# Hu Zheng

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## EDUCATION

- **Ph.D. in Bioinformatics and Neuroscience** — 2022/9–present, Huazhong Agricultural University (Advisor: Prof. Gang Cao & Prof. Huazhen Liu)
- **M.S. in Bioinformatics and Genomics** — 2020/9–2022/6, Huazhong Agricultural University (Advisor: Prof. Guoliang Li)
- **B.S. in Bioscience** — 2016/9–2020/6, Huazhong Agricultural University

## RESEARCH EXPERIENCE

- **Project1:** Organization of mouse prefrontal cortex subnetwork revealed by spatial single-cell multi-omic analysis of SPIDER-Seq *(2020-2026)*

  **Description:** We developed a Single-cell Projectome-transcriptome In situ Deciphering Sequencing technique (SPIDER-Seq) by combining viral barcoding tracing with single-cell sequencing and spatial-omics. This empowers us to delineate an integrated single-cell spatial molecular, cellular, anatomic and projectomic atlas of mouse prefrontal cortex (PFC). Our dataset offers an unprecedented view of the neural circuitry in the PFC and shed deep insights into the neural circuit-specific gene expression pattern, spatial distribution, neural transmission information and neural wiring organizing principles of mouse PFC.

- **Project2:** A single-cell spatiotemporal transcriptomic atlas of mouse prefrontal cortex maps dynamics of intratelencephalic neurons during postnatal development *(2024-2026)*

  **Description:** We performed spatiotemporal single-cell RNA analysis on mouse prefrontal cortex (PFC) during different postnatal time points. Based on these comprehensive spatiotemporal atlases of PFC, we deciphered the time-specific molecular and cellular characteristics during the maturation process of IT neurons in PFC, particularly the dynamic expression programs of genes regulating axon development and synaptic formation, and the risk genes of neurological developmental diseases.

- **Project3:** Bizard: A community-driven platform for accelerating and enhancing biomedical data visualization *(2025-2026)*

  **Description:** We developed Bizard platform, a comprehensive visualization code repository based on community collaboration. Bizard serves as an all-encompassing reference data visualization platform for biomedical researchers, offering not only a wide array of code but also reproducible guidance documents. It provides advanced browsing and filtering mechanisms, curated reference codes, examples of diverse visualization methods, and interactive discussion forums to facilitate peer knowledge exchange.

## PUBLICATIONS

+: First/Co-first Author

1. L. Sun+, **H. Zheng+**, Y. Huang, X. Huang, K. Yan, Z. Wang, L. Yang, Y. Yue, X. Gou, G. Du, Y. Wang, X. Wu, H. Liu, H. Chen, D. Ma, Y. Han, J. Dai, G. Cao. (2026). Organization of mouse prefrontal cortex subnetwork revealed by spatial single-cell multiomic analysis of SPIDER-Seq. ***National Science Review***. nwag004.
   Link to Paper

2. **H. Zheng+**, K. Yan+, X. Gou, Z. Wang, L. Yang, Y. Huang, H. Liu, J. Dai, L. Sun, G. Cao. (2026). A single-cell spatiotemporal transcriptomic atlas of mouse prefrontal cortex maps dynamics of intratelencephalic neurons during postnatal development. ***PLOS Biology***. 24(1):e3003594.
   Link to Paper

3. K. Li+, **H. Zheng+**, K. Huang+, Y. Chai+, Y. Peng+, C. Wang+, X. Yi+, Z. Jin+, H. Yang+, Y. Peng+, Y. Shi+, X. Lu, J. Bian, Y. Wang, R. Kou, D. Gao, H. Zhao, J. Zhang, D. Huang, K. Zhu, C. Wu, Z. Yang, Z. Kuang, M. Liu, Z. Bao, Y. Peng, B. Miao, J. Zeng, J. Li, P. Luo, S. Wang. (2026). Bizard: A community-driven platform for accelerating and enhancing biomedical data visualization. ***iMetaMed***. e70038.
   Link to Paper

## RESEARCH INTERESTS

- NGS data analysis
- Neuroscience
- Bioinformatics software and application development

## SKILLS

- **Languages:** English (IELTS: 6.5).
- **NGS data analysis:** Single-cell and spatial transcriptome, RNA-seq, Hi-C, ChIP-seq, ATAC-seq, etc.
- **Programming:** R, Python, Linux, Git, Web development.

## REFEREES

- Professor Gang Cao - PhD supervisor
  Shenzhen University of Advanced Technology
  Email: caog@siat.ac.cn
- Professor Huazhen Liu - PhD co-supervisor
  Huazhong Agricultural University
  Email: lhz219@mail.hzau.edu.cn
- Professor Guoliang Li - Master supervisor
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