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PhD Candidate · Computational Microbiome & Brain–Gut Research
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01 Research profile

I study large-scale human microbiome ecology and its relationships with clinical phenotypes and brain function. My work combines metagenomics, multi-omics integration, interpretable machine learning and cross-cohort validation, with particular attention to reproducibility and the limits of causal interpretation.

02 Education

2023 – present
South China University of Technology
Integrated M.S.–Ph.D. programme · Computational microbiome research

2019 – 2023
Nanjing Tech University
B.Eng. in Bioengineering · GPA 3.7/4.0

03 Research interests

- Microbiome ecology
- Multi-kingdom metagenomics
- Brain–gut associations
- Trustworthy AI for biology

04 Selected publications

01 **Dissecting the Ecological Structure of Health and Disease in the Global Gut Microbiome**
Baoyuan Zhu, Shuhao Chen, Yunheng Diao, Wei Wang, et al.
Advanced Science · 2026 doi:10.1002/advs.202517087

02 **The Brain–Gut Health Initiative (BIGHI): A Prospective Cohort on Psychiatric Disorders in China**
Fengchun Wu, Baoyuan Zhu, Shixuan Feng, et al.
Research · 2026 doi:10.34133/research.1142

03 **Integrative multi-kingdom gut microbiome analysis uncovers clinical signatures of major depressive disorder**
Shuhao Chen, Baoyuan Zhu, Xiaodan Lu, et al.
Journal of Affective Disorders · 2026 doi:10.1016/j.jad.2026.121858

04 **Continuous Alterations in the Gut Microbial Landscape Associated With Suicidal Ideation in First-Episode Drug-naïve Major Depressive Disorder**
Liqin Liang, Shuhao Chen, Baoyuan Zhu, et al.
CNS Neuroscience & Therapeutics · 2026 doi:10.1002/cns.70892

04 Selected publications (continued)

05 **Microbiota-immune crosstalk underlying cancer-induced depression in patients with breast cancer**
Yuanyuan Li, Baoyuan Zhu, Xiaomei Wu, et al.
Journal of Affective Disorders · 2026 doi:10.1016/j.jad.2026.121694

06 **Gut microbiota mediates the beneficial effects of exercise on autism-like behaviors**
Jiugen Zhong, Baoyuan Zhu, Zhi Zou, et al.
BMC Microbiology · 2026 doi:10.1186/s12866-025-04632-x

07 **Analysis of individualized brain–gut association networks and transcriptional patterns in major depressive disorder**
Wei Wang, Baoyuan Zhu, Yuanyuan Huang, et al.
Interdisciplinary Medicine · 2026 doi:10.1002/inmd.70165

08 **Multi-kingdom microbial changes and their associations with the clinical characteristics in schizophrenia patients**
Baoyuan Zhu, Liqin Liang, Shuhao Chen, et al.
Translational Psychiatry · 2025 doi:10.1038/s41398-025-03449-6

09 **Exploring the relationship between the gut microbiota and cognitive function in schizophrenia patients with distinct weights**
Baoyuan Zhu, Liqin Liang, Yuanyuan Huang, et al.
Schizophrenia Research · 2025 doi:10.1016/j.schres.2025.04.017

10 **The association between gut microbiota and functional connectivity in cognitive impairment of first-episode major depressive disorder**
Yuanyuan Huang, Hehua Li, Baoyuan Zhu, et al.
Translational Psychiatry · 2025 doi:10.1038/s41398-025-03615-w

Titles and DOI identifiers follow published journal records. Authorship notes reflect publisher declarations where available. Complete selected bibliography: zbyloveyj.github.io/publications.html.

05 Open research

Microbial Ecological Factors
Continuous ecological factors; global microbiome analysis.

CLEAR-Microbiome
Contrastive microbiome–clinical representation learning.

Normative Microbial Networks
Healthy-reference ecological deviations.

BioAgentLab
Evidence-aware scientific agents; open educational tools.

06 Selected recognition

2026	First Prize · Graduate Student Innovation and Research Achievement Competition, 12th National Conference on Computational Biology and Bioinformatics.
2025	Wens Yuncheng Scholarship (温氏筠诚奖学金).
Oct 2026	Academic CV snapshot: 18 SCI papers, including 9 first/co-first works; 3 ESI Hot Papers and 4 ESI Highly Cited Papers. These classifications can change with time.