Yuchao Wang PT, DPT

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Education

2024- **Duke University**, Ph.D. Student.
Incoming through Cognitive Neuroscience Admitting Program.

2021-2024 **MGH Institute of Health Professions**, Doctor of Physical Therapy, 3.96/4.0.
Board-licensed in the Commonwealth of Massachusetts.

2016-2019 **Haverford College**, B.A. in Cognitive Science (*summa cum laude*), 3.98/4.0.
Bachelor's Thesis: Neural Correlates of Aesthetic Engagement with Literature.

Research Experience

2024/3-Present **Research Fellow**, MGH Institute of Health Professions.
Brain Recovery Lab
Advisor: Teresa Jacobson Kimberley, Ph.D., PT
- Exploring state-dependent BOLD dynamics in laryngeal and focal hand dystonia.

2021/9-2024/1 **Research Assistant**, MGH Institute of Health Professions.
Brain Recovery Lab
Advisor: Teresa Jacobson Kimberley, Ph.D., PT
- Investigated the neurophysiology of focal dystonia and stroke using TMS and resting-state fMRI.
- Characterized TMS coil differences and head positioning with E-field modeling.

2020/2–2021/4 **Research Specialist**, University of Pennsylvania.
Laboratory for Cognition and Neural Stimulation
Advisors: H. Branch Coslett, M.D., Roy Hamilton, M.D.
- Managed clinical trials for stroke and Alzheimer's disease patients and administered TMS treatments.
- Examined motor and semantic systems in neurorehabilitation using DTI (differential tractography).

2019/2-2019/12 **Research Student (Thesis)**, University of Pennsylvania.
Penn Center for Neuroaesthetics
Advisors: Anjan Chatterjee, M.D., Franziska Hartung, Ph.D.
- Investigated Dutch literary stories to explore the neural correlates supporting aesthetic feelings.
- Designed surveys and built pipelines in R and MATLAB to analyze behavioral and fMRI data.

2018/5-2018/8 **Research Assistant**, Haverford College.
Biophysics Lab
Advisor: Suzanne Amador Kane, Ph.D.
- Simulated animal vision to demonstrate peacock feathers may serve as camouflage against predators.
- Performed reflectance spectroscopy, multispectral imaging, and granularity analysis.

Publications

2024 **Wang, Y.**, Nummenmaa, A., Kimberley, T.J. Together towards more accessible, standardized TMS protocols: Reply to Sorkhabi and Leedham. *Brain Stimulation*. Link

2024 **Wang, Y.**, Vora, I., Huynh, B.P., Picard-Fraser, M., Daneshzand, M., Nummenmaa, A., Kimberley, T.J. Coils are not created equal: Effects on TMS thresholding. *Brain Stimulation*. Link | Data&Code

2024 Coslett, H.B., Medina, J., Goodman, D.K., **Wang, Y.**, Burkey, A. Can they touch? A novel mental motor imagery task for the assessment of back pain. *Frontiers in Pain Research*. Link | Data

2021 Hartung, F.*, **Wang, Y.***, Mak, M., Willems, R., Chatterjee, A. Aesthetic appraisals of literary style and emotional intensity in narrative engagement are neurally dissociable. *Communications Biology*. Link | Data&Code *Co-first author

2019 Kane, S. A., **Wang, Y.**, Fang, R., Lu, Y., Dakin, R. How conspicuous are peacock eyespots and other colorful feathers in the eyes of mammalian predators? *PLOS ONE*. Link | Media: Discovery Canada, Haverford College

Conference Presentations

2023/11 **Wang, Y.**, Hu, D., Chen, M., Huynh, B., Burns, J., Liu, H., Kimberley, T.J. Preliminary network changes in action-specific focal dystonia using individualized cortical parcellation. Annual Meeting of the Society for Neuroscience, Washington, D.C., USA.

2023/8 **Wang, Y.**, Vora, I., Huynh, B., Picard-Fraser, M., Kimberley, T.J. What you're not considering that may be impacting your TMS data. 3rd Brain and Human Body Modeling Conference, Boston, MA, USA. *Oral Presentation*

2023/7 **Wang, Y.**, Kelkar, A., Harvey, D.Y., Medaglia, J.D., Hamilton, R., Coslett, H.B. Motor recovery following rTMS for post-stroke aphasia: A case study with tractography. Annual Meeting of the Organization of Human Brain Mapping, Montréal, Canada.

2023/6 **Wang, Y.**, Hu, D., Addison, R.N., Huynh, B., Burns, J., Liu, H., Kimberley, T.J. Individualized parcellation reveals cortical changes in superior temporal gyrus in action-specific focal dystonia: Preliminary results. 6th International Dystonia Symposium, Dublin, Ireland.

2023/2 **Wang, Y.**, Wartman, W., Vora, I., Miles, A., Huynh, B., Makaroff, S.N., Kimberley, T.J. Effect of head positioning on TMS intensity: E-field modeling and validation. 5th International Brain Stimulation Conference, Lisbon, Portugal. *Oral presentation*

2022/8 **Wang, Y.**, Daneshzand, M., Vora, I., Huynh, B., Ackley, K., Nummenmaa, A., Kimberley, T.J. Coil matters for rTMS dosing: A pilot study using E-field modeling. 2nd Brain and Human Body Modeling Conference, Boston, MA, USA. *Oral Presentation*

2020/10 **Wang, Y.**, Harvey, D.Y., Vnenchak, L., Cason, S., Sacchetti, D., Hamilton, R., Coslett, H.B. Combined rTMS and constraint induced language therapy reveals interactions between language and motor systems: A case study. Annual Meeting of the Society for the Neurobiology of Language, Online.

2020/5 **Wang, Y.**, Hartung, F., Marloes, M., Willems, R., Chatterjee, A. Neural Correlates of Aesthetic Engagement with Literature. Annual Meeting of the Cognitive Neuroscience Society, Online. *Oral Presentation (4.6%)* | Video

2020/1 Kane, S. A., **Wang, Y.**, Fang, R., Lu, Y., Dakin, R. How conspicuous are peacock eyespots and other colorful feathers in the eyes of mammalian predators? Annual Meeting of the Society for Integrative and Comparative Biology, Austin, TX, USA.

2019/9 Kane, S. A., **Wang, Y.**, Fang, R., Lu, Y., Dakin, R. Are Colorful Feathers Sexy yet Dangerous? Start Talking Science, Philadelphia, PA, USA.

2017/8 **Wang, Y.** Self-Formation: A Philosophical Perspective on the Reconciliation Process at Peace Museums in Japan and China. Asia-Pacific Peace Research Association Conference, Penang, Malaysia.

2017/4 Yang, S., **Wang, Y.** The Diaries of John Rabe Witnessing the Nanjing Massacre. 9th International Conference of Museums for Peace, Belfast, Northern Ireland.

Awards

2024 Mary Mankin Prize, MGH Institute of Health Professions

2023 Trainee Professional Development Award ($1,000), Society for Neuroscience

2023 Innovative Spirit Award, MGH Institute of Health Professions

2021-2023 MGH Institute Scholarship ($74,000), MGH Institute of Health Professions

2020 Summa cum laude, Haverford College

2019 Phi Beta Kappa, Haverford College

2019 KINSC Summer Scholar ($3,700), Haverford College

2018 SAMSI Undergraduate Workshop on Precision Medicine (∼$1,000), Statistical and Applied Mathematical Sciences Institute

2017 CPGC Conference Fund ($1,600), Haverford College

2012-2015 SM1 Scholarship (4-year tuition and living expenses), Ministry of Education, Singapore

Professional Activities

2022 **Organizer**, "How to PT" Sharing Series, MGH Institute of Health Professions.

Current and past **Member**.

- Society for Neuroscience
- American Physical Therapy Association
- Society for the Neurobiology of Language
- Cognitive Neuroscience Society
- Society for Integrative and Comparative Biology

2019 **Student Representative**, Search Committee for Athletic Center Director, Haverford College.

2018-2019 **Co-President**, Pre-Health Society, Haverford College.

Clinical Work

Full-time Employment

2024/3-2024/6 **Linda Manor Extended Care Facility**, Leeds, MA.
Skilled Nursing Facility and Long-Term Care

Full-time Internship

2023/9-2023/12 **Brigham and Women's Hospital**, Boston, MA.
Inpatient Acute Care

2023/2-2023/4 **MedStar National Rehabilitation Hospital**, Washington, D.C.
Outpatient Center for Orthopedic Rehabilitation

2022/6-2022/8 **Spaulding Rehabilitation Hospital**, Charlestown, MA.
Inpatient Stroke/Neurology Unit

Integrated Clinical Experience

2022 Fall **IMPACT Center, MGHIHP**, Charlestown, MA.

2022 Spring **Bay State Physical Therapy - Whittier**, Boston, MA.

2021 Fall **Massachusetts General Hospital**, Boston, MA.

Teaching

2022/9-2023/12 **Review Session Leader**, MGH Institute of Health Professions.

- Leading weekly review sessions for DPT students.

2019/1-2019/12 **Peer Tutor**, Haverford College.

- Tutored linguistics (semantics, syntax), Chinese (all levels), physics (Newtonian mechanics, electromagnetism, special relativity) and mathematics (linear algebra) on an ad hoc basis.

Skills

Technical TMS, rs/fMRI (Freesurfer, SPM), DTI (DSI Studio), EEG, Qualtrics, REDCap, ImageJ, Git, LaTeX

Language R, MATLAB, Python, BASH | English, Chinese, Latin(basic)