Wang, Yiyu

Gender: Male

Date of Birth: 11-07-1991

Address: 428 Peretsman-Scully Hall Princeton, New Jersey, 08544

Email: yw4722@princeton.edu

EDUCATION

Texas A&M University, College Station, TX

Ph.D. (Distinguished Honor Graduate) in Motor Neuroscience 2018 – 2023

Texas A&M University, College Station, TX

Graduate Certificate in Applied Statistics 2018 – 2020

The University of Illinois at Chicago, Chicago, IL

MS in Exercise Physiology 2014 – 2016

Shanghai University of Sport, Shanghai, China

BS in Kinesiology 2010 – 2014

Professional Appointments

Post-Doctoral Research Associate

Department of Psychology, Princeton University, Princeton, NJ 2024 –

Post-Doctoral Research Associate

Shirley Ryan AbilityLab/Northwestern University, Chicago, IL 2023 – 2024

Graduate Research Assistant

Texas A&M University, College Station, TX 2018 – 2023

Academic Honors, Fellowships & Awards

Distinguished Honor Graduate

School of Education and Human Development, Texas A&M University 2023

Huffine Travel Grant ($800)

Huffine Institute for Sports Medicine & Human Performance 2021

Travel Scholarship Award (Conference Travel Cost Reimbursement)

North American Society for The Psychology of Sport and Physical Activity 2020

Dean’s Graduate Award ($4000)

School of Education and Human Development, Texas A&M University 2020

Huffine Travel Grant ($800)

Huffine Institute for Sports Medicine & Human Performance 2019

Conference Travel Grant ($500)

School of Education and Human Development, Texas A&M University 2019

Conference Travel Grant ($500)

Office of Graduate and Professional Studies Travel Grant 2019

Huffine Travel Grant ($800)

Huffine Institute for Sports Medicine & Human Performance 2018

Conference Travel Grant ($500)

School of Education and Human Development, Texas A&M University 2018

Graduate College Tuition Deferment Award (Tuition Waiver)

The University of Illinois at Chicago, Chicago, IL 2015 – 2016

Van Doren Scholarship ($250)

The University of Illinois at Chicago, Chicago, IL 2014

Research Grant

Huffine Research Grant ($1500)

Huffine Institute for Sports Medicine & Human Performance 2021 – 2022

Graduate Research Grant ($1132)

School of Education and Human Development, Texas A&M University 2019 – 2020

Graduate Research Grant ($840)

School of Education and Human Development, Texas A&M University 2018 – 2019

Teaching Experience and Community Service

Lecture – KINE 689 (Non-Invasive Brain Stimulation)

Texas A&M University, College Station, TX F2022

Graduate Student Workshop for MATLAB Programming

Texas A&M University, College Station, TX S2022

Invited Lecture – KINE 307 (Motor Development)

Texas A&M University, College Station, TX S2019

Physical Education Class Coach

Texas A&M Consolidated High School, College Station, TX F2017

Physical Education Class Coach

College Station Middle School, College Station, TX S2017

Published Journal Articles (\*First Author; #Second Author with Significant Contribution)

**Wang, Y\*.,** Neto, O. P., Weinrich, M., Abbott, R., Diaz-Artiles, A., & Kennedy, D. M. (2024). The effect of inherent and incidental constraints on bimanual force control in simulated Martian gravity. Human Movement Science, 95, 103199. (2022 Impact Factor: 2.1).

**Keywords:** altered gravity**,** bimanual coordination, neural crosstalk, Lissajous displays

Bao, S., **Wang, Y#.,** Escalante, Y. R., Li, Y., & Lei, Y. (2024). Modulation of Motor Cortical Inhibition and Facilitation by Touch Sensation from the Glabrous Skin of the Human Hand. Eneuro, 11(3). (2022 Impact factor: 3.4)

**Keywords:** finger stimulation, brain stimulation, the glabrous skin, primary motor cortex, primary somatosensory cortex

**Wang, Y\*.,** Huynh, A. T., Bao, S., Buchanan, J. J., Wright, D. L., & Lei, Y. (2024). Memory consolidation of sequence learning and dynamic adaptation during wakefulness. Cerebral Cortex, bhad507. (2022 Impact factor: 3.7)

**Keywords:** memory consolidation, sequence learning, dynamic adaptation, sensorimotor cortex, wakefulness

**Wang, Y\*.,** Neto, O. P., Weinrich, M. M., Castro, R., Wright, T., & Kennedy, D. M. (2022). The influence of distal and proximal muscle activation on neural crosstalk. Plos one, 17(10), e0275997. (2022 Impact factor: 3.7)

**Keywords:** EMG-EMG coherence, rhythmic bimanual force coordination, distal muscle, proximal muscle, crosstalk

Hua, R., **Wang, Y#.,** Kennedy, D. M., Hubbard, J. E., & Wang, Y. (2022). Toe Tapping Based Falling Risk Evaluation for Patients With Parkinson's Disease Using Monitoring Insoles. IEEE Sensors Letters, 6(6), 1-4. (2022 Impact factor: 2.8)

**Keywords:** acceleration, falling risk evaluation, monitoring insole, Parkinson’s disease, toe tapping

Bao, S., **Wang, Y#.,** Wright, D. L., Buchanan, J. J., & Lei, Y. (2022). Differences in motor unit recruitment patterns and low frequency oscillation of discharge rates between unilateral and bilateral isometric muscle contractions. Human Movement Science, 83, 102952. (2022 Impact factor: 2.1)

**Keywords:** bimanual contraction, motor unit, surface EMG decomposition, coefficients of variation, first common component, size principle

Diaz-Artiles, A., **Wang, Y#.,** Davis, M. M., Abbott, R., Keller, N., & Kennedy, D. M. (2022). The Influence of Altered-Gravity on Bimanual Coordination: Retention and Transfer. Frontiers in Physiology, 2378. (2022 Impact factor: 4.0)

**Keywords:** tilt paradigm, simulated microgravity, force control, Lissajous displays, motor learning

Davis, M. M., **Wang, Y#.,** Bao, S., Buchanan, J., Wright., D. L., Lei, Y. (2021) The interaction between primary somatosensory and motor cortex during human grasping behaviors. Neuroscience. (2022 Impact factor: 3.3)

**Keywords:** somatosensory cortex, motor cortex, grasping, paired-pulse brain stimulation, dual-site TMS

**Wang, Y\*.**, Neto, O. P., Davis, M. M., & Kennedy, D. M. (2021). The effect of inherent and incidental constraints on bimanual and social coordination. Experimental Brain Research, 1-17. (2022 Impact factor: 2.1)

**Keywords:** bimanual coordination, social coordination, neural crosstalk, Lissajous feedback

Kennedy, D.K., Wang, C., **Wang, Y.,** & Shea, C.H. (2021). The influence of accuracy constraints on bimanual and unimanual sequence learning. Neuroscience Letters, 751, 135812. (2022 Impact factor: 2.5)

**Keywords:** sequence learning, bimanual coordination, unimanual control, Fitts’ Law, accuracy constraints

Pinto Neto, O., Kennedy, D. M., Reis, J. C., **Wang, Y.**, Brizzi, A. C. B., Zambrano, G. J., ... & Zângaro, R. A. (2021). Mathematical model of COVID-19 intervention scenarios for São Paulo—Brazil. Nature Communications, 12(1). (2022 Impact factor: 16.6)

**Keywords:** SUEIHCDR compartmental model, epidemiology, COVID-19, social distancing strategy, preventive medicine

Kennedy, D. M., Zambrano, G. J., **Wang, Y.**, & Neto, O. P. (2020). Modeling the effects of intervention strategies on COVID-19 transmission dynamics. Journal of Clinical Virology, 104440. (2022 Impact factor: 8.8)

**Keywords:** COVID-19, mathematical modeling, compartmental model, intervention strategies, pandemic

Kovacs, A. J., **Wang, Y#.**, & Kennedy, D. M. (2020). Accessing interpersonal and intrapersonal coordination dynamics. Experimental Brain Research, 238(1), 17-27. (2022 Impact factor: 2.1)

**Keywords:** bimanual coordination, interpersonal coordination, intrapersonal coordination, coordination dynamics, Lissajous feedback

Quan, M., Xun, P., Chen, C., Wen, J., **Wang, Y.**, Wang, R., ... & He, K. (2017). Walking pace and the risk of cognitive decline and dementia in elderly populations: a meta-analysis of prospective cohort studies. The Journals of Gerontology: Series A, 72(2), 266-270. (2022 Impact factor: 6.6)

**Keywords:** cognitive decline, dementia, meta-analysis, walking pace

Manuscript in Pre-print or Data Available

**Wang, Y.,** Weinrich, M. M., Lei, Y., Wright, D. L., Sandhu, M., Buchanan, J. J., & Kennedy, D. M. (2024). Generalization in motor learning: learning bimanual coordination with one hand. bioRxiv, 2024-04.

**Keywords:** bimanual coordination, virtual partner, motor generalization, memory consolidation, motor learning

**Wang, Y\*.,** Weinrich, M., Jimenez, J., Kennedy, D.M. Assessing the difference in bimanual force coordination dynamics between young children and healthy adults (In manuscript).

**Keywords:** coordination dynamics, bimanual coordination, motor development, Lissajous feedback, bimanual force coherence

**Wang, Y\*.,** Weinrich, M., Lei, Y., Wright, D., Buchanan, J\*., Kennedy, D\*. Neural Mechanisms of learning a novel bimanual coordination skill. (Data available)

**Keywords:** bimanual coordination, virtual partner, motor excitability, interhemispheric inhibition, motor generalization, TMS

Conference Presentation and Published Abstracts

**Wang, Y**., Weinrich, M., Bao, S., Lei, Y., Wright, L.D., Buchanan, J.J. (2023) The representation of a novel bimanual skill is lateralized to the dominant hemisphere. Progress in Clinical Motor Control II Movement and Rehabilitation Science.

**Wang, Y**., Weinrich, M., Bao, S., Lei, Y., Wright, L.D., Buchanan, J.J. (2022) The investigation of bilateral M1 excitability after training with a bimanual skill. Society of Neuroscience.

Kennedy, D.M., Neto. O.P., Weinrich. M., Keller. N., **Wang, Y.,** Diaz-Artiles, A. (2022) EMG-EMG wavelet coherence analysis of muscle coupling during bimanual tasks in altered-gravity. Society of Neuroscience.

**Wang, Y.,** Huynh, T. A., Richardson, B. E., Bao, S., Buchanan, J. J., Wright, D. L., Lei, Y. (2022). The consolidation mechanisms of motor adaptation and sequence learning. NASPSPA.

Kennedy, D.M., **Wang, Y.**, Weinrich, M. , & Abbott, R., Diaz-Artiles, A.  (2022). Bimanual force control in simulated martian gravity. Journal of Sport & Exercise Psychology, 44, S41.

**Wang, Y.**, Neto, O.P., Weinrich, M. ¥, Castro, R. ¥, Wright, T., &  Kennedy, D.M. (2022). Proximal and distal muscle activation differentially affect bimanual coordination. Journal of Sport & Exercise Psychology, 44, S58.

Weinrich, M., **Wang, Y.** , & Kennedy, D.M. (2022). Time onset and amplitude of force drift during unimanual and bimanual isometric contractions in Parkinson’s disease. Journal of Sport & Exercise Psychology, 44, S58.

Davis, M.M., **Wang, Y.**, & Kennedy, D.M. (2021). Constant and dynamic bimanual isometric force production in individuals with Parkinson’s disease. NASPSPA.

Davis, M.M., **Wang, Y.,** Woodruff, R., Diaz Artiles, A., & Kennedy, D.M. (2021). The influence of gravity on in-phase coordination. NASPSPA.

Davis M., **Wang Y.,** Woodruff R., Wright T., Dunbar B.J., Diaz-Artiles A., & Kennedy, D.M. (2021). The influence of perceptual constraints on bimanual force coordination in simulated microgravity. International Society for Gravitational Physiology.

Diaz-Artiles, A., Woodruff, R., Davis, M.M., **Wang, Y.,** Dunbar, B.J., & Kennedy, D.M. (2021). Bimanual coordination in altered gravity during parabolic flight. NASA HRP IWS.

Hondzinski, J.M., Davis, M., **Wang, Y.,** Catro, R., Hua, R., Kennedy, D.M. (2021). The effects of bimanual coordination constraints on postural control. Society for Neuroscience.

Kennedy, D.M., Davis, M.M., **Wang, Y.,** & Neto, O.P. (2021). The influence of integrated feedback information on bimanual force control in individuals with Parkinson’s disease. NASPSPA.

Kennedy D.M., Davis, M.., Woodruff, R.., **Wang, Y.,** Wright T., Dunbar B.J., Diaz-Artiles A. (2021). The influence of altered-gravity on bimanual force coordination. International Society for Gravitational Physiology.

**Wang, Y.,** Davis, M.M., & Kennedy, D.M. (2021). Unimanual and bimanual force control in Parkinson’s patients. NASPSPA.

**Wang, Y.,** Davis, M., Woodruff, R., Wright, T., Dunbar B.J., Diaz-Artiles A., & Kennedy, D.M. (2021) Integrated feedback displays to facilitate bimanual coordination in simulated microgravity. International Society for Gravitational Physiology.

**Wang, Y.,** Pinto Neto, O., Davis, M.M., Castro, R.J., Wright, T.J., & Kennedy, D.M. (2021). The influence of proximal and distal muscle activation on bimanual interference. Society for Neuroscience.

**Wang, Y.,** Neto, O.P., Davis, M.M., & Kennedy, D.M. (2021). EMG-EMG wavelet coherence between homologous muscles during symmetric and asymmetric bimanual coordination. NASPSPA.

Woodruff, R., Davis, M., **Wang, Y.,** Wright, T., Dunbar, B.J., Kennedy D.M., & Diaz-Artiles A. (2021). Effect of centrifuge generated altered-gravity on bimanual coordination. International Society for Gravitational Physiology

Davis, M.M., Cohen Gomez,L., **Wang, Y.**, & Kennedy, D.M. (2020). Assessing coordination dynamics in children. NASPSPA

Kennedy, D.M., **Wang, Y.**, & Pinto Neto, O. (2020). The effects of neural crosstalk on coordination dynamics. NCM.

Kennedy, D.M., **Wang, Y.**, & Pinto Neto, O. (2020). The influence of integrated feedback information on bipedal force control. NASPSPA.

**Wang, Y.**, Davis, M.M., Safdari, S., & Kennedy, D.M. (2020). Response biases: The role of interhemispheric transmission time. NASPSPA.

**Wang, Y.**, & Kennedy, D.M. (2020). The influence of accuracy requirements on bimanual and unimanual sequence learning. NASPSPA.

**Wang, Y.**, Pinto Neto, O., & Kennedy, D.M. (2020). The influence of neural crosstalk on 1:1 in-phase coordination. NCM

**Wang, Y.**, Pinto Neto, O., Kovacs, A.J., & Kennedy, D.M. (2020). Stability properties associated with bimanual and social coordination. NASPSPA.

**Wang, Y.**, & Kennedy, M. Deanna. (2019). The influence of right limb force level on a multi-frequency bimanual coordination task. Research abstract presented in North America Society of Psychology and Physical Activity, Baltimore, Maryland, USA

**Wang, Y.**, Bernard, J., Buchanan, J., & Wright, D. (2019). Remote Activation of The Ventral Midbrain Using tDCS of Prefrontal Cortex Enhances Online Performance of a Motor Sequence Skill. Research abstract presented in the 29th Annual Meeting of the Neural Control of Movement., Toyama, Japan

Dissertation

“Hemispheric influence on learning and consolidation of a dynamic pattern with 90-degree relative phase” (Defended)

**Keyword:** Rhythmic Bimanual coordination, Virtual Partner Interaction, TMS, Paired pulse TMS of interhemispheric inhibition

Research Talks

“Exploring neural mechanisms of movements using transcranial magnetic stimulation”

Neuroscience Institute, Princeton University, NJ 2024.02

“Neural competition or cooperation? the way to learn a new bimanual skill”

Biomedical Engineering Department, Anhembi Morumbi University, Brazil 2022.10

“The influence of proximal and distal muscle activation on bimanual interference”

Shanghai University of Sports, Department of Kinesiology, Shanghai, China 2021.11

Experimental techniques and skills

Computer-based motor learning tasks programming (MATLAB)

Statistical analysis and modeling (R, SAS, and SPSS)

Non-invasive brain stimulation (Transcranial Magnetic Stimulation and Transcranial Direct Current Stimulation)

Time-series signal decomposition and analysis (Force Transducers, AMTI Force Plate, Electromyography, and Electroencephalogram)

Professional Memberships

Society for the Neural Control of Movement (NCM)

North American Society for The Psychology of Sport and Physical Activity (NASPSPA)

Society for Neuroscience (SfN)