 2015 – December 2017

(Center for Advanced Magnetic Resonance Imaging (CAMRI), Baylor College of Medicine, Houston, TX)

8. Hand Control in Alzheimer's Disease

CLASS Research Progress Grant

Parikh PJ (PI)

February 2017 – February 2019

9. Effects of Transcutaneous Electrical Nerve Stimulation on sensorimotor functions of the hand and cortical plasticity in healthy old adults

American Society of Biomechanics, Graduate Student Grant-in-Aid,

Parikh PJ (PI)

June 2011 – May 2012

10. Transcutaneous Electrical Nerve Stimulation on manual dexterity and cortical plasticity in healthy old adults

EMPI, Inc., Equipment grant

Parikh PJ (PI)

February 2011 – August 2012

11. Effects of Peripheral Electrical Nerve Stimulation on sensorimotor functions of the hand and cortical plasticity in healthy old adults

Executive Council of Grad. and Prof. Students, University of Iowa, Graduate Research grant

Parikh PJ (PI)

December 2011 – December 2012

INVITED TALKS

1. *Treating Balance Impairment of the Elderly with TMS-induced Brain Connectivity*. The University of Maryland, Baltimore County (July 2025).

2. *A Sensorized Developmental Toy can Quantify a Child's Activity*. The Science of Ability, Blurring the Line Between Human & the Machine. Shirley Ryan Abilitylab and Northwestern University (August 2024).
3. *Sensorimotor mechanisms for Balance*. NIH NSAP seminar series, University of Houston (July 2023).
4. *Sensorimotor Control of Dexterous Manipulation Across the Lifespan*. University of Texas, Austin (Oct 2021)
5. *A Broad-Spectrum Method for Evaluation of Dexterity in Children*. The Shirley Ryan Abilitylab. (Feb 2021)
6. *Non-invasive brain stimulation to improve clinical outcomes*. NSF REU seminar series, University of Houston. (July 2020)
7. *Neural mechanisms underlying motor control*. The *Quantitative Physiology* course offered by Dr. Jinsook Roh in the department of Biomedical Engineering at the University of Houston. (Oct 2019)
8. *Sensorimotor mechanisms for dexterous manipulation and balance*. The Neurorecovery Research Center (NRRC) at TIRR Memorial Hermann, Houston, TX. (June 2019)
9. *Neural mechanisms underlying dexterous manipulation*. the 6th Annual Gulf Coast NeuroEngineering Symposium, Rice University, Houston, TX. (Oct 2016)
10. *Neural mechanisms underlying dexterous manipulation*. Baylor College of Medicine, Houston, TX. (Sept 2015)
11. *Neural mechanisms underlying dexterous manipulation*. Department of Health and Human Performance, the University of Houston, Houston, TX. (Feb 2015)
12. *Neural mechanisms underlying dexterous manipulation*. Department of Physical Therapy, Temple University, Philadelphia, PA. (Dec 2014)
13. *Handling objects in old age*. Department of Neuroscience, Kennedy Krieger Institute, Johns Hopkins University, Baltimore, MD. (June 2012)
14. *Handling objects in old age*. School of Biological and Health Systems Engineering, Arizona State University, Tempe, AZ. (June 2012)

CONFERENCE PRESENTATIONS

1. Kukkar KK, Pham T, Rao Nishant, Miyakoshi M, Li Sheng, **Parikh PJ** (2025). Contribution of Altered Functional Cortical Connectivity to Balance and Functional Mobility in Chronic Stroke Survivors. Society for Neuroscience conference in San Diego, CA.

2. Zaheer AA, Kukkar KK, **Parikh PJ** (2025). Clinically Meaningful Sensitive Laboratory-Based Balance Metrics: Effects of Stroke and Neuromodulation. NSAP End-of-Program symposium, University of Houston, TX.
3. Thomas RL, Kukkar KK, Dadfar M, **Parikh PJ** (2025). Distinct Neural Mechanisms underlying Aging-related changes in EEG Activations and EEG Connectivity For Dynamic Balance. NIH NSAP End-of-Program symposium, University of Houston, TX.
4. Narayanan A, Kukkar KK, **Parikh PJ** (2025). A Novel Device to Analyze Neuromotor Function in Children. NSF REU-FDA End-of-Program symposium, University of Houston, TX.
5. Kukkar KK, Rao Nishant, Martinez M, Contreras-Vidal J, **Parikh PJ** (2024). Altered Brain Functional Connectivity for Balance Control in Chronic Stroke Survivors. Society for Neuroscience conference in Chicago, IL.
6. Dadfar M, Kukkar K, **Parikh PJ** (2024). Understanding the effects of aging on the brain network dynamics for balance control. Society for Neuroscience conference in Chicago, IL.
7. Kukkar K, Huynh D, Shah S, Contreras-Vidal J, Weinberg I, **Parikh PJ** (2023). Effects of Intermittent Theta Burst Stimulation on Functional Cortico-muscular Coupling for Balance Control in Chronic Stroke Survivors. Society for Neuroscience conference in Washington DC.
8. Magruder R, Mughal M, Kukkar K, Contreras-Vidal J, **Parikh PJ** (2023). Cross-Task Electroencephalographic Sources of Activation for Balance Control in Healthy and Stroke Individuals. 2023 IUCRC BRAIN REU & NSAP symposium.
9. Leonard K, Kukkar K, **Parikh PJ** (2023). Differences in Multiscale Entropy for Foot Center of Pressure in Stroke Patients During Challenging Balance Task. 2023 IUCRC BRAIN REU & NSAP symposium.
10. Srour A, Kukkar K, **Parikh PJ** (2023). Time-frequency analysis on Foot Center of Pressure during a Challenging Balance task. 2023 IUCRC BRAIN REU & NSAP symposium.
11. Holloway A, Kukkar K, **Parikh PJ** (2023). Differences in Temporal Structure of Foot Center of Pressure between Stroke and Healthy subjects during a Challenging Balance task. 2023 IUCRC BRAIN REU & NSAP symposium.
12. Rose VL, Ajoy AJ, Gogola GR, **Parikh PJ** (2022). Reliability of a novel test to assess precision force control in children. Society for Neuroscience conference in San Diego, California.
13. Komal Kukkar, Rao N, Sheel Shah, Diana Huynh, Contreras-Vidal JL, and **Parikh PJ** (2022). Altered Cortico-muscular functional coupling for balance control in chronic stroke survivor. Society for Neuroscience conference in San Diego, California.
14. McClurg G, Rao N, and **Parikh PJ** (2021). Complexity of Force Output Following Transcranial Magnetic Stimulation of the Primary Motor Cortex. National Council on Undergraduate Research annual meeting.

15. Rao N, Paek A, Contreras-Vidal JL, **Parikh PJ** (2021). Influence of grip force magnitude on temporal structure of electrocortical variability. Society for Neuroscience Global Connectome (virtual).
16. Rose VL, Ajoy AJ, Gogola GR, **Parikh PJ** (2021). A Novel Method for Assessment of Precision Force Control in Children. Society for Neuroscience Global Connectome (virtual).
17. Goel R and **Parikh PJ** (2021). Interpretable machine learning models for prediction of imminent falls. NASA HRP conference (virtual).
18. Rao N, Rabieh H, Mutnick M, Shah S, Chaudhari S, Mehta N, Todd E, Gale M, Contreras-Vidal JL, **Parikh PJ** (2021). Alterations in the Fronto-Parietal Brain Network for Balance Control in Chronic Stroke Patients. Society for Neuroscience Global Connectome (virtual).
19. Leonard K, Rao N, and **Parikh PJ** (2021). The Structure of Center of Pressure Variability during Balance Control. NSF REU *virtual meeting* at UH.
20. Mutnick M, Rao N, and **Parikh PJ** (2020). Functional brain connectivity for balance control in stroke. NSF REU *virtual meeting* at UH.
21. McGlurg G, Rao N, and **Parikh PJ** (2020). The complexity of force output following transcranial magnetic stimulation of primary motor cortex. NSF REU *virtual meeting* at UH.
22. Rao N, Kass J, Skinner L, and **Parikh PJ** (2019). Contribution of human primary motor cortex to force variability during precision grasping presented at the annual Society for Neuroscience conference held in Chicago, IL.
23. Rao N, Cheng Yen-Ting, Ramirez R, Tran J, Li S, and **Parikh PJ** (2019). Theta burst stimulation over human primary somatosensory cortex elevates electrical pain perception threshold presented at the GCC Translational Pain Research Symposium held in Houston.
24. Skinner L, Rao N, and **Parikh PJ** (2019). Effects of Theta-Burst Stimulation over Primary Motor Cortex on Cortico-spinal and Intracortical Excitability in Healthy Adults. NSF REU meeting at UH. August 2019.
25. Rao N, Cheng Yen-Ting, Ramirez R, Tran J, Li S, and **Parikh PJ** (2019). Combating Pain using Noninvasive Brain Stimulation presented at the UH Graduate Research Showcase.
26. Rao N and **Parikh PJ** (2019). Neural Correlates of Human Digit Force Variability during Grasping presented at the IUCRC BRAIN 19.
27. **Parikh PJ** and Rao N (2018). Variability in Corticospinal Excitability During Digit Force Planning for Grasping in Humans. Clinical Motor Control Conference, July 2018, held at Penn State University.
28. Rao N, Ting Y, Ramirez R, Li S, and **Parikh PJ** (2018). Time Course of the Effects of Continuous Theta Burst Stimulation over Primary Somatosensory Cortex on Sensory and Pain Perception. Annual Society for Neuroscience meeting, Neuroscience 2018, held in San Diego, CA.

29. **Parikh PJ**, Mehta N, Patel P, Nguyen K, Rao N (2018). Aging impairs the use of explicit cues for anticipatory modulation of digit contact points for dexterous manipulation. Annual Society for Neuroscience meeting, Neuroscience 2018, held in San Diego, CA.
30. Rao N, Ting Y, Ramirez R, Li S, and **Parikh PJ** (2018). Time Course of the Effects of Continuous Theta Burst Stimulation over Primary Somatosensory Cortex on Sensory and Pain Perception. UH BRAIN Center meeting. December 2018.
31. Kass J, Rao N, and **Parikh PJ** (2018). Effects of Brain Stimulation on Cortical Excitability in Healthy Adults: A Validation Study. UH Undergraduate Research Day. October 2018.
32. Ramirez R, Rao N, and **Parikh PJ** (2018). Effects of Continuous Theta Burst Stimulation over Primary Somatosensory Cortex on Electrical Pain and Sensory Thresholds in Healthy Adults. NSF REU meeting at UH. August 2018.
33. Rao N and **Parikh PJ** (2017). Variability in Corticospinal Excitability During Digit Force Planning for Grasping in Humans. Annual Society for Neuroscience meeting, Neuroscience 2017, to be held in Washington DC.
34. Goel R, Nakagome S, Rao R, Contreras-Vidal J, **Parikh PJ** (2017). Role of Supplementary Motor Area in Postural Control. Annual Society for Neuroscience meeting, Neuroscience 2017, to be held in Washington DC.
35. **Parikh PJ**, Zhang W, Grimm K, Ross M, Santello M (2016). Sensorimotor deficits in Carpal Tunnel Syndrome: Relation between electrodiagnostic and grasp behavioral measures. Annual Society for Neuroscience meeting, Neuroscience 2016, San Diego, CA.
36. Hing PB, **Parikh PJ**, Yau JM (2016). Force production and sensorimotor learning: Developing a novel paradigm for understanding motor function in amputees. Baylor College of Medicine.
37. **Parikh PJ** and Santello M (2015d). Associative sensorimotor learning: the role of human premotor dorsal region. *Neuroscience 2015*, October, Chicago, IL, USA.
38. McGurrin P, **Parikh PJ**, Santello M (2015c). Context-dependent role of primary motor cortex in dexterous manipulation. *Neuroscience 2015*, October, Chicago, IL, USA.
39. **Parikh PJ**, Davare M, Santello M (2015b). Role of contralateral anterior intraparietal sulcus in coordinating digit force to position for dexterous manipulation. *Neural Control of Movement Conference, Charleston, SC, USA*.
40. Santello M, Ross M, Light J, **Parikh PJ** (2015a). Effects of carpal tunnel release surgery on recovery of sensorimotor hand function. *Neural Control of Movement Conference, Charleston, SC, USA*.
41. **Parikh PJ**, Davare M, Santello M (2014a). Role of contralateral anterior intraparietal sulcus in coordinating digit force to position for dexterous manipulation. *Neuroscience 2014* in November, Washington DC, USA.

42. Santello M, Ross M, Light J, **Parikh PJ** (2014b). Effects of carpal tunnel release surgery on recovery of sensorimotor hand function. *Neuroscience 2014* in November, Washington DC, USA.
43. **Parikh PJ**, McGurrin P, Davare M, Santello M (2013a). Corticospinal excitability during reach to grasp tasks. *Neuroscience 2013* in November, San Diego, USA.
44. Davare M, **Parikh PJ**, McGurrin P, Santello M (2013b). Probing corticospinal excitability at the point of object contact during constrained vs. unconstrained grasps. *Neuroscience 2013* in November, San Diego, USA.
45. **Parikh PJ** and Cole KJ (2012). Effect of cortical stimulation on sensorimotor functions of the hand in healthy old adults. *Neuroscience 2012* in October, New Orleans, USA.
46. **Parikh PJ** and Cole KJ (2012). Effect of cortical stimulation on sensorimotor functions of the hand in healthy old adults. *American Society of Biomechanics* annual conference, August 17, Gainesville, FL.
47. **Parikh PJ** and Cole KJ (2012). Grasp kinematics and kinetics during functionally relevant tasks in healthy elderly individuals. *Aging, Mind and Brain* symposium, March 23, IA.
48. **Parikh PJ** and Cole KJ (2011). Transfer of sensorimotor memory between hands to handle a novel object in old age. *Neuroscience 2011*, November 13, Washington DC, USA.
49. **Parikh PJ** and Cole KJ (2010). Age-related changes in digit-tip force directions during grasp and manipulation. *Neuroscience 2010*, November 14, San Diego, CA.
50. Jing X, **Parikh PJ**, Yuan L, Trudeau M, Dennerlein JT, Buchholz B (2008). Biomechanical evaluation of the air stretcher as an alternative for the carpet knee kicked. *Harvard-NIOSH Education and Research Center Pilot Project Symposium*, Boston, MA.

PROFESSIONAL AFFILIATIONS

Member

Society for Neuroscience. (2008-present)
American Heart Association (2018-present)
American College of Sports Medicine (2016-present)
American Physiological Society (2011-present)
American Society of Biomechanics (2010-present)
Registered Medical Practitioner, Gujarat Medical Council, India (2005-present)

TEACHING EXPERIENCE

Instructor

PEP 7397, Advanced Topics in Neurophysiology
(Spring 2021, 2023, 2025)

PEP 8304, HHP Journal Colloquium (motor behavior track – 5 times)
(Fall 2017, Fall 2018, Spring 2019, Fall 2019, Spring 2020)
KIN 4315, Motor Learning and Control (Face to Face – 6 times)
(Fall 2016, Spring 2017, Summer 2017, Fall 2017, Spring 2018, Fall 2018)
KIN 4310, Measurement in Human Performance (Face to Face and online)
(Fall 2020, Spring 2021, Fall 2021, Spring 2022, Fall 2022, Spring 2023,
Fall 2023, Spring 2024, Fall 2024, Spring 2025, Fall 2025)
KIN 1304, Public Health Issues in Physical Activity and Obesity (Fall 2025).

Guest lecturer

Research Seminar in HHP, PEP 7397
(one lecture per semester; Fall 2015, 2016, 2017, 2018, 2019)

Journal club facilitator

Neural Control of Movement laboratory, Arizona State University. (2012 – 2015)

Guest lecturer

Motor Control I: Neurophysiological basis of movement, Health and Human Physiology, Univ. of Iowa. (March 2011)
Human Anatomy, Dept. of Health and Human Physiology, Univ. of Iowa. (twice, 2010)

Teaching assistant

Motor Control I: Neurophysiological basis of movement, Univ. of Iowa. (2010)
Biomechanics of Human Motion lecture and laboratory, Univ. of Iowa. (2010)
Human Anatomy lecture and laboratory, Univ. of Iowa. (2009)

MENTORING EXPERIENCE

PhD students

Komal Kukkar, PT, MS, Dept. of Health and Human Performance (Fall 2021 – present)
Kayode Ahmed, MD, MS, University of Jamestown, Kansas (Dissertation co-chair: Fall 2024 – present)
Erik Albarran, DPT, Dept. of Health and Human Performance (co-mentor with Dr. Layne: Fall 2025 – present)

Vivian Rose, CPO, MSPO, Dept. of Health and Human Performance (2021 – 2024)
Current position: Human Factors Design Engineer, NASA Johnson Space Center, Houston, TX

Nishant Rao, BTech. Dept. of Health and Human Performance. (2016 – 2022)
Current position: Post-doctoral scholar, Yale University, New Haven, CT.

Rahul Goel, MS. Dept. of Health and Human Performance. (2014 – 2017)
Current position: Project Manager, Axiom Space, Houston, TX.

Visiting students (J1 scholars)

Matheus Valenca, BS in Medical Physics, University of São Paulo, Brazil (Fall 2025)

Fernando Miranda, a Biomedical Engineering undergraduate student at the Teca de Monterrey (Fall 2025)

MS students

Robert Magruder, BS, Department of Biomedical Engineering, Carnegie Mellon University, Pittsburgh, PA (2023-2024)

Current position: PhD student, Department of Mechanical Engineering, Univ. of Utah, NV Mahdis Dadfar, MS, Dept. of Health and Human Performance (Fall 2023 – Summer 2025)

Undergraduate students

Tina Pham (2024 – present)

Humza Mirza (2024 – present)

Adriel Perez (2024 – present)

Shalaka Dhavalikar, UH (2023 – present)

Gaby Garcia (2024- 2025)

Omar Mendez (2024- 2025)

Simone Mania, UH (2023 – present)

Shaun Kamal, UH (2023 – 2024)

Nikhila Anchante, UH (2023)

Victoria Nacinovich, UH (2021)

Diana Huynh, UH (2021 – 2024)

Anaga Ajoy, UH BME (2021 – 2023)

Sheel Shah, UH. (2020 – 2024)

Hiba Rabieh, UH. (2019 – 2022)

Pujan Patel, Texas A&M. (2018 – 2022)

Sampada Chaudhari, UH. (2019 – 2020)

Neha Mehta, UH. (2018 – 2021)

John Kass, UH. (2018 – 2019)

Eesha Kundra, UH. (2016 – 2017)

Michelle Constante, UH. (2016 – 2018)

John Tran, UH. (2016 – 2018)

Deandra Wright, NYU Tandon School of Engineering. (2015)

Umair Siddiqi, UH. (2015 – 2018)

Ahmed Kayode Michael, University of Lagos, Lagos Nigeria. (2015 – 2016)

Jonathan Brown, UH. (2015 – 2016)

NIH Research Education Program (R25)

Mark Martinez, University of Texas at Austin (Summer 2024)

Robert Magruder, Carnegie Mellon University (Summer 2024)

Kayode Ahmed, Johns Hopkins University (Summer 2024)

Amir Srour (Summer 2023)

Kennedy Leonard, Johns Hopkins University (Summer 2023)

NSF Research Experience for Undergraduates (REU)

Alyssa Halloway, Austin College. (Summer 2023)

Kennedy Leonard, Johns Hopkins University. (Summer 2021)

Mira Mutnick, Georgia Institute of Technology. (Summer 2020)

Grace McClurg, Western Kentucky University. (Summer 2020)
Landon Skinner, Villanova University. (Summer 2019)
Regan Ramirez, Trinity University. (Summer 2018)

High School Students

Khaleeq Rahman, Klein Cain High School, North Houston, TX. (2020 – 2021)
Roshini Thiagarajan, Seven Lakes High School, Katy, TX. (2015)

Visiting Students

Patrick Hing, BS, Baylor College of Medicine. (2015-2016)
Deandra Wright, NYU Tandon School of Engineering. (2016-2017)
Ahmed Kayode Michael, MD, University of Lagos, Idi-Araba, Lagos Nigeria. (2015-2016)

Dissertation/thesis committees for students not in my laboratory

Manuel Portilla, Biomedical Engineering, UH (PhD committee)
Yoon No Gregory Hong, Biomedical Engineering, UH (PhD committee)
Genevieve A. Johnson, Electrical and Computer Engineering, UH (PhD committee)
Gang Seo, Biomedical Engineering, UH (PhD committee)
Hy Khanh Doan, Biomedical Engineering, UH (MS committee)
Hannah Gufstason, Health and Human Performance, UH (PhD committee)
Brock Futrell, Health and Human Performance, UH (PhD committee)
Saba, Health and Human Performance, UH (PhD committee)
Akshay Ravindran, Electrical and Computer Engineering, UH (PhD committee)
Andrew Paek, Electrical and Computer Engineering, UH. (PhD committee)
Chris Malaya, Health and Human Performance, UH. (PhD committee)
Hidetaka Hibino, Health and Human Performance, UH. (PhD committee)
Taruna Yadav, Biomedical Engineering, UH. (PhD committee)
David Young, Health and Human Performance, UH. (PhD committee)
Lauren Gulley, Health and Human Performance, UH. (PhD committee)
Ram Kinker Mishra, Health and Human Performance, UH. (PhD committee)
Hidetaka Hibino, Health and Human Performance, UH. (PhD Candidacy paper committee)
Hao Meng, Health and Human Performance, UH. (PhD committee)
Yoshimi Lu, Biomedical Sciences, UH. (Honors thesis committee member)
Patrick Hing, Orthotics and Prosthetics, Baylor College of Medicine. (MS thesis committee)

SERVICES

University of Houston

Watermark Implementation Working Group (replacing Sedona). (2025 – present)
IRB committee 1 member. (2021 – present)
College of Medicine Scholarly Project Mentor. (2020 – present)
Faculty member of the NSF-funded BRAIN (Building Reliable Advances and Innovations in Neurotechnology) center, at the University of Houston. (2018 – present)
Academic advisor for a student-led organization, *Aspiring American Medical Professionals*.

(2016 – present)

Department

Director, Center for Neuromotor and Biomechanics Research (2021 – 2025)
Annual faculty review committee. (2020 – 2023)
Dietetic Internship Application Review committee (8 times). (2016 – 2021)
DPT Program Director Search committee. (2016-2017)

Graduate program in Kinesiology

Chair, Graduate Research Degree Membership committee (2023 – 2025)
APAR subcommittee. (2016)

Local Foundation

Judge at Mission Connect symposium. (2017, 2021)
Member of Mission Connect – TIRR Foundation. (2016 – present)

Journal Editor

Associate Editor at *Frontiers in Aging Neuroscience*. (Upon invitation; 2014 – present)
Review Editor at *Frontiers in Medical Engineering, Clinical Engineering section* (Upon invitation; 2022 – present)
Review Editor at *Frontiers in Neurorobotics* (Upon invitation; 2022 – present)

Journal manuscript reviewer

Journal of Neurophysiology.
Cerebral Cortex.
npj Microgravity (nature partner journals).
Neuropsychologia.
Sensors
Journal of Neuroscience.
Neuroscience Letters.
Frontiers in Neuroscience.
Neurobiology of Aging.
Journal of Applied Biomechanics.
Cognition.
AGE.
Frontiers in Aging Neuroscience.
Frontiers in Human Neuroscience.
IEEE Transactions in Human-Machine Systems
IEEE Transactions on Haptics.
IEEE Transactions in Neural Systems and Rehabilitation Engineering.
PLoS One.
Experimental Brain Research.
Journal of Motor Behavior.
Journal of Neurology, Neurosurgery, and Psychiatry.
Neuroscience

Brain Sciences

National

NIH NINC Neuromodulation and Neural Circuits (2025)
NIH Medical Rehabilitation Research Resource (P50 Clinical Trial Optional) (2025)
NIH NINDS R25 Research Education Grants (2024)
NIH NICHD T32 Institutional Training Grants (2024)
NIH NINDS ZNS1 SRB-G (66) Clinical Trials and Comparative Effectiveness Research in Neurology (2024)
NIH CHHD-K Function, Integration, and Rehabilitation Sciences (2024)
NIH Sensorimotor study section (2023)
NSF CAREER review panel (2023)
NIH Small Business grants study section reviewer (2021, 2022, 2023)
AHA Grant reviewer (March 2021)
NIH Sensorimotor Integration Study Section – research grant applications (R series) reviewer. (2020)
IEEE/RAS-EMBS International Conference on Rehabilitation Robotics (2015)
American Society of Biomechanics Annual Conference – abstract reviewer (2012)