

Xin (Ashley) Hao

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(last updated 10/12/2025)

EDUCATION

Vanderbilt University, Peabody College, Nashville, TN

August 2024 – May 2026 (Expected)

M.S. Cognitive Psychology in Context

GPA: 4.0/4.0 | Advisor: Sophia Vinci-Booher, PhD

Master's Thesis: Symbolic and Non-symbolic Number Processing in Ventral and Dorsal Cortices: A Longitudinal Study from Kindergarten to Second Grade | Advisor: Dr. Sophia Vinci-Booher & Dr. Gavin R. Price

Syracuse University, College of Arts & Sciences, Syracuse, NY

August 2019 – May 2023

Double major in B.S. Psychology & B.S. Neuroscience | Minor: Nutrition

GPA: 3.8/4.0 | summa cum laude

Psychology GPA: 4.0/4.0 | Neuroscience GPA: 4.0/4.0

RESEARCH INTERESTS

Brain development, Learning, Attention, Neuroimaging, Vision

RESEARCH EXPERIENCE

The Learning and NeuroDevelopment (LAND) Lab

Vanderbilt University, TN

Master's Research Assistant | PI: Dr. Sophia Vinci-Booher

August 2024 – Present

- Implemented quality control (MRIQC) and preprocessing pipelines (ANTs, fMRIprep), analyzed 110 pediatric subjects on task-based fMRI sessions across 3 longitudinal waves using FSL and Nipype.
- Conducted whole-brain and ROI analyses to examine developmental differences in ventral (occipitotemporal) and dorsal (frontal/parietal) cortices during symbolic recognition and magnitude processing; presented results in a poster and preparing manuscript^[10] for peer-reviewed publication.
- Conducted quality control on 80 DWI based on white matter streamlines number and Fractional anisotropy (FA).
- Developed a Google Colab tutorial for dense-longitudinal fMRI processing of naturalistic stimuli using GLMsingle to capture nonlinear developmental changes, presented in the 2025 Flux preconference workshop.
- Contributed to the [Sesame Street Archive](#) by preparing naturalistic task stimuli for fMRI task; assisted in dense-longitudinal fMRI data collection over a 12-month period.
- Organized and led five fMRIprep workshops to train lab members in standardized pipelines.

Strea:m Lab

Georgia Institute of Technology, GA

(Self-transcendence, self-regulation, and self-awareness as mindfulness)

Research Assistant | PI: Dr. Paul Verhaegen

September 2023 – Present

- Independently designed and implemented a 7-day Ecological Momentary Assessment (EMA) protocol; obtained IRB approval, recruited and collected data from 50 participants, and conducted multil-model analysis using R^[8].
- Co-designed a cross-sectional study on stress, anxiety, and mindfulness traits; secured IRB approval, conducted pilot LPA to identify individual differences, and co-authored a manuscript published in a peer-reviewed journal^[2].
- Co-developed a behavioral paradigm examining noise-induced learned helplessness and voluntary task-switching decisions; co-authored the study, with the manuscript under review in *Learning and Motivation*^[5].
- Co-designed a behavioral experimental paradigm on counter-emotion regulation using EEG; analyzed N170 on PO3 components to investigate valence-specific regulatory processes, and co-authored a manuscript^[9].

Yan Lab

Tsinghua University, Beijing, China

Research Assistant | PI: Dr. Chaogan Yan

June 2024 – Sep 2024

- Collected fMRI data over 20 sessions for a study on mind-wandering, including task setup, scanner operation, and participant coordination.
- Operated TMS intervention targeting left dlPFC in a clinical depression study (8-week protocol, 5 patients), including coil positioning, thresholding, and session monitoring.

CogT Lab

Staff Research Assistant | PI: Dr. Feng Vankee Lin

Stanford University, CA

June 2023 – June 2024

- Led a systematic review and meta-analysis on mind–body interventions in older adults, synthesizing neuroimaging evidence to evaluate intervention effects on brain health; manuscript in preparation^[4].
- Coded and systematized measures of emotional well-being in aging from current literature, contributed to the development of a research platform on elderly mental health.
- Recruited and administered cognitive testing for 20+ healthy older adults and individuals with mild cognitive impairment (MCI), including the Clinical Dementia Rating (CDR) and Montreal Cognitive Assessment (MoCA).
- Completed specialized MRI safety certification and acquired training in FSL and Nipype.

SELF-Regulation (Social-Emotional Learning and Functioning) Lab

Undergraduate Research Assistant | PI: Dr. Rachel Razza

Syracuse University, NY

September 2022 – June 2023

- Organized and analyzed 200+ cross-examination data points to support the Inner Strength Project (ISP), investigated the improvement of self-regulation and self-compassion among the youth.
- Summarized findings of articles through a literature search on self-regulation, mindfulness, and adolescents at weekly lab discussion meetings. co-authored a peer-reviewed publication in *Contemporary School Psychology*^[3].

Minority Stress and Trauma Lab

Undergraduate Research Assistant | PI: Dr. Jillian Scheer

Syracuse University, NY

June 2022 – June 2023

- Conducted research and recruited 20+ participants from various LGBTQ+ social media platforms and websites.
- Designed and set up environments for the Trier Social Stress Test (TSST), managing documents, and creating and evaluating 30 days EMA using Qualtrics to investigate substance, alcohol use, and discrimination in LGBTQ+ groups.
- Developed proficiency in Biopac and saliva collection techniques to assess participants' stress levels through heart rate, skin conductance response, and cortisol measurements.

Mind-Body Lab

Undergraduate Research Assistant | PI: Dr. Joshua Felver

Syracuse University, NY

January 2022 – June 2022

- Translated, collected, and analyzed data from the *Mindful Student Questionnaire* with 2,910 international adolescents to examine mindfulness factors (awareness, attention, acceptance) influencing school performance; co-authored a peer-reviewed publication in *Mindfulness*^[1].
- Conducted TSST tests to aid graduate students in conducting experiments, including blood pressure measurements and response time data collection (2–3 times per week).

PUBLICATIONS

Peer-reviewed Publications

- Wang, Q., Wu, Y., Feng, R., **Hao, X.**, Felver, J. C., Ying, Z., & Razza, R. (2024). Adaptation and validation of the mindful student questionnaire in Chinese school students. *Mindfulness*.
<https://doi.org/10.1007/s12671-023-02299-x>
- Feng, R., Mishra, V., **Hao, X.**, & Verhaeghen, P. (2025). The association between mindfulness, psychological flexibility, and rumination in predicting mental health and well-being among university students using machine learning and structural equation modeling. *Machine Learning with Applications*.
<https://doi.org/10.1016/j.mlwa.2024.100614>
- Razza, R., Liu, Q., Feng, R., **Hao, X.**, Kirkman, K. A., & Merrin, G. J. (2025). Cultivating adolescents' self-compassion through mindfulness: The role of self-regulation at both the individual- and classroom-level. *Contemporary School Psychology*. <https://doi.org/10.1007/s40688-025-00548-5>

Manuscripts Under Review

- [4] **Hao, X.**, Feng, R., Guimarães, A. L., Verhaeghen, P., Lin, F. V., & Turnbull, A. Mind-body Interventions Induced Brain Changes in the Aging Population: A Systematic Review of Structural and Functional Neuroimaging Findings. *Neuroscience & Biobehavioral Reviews*. [<https://doi.org/10.17605/OSF.IO/NMWB6>]
- [5] **Hao, X.**, Vinci-Booher, S., & Price, G.R. *Symbolic and Non-symbolic Number Processing in Ventral and Dorsal Cortices: A Longitudinal Study from Kindergarten to Second Grade*.
- [6] Feng, R., **Hao, X.**, & Verhaeghen, P. When Control Slips Away: Temporal Dynamics of Learned Helplessness and Cognitive Flexibility under Reward Uncertainty. *Learning and Motivation*.
- [7] Feng, R., **Hao, X.**, Wu, Y., & Renshaw, T. Integrating literature review: Mindfulness and psychological flexibility review. In Wang, Q., Razza, R., Felver, J. C. (Eds). *Mindfulness education: Translational and applied research in post-COVID era*.

Manuscripts In preparation

- [8] **Hao, X.**, Vinci-Booher, S., & Price, G.R. *Symbolic and Non-symbolic Number Processing in Ventral and Dorsal Cortices: A Longitudinal Study from Kindergarten to Second Grade*.
- [9] **Hao, X.**, Feng, R., Wu, Y., & Verhaeghen, P. *An Ecological Momentary Assessment (EMA) Study of Mind-Wandering, Affect, Judgmental Thoughts, and the Trait of Mindfulness*.
- [10] **Hao, X.**, Feng, R., Liu, Q., Zhang, Y., R., Felver, J. C., & Wang, Q. *Strength and Difficulties Questionnaire (SDQ) in Mindfulness-Based Interventions Studies at K-12 Schools: A Systematic Review and Meta-analysis*.
- [11] Feng, R., **Hao, X.**, & Verhaeghen, P. *An Experimental Investigation of Emotional Counter-Regulation During the Priming Identify Task: EEG study*.

CONFERENCES

Poster Presentations

- **Hao, X.**, Feng, R. & Verhaeghen, P. Mind-body Interventions Induced Brain Changes in the Aging Population: A Systematic Review of Structural and Functional Neuroimaging Findings. International Society for Contemplative Research, University of North Carolina at Chapel Hill, NC, USA, November 2025 [[View Here](#)]
- **Hao, X.**, Vinci-Booher, S., & Price, G.R. Symbolic and non-symbolic number processing: from Kindergarten to Second grade. Vanderbilt Kennedy Center's 2025 Science Day. Vanderbilt University, Nashville, TN, October 2025. [[View here](#)]
- **Hao, X.**, Vinci-Booher, S., & Price, G.R. Number Processing in Ventral and Dorsal Cortices: A Longitudinal Study from Kindergarten to Second Grade. The Society for Developmental Cognitive Neuroscience (Flux), Dublin, Ireland, September 2025. [[View here](#)]

Symposiums

- Vinci-booher, **Hao, X.**, Ren, X. Using Dense Longitudinal Neuroimaging to Measure Trajectories of Brain Change. *Designing Investigator-Led Studies in the Era of Big Data*. The Society for Developmental Cognitive Neuroscience (Flux), Dublin, Ireland, September 2025 [[View here](#)].
- **Hao, X.**, Wang, Q., Feng, R., & Wu, Y. Strength and difficulties questionnaire (SDQ) in mindfulness-based interventions studies at K-12 schools: A systematic review and meta-analysis. Society for the Study of Human Development, Philadelphia, PA, USA, October 2023. [[View here](#)]
- Razza, R., Liu, Q., Feng, R., **Hao, X.**, & Kirkman, K. A. Cultivating adolescents' self-compassion through mindfulness: The role of self-regulation at both the individual- and classroom-level. Society for the Study of Human Development, Philadelphia, PA, USA, October 2023. [[View here](#)]

WORK EXPERIENCE

Social Psychology

Teaching Assistant | Supervisor: Dr. Lisa Fazio

- Designed and graded 13 quizzes, 3 exams, and group projects; contributed to curriculum development as the professor took over the course at the beginning of the semester.
- Facilitated class sessions, held office hours weekly, and provided academic support to enhance student learning.

Vanderbilt University, TN

January 2025 – April 2025

HD (Online Learning Platform)	Remote
<i>Volunteer Tutor</i>	<i>January 2021 – April 2021</i>
<ul style="list-style-type: none"> • Provided semester-long one-on-one instruction in Abnormal Psychology and Cognitive Psychology. • Designed structured study plans and guided critical analysis of case studies and research paradigms, which enabled all students to achieve A-level performance in their courses. 	

LEADERSHIP AND SERVICES

fMRIPrep Tutorial (resource)	Nashville, TN
<i>Tutor</i>	<i>June 2025 – Present</i>
<ul style="list-style-type: none"> • Initiated and set up standardized fMRIPrep preprocessing pipeline for Philips scanner data, including ACCRE cluster workflows and FixSidecar configuration. • Led 5 workshops to train graduate researchers and undergraduates in implementing the pipeline and adopting reproducible neuroimaging practice. 	
BrainHack 2025 (repository)	Nashville, TN
<i>Project Leader</i>	<i>January 2025</i>
<ul style="list-style-type: none"> • Led a BrainHack project adapting DeepMReye for pediatric fMRI and eye-tracking data, including pipeline setup, model validation, and collaborative team coordination. • Released and maintained open-source workflows on GitHub, presented findings at BrainHack 2025, and facilitated cross-lab collaboration to extend project impact. 	
Lytton Gardens (Senior Citizen Center)	Stanford, CA
<i>Art Tutor & Volunteer</i>	<i>June 2023 – October 2024</i>
<ul style="list-style-type: none"> • Lead six art classes (Chinese painting and clay craft), delivering presentations on the cognitive benefits of visual arts to diverse groups of 20 seniors (Hispanic, Asian, and Black), with additional summer volunteering. • Designed age-appropriate art activities that fostered creativity, fine motor skills, and social engagement, enhancing seniors' cognitive and emotional well-being and receiving consistently positive participant feedback. 	

HONORS AND AWARDS

George Award (GA) <i>merit-based scholarship</i>	2024-2026, Vanderbilt University
Scholastic Achievement Scholarship (SAS) <i>merit-based scholarship</i>	2024-2026, Vanderbilt University
Nu Rho Psi (The National Honor Society in Neuroscience)	2025, Vanderbilt University
Psi Chi (The National Honor Society in Psychology)	2023, Syracuse University

CERTIFICATES & TRAINING WORKSHOP

FSL and Machine Learning in Neuroimaging (Andy Jahn) 2-day workshop	2024, Vanderbilt University
Mindfulness-based Stress Reduction (online course)	2022, Mindful Leader
Training in Biomarker Data Collection with Biopac Equipment	2022, Syracuse University
Training in Salivary Data Collection and Storage for Cortisol Assessments	2022, Syracuse University

SKILLS

Neuroimaging Analysis: FSL, FreeSurfer, ANTs; MRIQC, fMRIPrep, Nipype, GLMsingle; GingerALE, SDM; MNE, BrainNet viewer
Neuroimaging Modalities: fMRI, sMRI, EEG, DTI
Statistics: Correlation, Regression, ANOVA, Multilevel modeling, MVPA, RSA, Permutation/bootstrap
Programming Languages: R, Python, Bash
Data Collection & Management: REDCap, Qualtrics, RevMan, SEMA(EMA)
Software & Platforms: Slurm, VSCode, Google Colab, LaTeX, Microsoft Office Suite
Languages: Mandarin (native), English (fluent)