

Yuchao Wang

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Education

- 2021-2024 **MGH Institute of Health Professions**, Doctor of Physical Therapy candidate, 3.96/4.0.
Expected to complete NPTE (board exam) in January 2024 for clinical licensure.
- 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

- 2021/9- Present **Research Assistant**, MGH INSTITUTE OF HEALTH PROFESSIONS.
Brain Recovery Lab
Advisor: Teresa Jacobson Kimberley, PT, Ph.D.
◦ Investigating the neurophysiology of focal dystonia and stroke using TMS and resting-state fMRI.
◦ Characterizing 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- **Research Student (Thesis)**, UNIVERSITY OF PENNSYLVANIA.
2019/12 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 naturalistic fMRI data.
- 2018/5- **Research Assistant**, HAVERFORD COLLEGE.
2018/8 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.
- 2017/5- **Summer Intern**, HAVERFORD COLLEGE.
2017/8 Quaker & Special Collections
◦ Transcribed and encoded documents (120,000+ words) related to Quaker missionaries' visit to Seneca Nations in 1798 into TEI format for a research database.

Publications

- Hartung, F.*, **Wang, Y.***, Mak, M., Willems, R., Chatterjee, A. (2021). Aesthetic appraisals of literary style and emotional intensity in narrative engagement are neurally dissociable. *Communications Biology*.
Paper | Data&Code *co-first author
- Kane, S. A., **Wang, Y.**, Fang, R., Lu, Y., Dakin, R. (2019). How conspicuous are peacock eyespots and other colorful feathers in the eyes of mammalian predators? *PLOS ONE*.
Paper | Media coverage: Discovery Canada, Haverford College

UNDER REVIEW

- **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
- Coslett, H.B., Medina, J., Kliot, D., **Wang, Y.**, Burkey, A. Can they touch? A novel mental motor imagery task for the assessment of back pain

IN PREPARATION

- Kimberley, T.J., **Wang, Y.**, Wartman, W.A., Miles, A.L., Huynh, B.P., Vora, I., Makaroff, S.N. Shift happens: Considerations for brain shift in TMS and E-field modeling

OTHER

- o **Wang, Y.** (2018) Starting From the Title: Translating a Captured Ruler and His Captivating *Ci*. DoubleSpeak Magazine, University of Pennsylvania
- o **Wang, Y.** (2017) Self-Formation: A Philosophical Perspective on the Reconciliation Process at Peace Museums in Japan and China. Center for Policy Research and International Studies, Universiti Sains Malaysia

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

- 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 (\$1,611), 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 **Member**.
 - past
 - o Society for Neuroscience
 - o American Physical Therapy Association
 - o Society for the Neurobiology of Language
 - o Cognitive Neuroscience Society
 - o 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 Training

Full-time

- 2023/9- **Brigham and Women's Hospital**, BOSTON, MA.
- 2023/12 Inpatient Acute Care
- 2023/2- **MedStar National Rehabilitation Hospital**, WASHINGTON, D.C.
- 2023/4 Outpatient Center for Orthopedic Rehabilitation
- 2022/6- **Spaulding Rehabilitation Hospital**, CHARLESTOWN, MA.
- 2022/8 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- **Review Session Leader**, MGH INSTITUTE OF HEALTH PROFESSIONS.
- Present
 - o Leading weekly review sessions for DPT students.
- 2019/1- **Peer Tutor**, HAVERFORD COLLEGE.
- 2019/12
 - o 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)
- Office Microsoft Suite, Google Suite
- Competency BLS, EPIC, WebPT, HIPAA