

# Haojie Wen

Postdoctoral Researcher  
Beijing Normal University, China  
Email: hjwen@mail.bnu.edu.cn  
Website: <https://happyhaojie.github.io/>

## Academic Experience

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<b>2023 - Present</b>	<b>Postdoctoral Researcher</b> School of Systems Science & State Key Laboratory of Cognitive Neuroscience and Learning, Beijing Normal University, China Supervisors: <ul style="list-style-type: none"><li>● Prof. Yanchao Bi (Concept Lab; relocated to School of Psychological and Cognitive Science, Peking University, 2024 - present)</li><li>● Prof. Dahui Wang, School of Systems Science, Beijing Normal University</li></ul>
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## Education

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<b>2017 - 2023</b>	<b>Ph.D. in Psychology (Cognitive Neuroscience)</b> Beijing Normal University, China Supervisor: Prof. Yanchao Bi Thesis: Tools And the Human Brain: The brain Network underlying Tool processing Aug 2018 - Sep 2018: Visiting Student, Alfonso Caramazza's lab, Harvard University, USA
<b>2013 - 2017</b>	<b>B.S. in Computer Science and Technology</b> Wuhan University, China
<b>2015 - 2017</b>	<b>B.S. in Psychology (Double Degree)</b> Central China Normal University, China

## Research Interests

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To examine how human cognitive capacities evolved and interact to shape the modern human brain.

### **Neural bases of technological cognition:**

Investigating the functional and structural neural correlates of tool use using MRI and behavioral approaches.

### **Effects of language on other cognitive functions**

Studying how language experience shapes vision and tool use via cross-species comparisons and comparisons across deaf populations with different early sign-language exposure.

## Publications & Manuscripts

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### First / Co-first Author

#### *Neural bases of technological cognition:*

- Under review** Hao, G.#, **Wen, H.#**, Guo, L.#, Chen, Y., Bi, Y.\*, & Yu, S.\* *Flexible Tool Selection through Low-dimensional Attribute Alignment of Vision and Language.*
- 2023** **Wen, H.**, Song, Y., Liang, M., Zhang, P., Wang, X.\*, & Bi, Y. *Pulvinar Response Profiles and Connectivity Patterns to Object Domains.* *Journal of Neuroscience*, 43(5): 812-826.
- 2022** **Wen, H.**, Xu, T., Wang, X., Yu, X.\*, & Bi, Y.\* *Brain intrinsic connection patterns underlying tool processing in human adults are present in neonates and not in macaques.* *NeuroImage*, 258, 119339.

#### *Effects of language on other cognitive functions:*

- In Preparation** **Wen, H.#**, Wang, K.#, Li, Y., Chen, H., Bao, P.\*, Bi, Y.\* *When Vision Learns to Speak: Language-Linked Modulation Diverges Between Human and Macaque Visual Cortex.*
- In Preparation** Fan, Z.#, **Wen, H.#**, Wang, X., Bi, Y. *A putaminal computation linking language and tool hierarchies.*
- 2025** **Wen, H.**, & Bi, Y. *Visual cortex through the lens of language.* *Cognitive Neuroscience*, 1-3.
- 2024** **Wen, H.**, Wang, D., & Bi, Y. *Processing language partly shares neural genetic basis with processing tools and body parts.* *eNeuro*, 11(8).

### Contributing Author

- 2025** Zhu, Z.#, Yang, H.#, **Wen, H.**, Hung, J., Hu, Y., Bi, Y.\*, & Yu, X.\* *Innate network mechanisms of temporal pole for semantic cognition in neonatal and adult twin studies.* *Nature Communications*, 16(1), 3835.

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## Research Grants

### Principal Investigator

- *Cognitive neural mechanisms underlying human brain processing of artifacts*  
China Postdoctoral Science Foundation, General Program  
Dec 2024 - Jun 2026
- *Tools and the human brain: neural mechanisms underlying tool-object processing in the human visual perception system*  
China Postdoctoral Science Foundation  
National Postdoctoral Researcher Support Program (Category C)  
Dec 2023 - Dec 2025

### Major Research Team Member

- *Developmental mechanisms of neural networks underlying semantic knowledge in the human brain: cross-sectional and longitudinal neuroimaging studies in children aged 0–6 years*  
National Natural Science Foundation of China, General Program  
Jan 1, 2026 - Dec 31, 2029

- PI: Assoc. Prof. Xi Yu
- *Grid-like representations of conceptual knowledge in the human brain*  
National Natural Science Foundation of China, General Program  
Jan 1, 2026 - Dec 31, 2029  
PI: Assoc. Prof. Xiaoying Wang

## Talks & Conference Presentations

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2025	<i>Distinct Modulatory Influences on the Visual Cortex: Language in Humans, Vision in Macaques.</i> The Seeing and Acting Workshop, Coimbra, Portugal	Poster
2025	<i>Cognitive Neuroscience of Tool Use.</i> Lecture Series on the Development of Applied Psychology, Civil Aviation Flight University of China, Online	Oral
2024	<i>Processing Language Partly Shares Neural Genetic Basis with Processing Tools and Body Parts.</i> Joint Lab Meeting, Zhejiang University, Hangzhou, China	Oral
2024	<i>Pulvinar Response Profiles and Connectivity Patterns to Object Domains.</i> Rovereto Workshop on Concepts, Actions, and Objects, Trento, Italy	Poster
2023	<i>Shared Genetic Mechanisms Underlying Neural Processing of Language and Tool Use.</i> Conceptual Brains and Cultural Evolution Workshop, Zhuhai, China	Oral
2023	<i>Language, Tools, Body Parts, and Faces: A Neural Genetic Investigation.</i> Neurobiology of Language Conference, Marseille, France	Poster

## Mentorship Experience

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### Ph.D. Student Co-supervision

Zhiyu Fan, ph.D. Student (2022 - present)

- Co-supervised research on shared hierarchical dependency computations underlying language and tool use, using data from brain-damaged patients and two groups of deaf signers with distinct early sign-language experiences to investigate neural and developmental causality.
- This work has been presented at international conferences (SNL 2023; Seeing and Acting Workshop 2025), and a full manuscript draft has been completed.
- Responsibilities included methodological support, data analysis guidance, and mentoring on Ph.D. proposal development.

## Peer Review

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**Ad hoc reviewer for:** *Imaging Neuroscience; Cerebral Cortex; eLife*

## Honors & Awards

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2023	Award for Research and Innovation, Beijing Normal University
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2017 - 2022

Graduate Academic Award / Graduate Freshman Scholarship, Beijing Normal University

## Technical Skills

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<b>Programming</b>	MATLAB; R Task-based and resting-state functional MRI, encompassing univariate activation analyses, multivariate pattern analyses, and connectivity analyses;
<b>Methods</b>	Studies of special populations, including deaf populations, cross-species comparative studies, and twin-based genetic modeling; Large-scale online behavioral experiments; Preliminary text processing and exploratory applications of large language models (LLMs)
<b>Languages</b>	Mandarin Chinese (Native); English (Fluent); Jin Chinese (Native)