

Xiaoyan Wu

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Postdoc at Psychiatrische Universitätsklinik Zürich, University of Zürich, Zurich, Switzerland

Work Experience

University of Zürich, Psychiatrische Universitätsklinik Zürich <i>Postdoctoral researcher in Computational Psychiatry. Supervisor: Philipp Homan</i>	2024/12-Present <i>Zurich, Switzerland</i>
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Education

Beijing Normal University, School of Psychology <i>PhD in Cognitive Neuroscience (Cum-GPA: 3.38/4.0. Supervisor: Chao Liu and Hang Zhang)</i>	2020/09-2024/10 <i>Beijing, China</i>
University of Zurich, Zurich Center for Neuroeconomics <i>PhD in Neuroeconomics (Exchange project. Supervisor: Christian C. Ruff)</i>	2021/12-2024/01 <i>Zurich, Switzerland</i>
Shenzhen University, Department of Psychology <i>MSc in Psychology (Cum-GPA: 3.28/4.0. Supervisor: Yuejia Luo)</i>	2017/09-2020/06 <i>Shenzhen, China</i>
Zhuhai College of Jilin University, Business School <i>BS in Economics and Business Administration (Cum-GPA: 3.26/4.0)</i>	2015/09-2017/07 <i>Zhuhai, China</i>

Training

MRI User Certification Training. <i>University Hospital Zurich, Zurich, Switzerland</i>	2022/06-2023/06
The 2023 Neuroeconomics Summer School. <i>University of Pennsylvania, PA, USA</i>	2023/07
Computational Psychiatry Course Zurich 2022. <i>University of Zurich, Zurich, Switzerland</i>	2022/09

Publications

Under-review:

1. **Wu, X.**, F Rabe., ... P Homan.(2025). Disorganization impairs cognitive maps built from visual inputs. *bioRxiv*. DOI
2. Omlor, W., ..., **Wu, X.**, Edkins, V., ... & Homan, P. (2025). Goal-Directed Control in Schizophrenia: Loss-Biased Engagement of the Anterior Cingulate Relates to Negative-Symptom Outcomes. *under revision at Schizophrenia Bulletin*. DOI
3. Fu, H., ...& **Wu, X***, Liu, C*.(2025). Reciprocity Reward Sustains Human Cooperation with Diverse Agents under Framed Social Intent-Induced Expectation. *under review at Computers in Human Behavior*.
*Co-last authors.

Published:

4. **Wu, X.**, Fu, H., Aydogan, G., ...& Liu, C.(2025). The Self-Interest of Adolescents Overrides Cooperation in Social Dilemmas. *eLife*. DOI
5. **Wu, X.**, Ren, X., Liu, C., & Zhang, H.(2024). The motive cocktail in altruistic behaviors. *Nature Computational Science*. DOI
6. **Wu, X.**, Zhu, R., & Liu, C.(2024). A Cognitive Computational Mechanism for Mutual Cooperation: The Roles of Positive Expectation and Social Reward. *Acta Psychologica Sinica (Top Chinese Journal)*. DOI
7. Wang, H., **Wu, X.**, ... & Qin, S. (2024). Acute stress during witnessing injustice shifts third-party interventions from punishing the perpetrator to helping the victim. *PLOS Biology* DOI

8. Jin, K., Wu, J., Zhang, S., **Wu, X.**, Gu, R., Liu, Chao. (2024). Observing heroic behavior and its gender difference in immersive virtual environments. *Proceedings of the National Academy of Sciences*. DOI
9. **Wu, X.**, Zhu, R., Gong, X., Luo, Y., & Liu, C.(2023). Social incentives foster cooperation through guilt aversion: an effect that diminishes with primary psychopathic traits. *PsyCh Journal*. DOI
10. **Wu, X.**, Feng, C., He, Z., Gong, X., Luo, Y. J., & Luo, Y. (2019). Gender-specific effects of vasopressin on human social communication: An ERP study. *Hormones and behavior* DOI
11. **Wu, X.**, Xu, P., Luo, Y. J., & Feng, C. (2018). Differential effects of intranasal vasopressin on the processing of adult and infant cues: an ERP study. *Frontiers in human neuroscience* DOI
12. **Wu, X.**, Feng, C., Xu, J., He, Z., Luo, Y., & Luo, Y. (2019). The Effects of vasopressin on human social behaviors. *Advances in Psychological Science (Top Chinese Journal)*, DOI

Selected Poster Presentations

- **Wu, X.**, Rabe, F, ..., & Homan, P. Disorganization impairs cognitive maps built from visual inputs *ABIM 2026, 20th Anniversary Edition, Zürich, 2026*.
- **Wu, X.**, Rabe, F, ..., & Homan, P. The Delta of Language: Cognitive disorganization impairs ability to construct and use cognitive maps formed from visual perceptual inputs *8th Burghölzli Psychiatry Meeting, Zürich, 2025*.
- Wu, P., **Wu, X.**, Rabe, F, ..., & Homan, P. The Delta of Language: Language Features from Memory-Based Free Recall Speech Predict Schizotypy in a Nonclinical Sample *8th Burghölzli Psychiatry Meeting, Zürich, 2025*.
- **Wu, X.**, Ren, X., Liu, C., & Zhang, H. The Neural Signature of "Motive Cocktail" in Altruistic Behavior *21st Annual Society for Neuroeconomics Meeting, Cascais, Portugal, 2024*.
- **Wu, X.**, Bürgi, N., Ruff, C. Cognitive Components of Trust. *Society for Social Neuroscience annual meeting, Tsukuba, Ibaraki Prefecture, Japan, 2024*.
- **Wu, X.**, Ren, X., Liu, C., & Zhang, H. The "motive cocktail" in third-party punishment and helping. *21st Annual Society for Neuroeconomics Meeting, Vancouver, British Columbia, Canada, 2023*.
- **Wu, X.**, Bürgi, N., Ruff, C. Cognitive Components of Trust. *21st Annual Society for Neuroeconomics Meeting, Vancouver, British Columbia, Canada, 2023*.

Teaching

- Lecturer of Methods in Cognitive Neuroscience at **University of Zurich** **2023/08/10**
A lecture aiming to provide a comprehensive introduction to functional Magnetic Resonance Imaging (fMRI) in cognitive neuroscience for high school students preparing for university.
- Teaching assistant of Social and Affective Neuroscience at **Beijing Normal University** **2020/09-2020/01**
Teaching assistant to prof. Chao Liu's Social and Affective Neuroscience course for graduate students.
- Invited lecture at **National University of Singapore** **2024/07**
Invited to teach Methods in Psychological Research and Neuroscience at NUS Business School for a summer school.

Advising and Mentorship

- Advisor of Master's Thesis at **University of Zurich** **2025/08-present**
Title: Language features from memory-based speech predict schizotypy.
- Advisor of Bachelor's Thesis at **Beijing Normal University** **2021/06-2022/07**
Title: The computational mechanisms underlying the effect of favoritism on reciprocity decision-making (Outstanding undergraduate dissertation).
- Advisor of Bachelor's Thesis at **Beijing Normal University** **2023/06-2024/07**
Title: Dynamic learning in human-AI cooperative interaction (Outstanding undergraduate dissertation).

Research Grants

- Key Projects of Shenzhen University Innovation Development Grant
PI, \$2300 **2019-2020**
- Beijing Normal University Doctoral Interdisciplinary Grant
co-PI, \$1500 **2019-2020**

Invited Talks

- Schizophrenia Spectrum Disorder and Cognitive Maps: New Findings and Future Directions
Invited by Prof. Todd Hare at *University of Zurich* **2025/12**
- The Socioeconomic Motives for Third-party Punishment and Help
Invited by Prof. Kazuhisa Takemura at *Waseda University* **2024/03**
- The "Motive Cocktail" in Altruistic Behaviors
Invited by Prof. Yohsuke Ohtsubo at *University of Tokyo* **2024/03**
- Neurocomputational Components of Trust
Invited by prof. Brian Knutson at *Stanford University* **2024/01**
- The "Motive Cocktail" in Altruistic Behaviors
Invited by prof. Philippe Tobler at *University of Zurich* **2022/12**
- The Motivations Underlies Human Third-party Punishment and Help
Invited by prof. Hang Zhang at *Peking University* **2022/08**

Selected Awards

- Best PhD Dissertation Award (Top 1%)
Beijing Normal University, Beijing, China. **2025**
- S4SN Travailing Award
Travailing Award of Society for Social Neuroscience annual meeting, Tsukuba, Japan. **2024**
- Outstanding Graduates (Top 1%)
Outstanding graduate of Shenzhen University. **2020**
- The First Prize Scholarship (Top 10%)
An academic award that recognizes outstanding achievements during my master's studies. **2019**
- National scholarship (Top 3%)
The highest academic award given by the Chinese government to exceptional undergraduate and postgraduate students. **2018**

Skills

- Programming: MATLAB, Python, and R. [View code samples.](#)
- EEG, MEG, fMRI, and eye-tracking.
- Excellent communication skills in spoken and written English.
- Native speaker of Mandarin, Cantonese, and Hokkien; A2 level in German.