Dr. Yueyuan Zheng

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SUMMARY

Yueyuan investigates the cognitive mechanisms underlying learning, perception, and emotion through eye tracking, EEG, and computational modelling. She applies machine-learning methods to analyse eye-tracking and EEG data and deep neural networks to model human behaviour. Her expertise in human intelligence further extends to human-centric and explainable AI and human-robot interaction. She has secured a General Research Fund (GRF) grant as Principal Investigator from the Hong Kong Research Grants Council to investigate the effects of generative AI on human visual cognition. She also serves on the Communication Committee of the Cognitive Science Society, contributing to the Society's outreach and engagement across Greater China.

ACADEMIC POSITION

2024-now **Research Assistant Professor**, Hong Kong University of Science and Technology (HKUST)

EDUCATION

2021-2024 **Ph.D.** in Cognitive Psychology, University of Hong Kong (HKU), Supervisor: *Prof. Janet Hsiao*

2019-2021 **M.Phil.** in Cognitive Psychology, University of Hong Kong, Supervisor: *Prof. Janet Hsiao*

2014-2018 **B.S.S.** in Psychology, University of Hong Kong

HONORS & AWARDS

- Erik Kvan Postgraduate Scholarship (1 awardee/year), HKU 2023
- Student Award, 22nd ICALT, IEEE TCLT 2022
- Graduate Research Publication Award, Department of Psychology, HKU 2021
- Outstanding Oral Presentation Award (1 awardee/year), Department of Psychology, HKU 2020
- Student Travel Award, Cognitive Science Society 2019
- Travel Grant for Research Postgraduate Students, University Research Committee, HKU 2019, 2022, 2023
- Research Postgraduate Scholarship, in MPhil & PhD, HKU 2019-2024
- Best Oral Presentation Award, Faculty of Social Sciences, HKU 2017
- JASSO Scholarship, Japan Student Service Organization 2016-2017
- Summer Enrichment Scholarship, HK Government 2015

RESEARCH GRANTS

1. General Research Fund (GRF). **Principal Investigator**. Research Grant Council of Hong Kong. Title: How does hand drawing versus drawing with generative artificial intelligence influence human visual cognition? 2026-2029. HK$699,900.
2. General Program (国自然面上项目). Co-Investigator. National Natural Science Foundation of China (NSFC). Title: Enhancing business operations through human-machine collaborative data visualization. 2026-2029.
3. Internal Research Support Grant. **Principal Investigator**. UGC-Research Infrastructure Grant. HK$50,000.

PUBLICATIONS

# denotes co-first authorship, * denotes corresponding authors, _ denotes representative papers

Journal Articles

1. **Zheng, Y.**, Que, Y., Hu, X., Hsiao, J. H.* (under review, 2nd round). Predicting reading performance based on eye movement analysis with hidden Markov models.
2. Xing, W.#, **Zheng, Y.#**, Chan, A., & Hsiao, J. H.* (under review). Understanding developmental changes in holistic face processing using deep neural networks with hidden Markov modelling.
3. Mo, X., Fung, N., Hu, R., Hu, J., Liu, D., Shen, Y., Woo, J., Hsiao, J. H., Gietel-Basten, S., Shi, B., **Zheng, Y.***, Ma, X.* (under review). Challenges and technological preferences of care providers for older adults: A multi-stakeholder journey mapping approach across diverse contexts.
4. **Zheng, Y.**, Chen, D., Palermo, R., Hu, X., & Hsiao, J. H.* (under review). Cultural differences in the effect of mask use on cross-race face perception: An eye-tracking study.

5. **Zheng, Y.**, Liao, W., Tso, R., & Hsiao, J. H.* (under review). The impact of mask use on face recognition in adults with autism spectrum disorder: An eye-tracking study.
6. Xie, C., Xiang, S., **Zheng, Y.**, Shen, C., Peng, X., ... & Feng, J.* (under review). Dopaminergic-related anatomical pattern of dorsal striatum in schizophrenia.
7. **Zheng, Y.**, Lo, W. S., Lau, E. Y. Y., Eskes, G., Hui, L. L.*, & Hsiao, J. H.* (2026). The role of eye movement consistency in aging-related decline in face recognition. *npj Science of Learning*. (IF = 4.3, rank 9/104 in Psychology, Experimental)
8. Fung, L., **Zheng, Y.**, Shi, B. E., Hsiao, J. H., Woo, J. (accepted). What do older adults want from social robots and artificial intelligence: A product-oriented perspective. *Psychology and Aging*. (IF = 3.6, rank 10/49 in Gerontology)
9. Xie, C., Xiang, S., **Zheng, Y.**, Shen, C., Li, Y., Cheng, W., ... & ZIB Consortium. (2026). Hierarchical neurocognitive model of externalizing and internalizing comorbidity. *Nature Mental Health*, 1-15. (IF = 9.3, rank 9/293 in Psychiatry)
10. **Zheng, Y.#**, Chen D.#, Hu, X.*, & Hsiao, J. H.* (2026). The effect of mask use on cross-race face perception: A simultaneous EEG and eye-tracking study. *Cognitive Research: Principles and Implications, 11:9.* (IF = 3.6, rank 15/104 in Psychology, Experimental)
11. Han, M., Dong, W., Fu, K., Wang, J., Xu, Y., **Zheng, Y.**, ... & Becker, B. (2026). Vasopressin and angiotensin II pathways differentially modulate human fear response dynamics to looming threats. *PLoS Biology*, *24*(2), e3003668. (IF = 6.9, rank 6/106 in Biology)
12. Qi, R.#, **Zheng, Y.#**, Yang, Y., Cao, C. C., & Hsiao, J. H. (2026). Explanation strategies in humans versus current explainable artificial intelligence: Insights from image classification. *British Journal of Psychology*, *117*(2), 479-502. [Special Issue: The Use of AI in Psychological Research] (IF = 3.6, rank 40/222 in Psychology, Multidisciplinary)
13. Liu, G.*, **Zheng, Y.***, Zhang, J., Tian, L., & Zhou, W.* (2026). Editorial: Advances in explainable analysis methods for cognitive and computational neuroscience. *Frontiers in Neuroscience*, *20*, 1938732. (IF = 4.0, rank 109/330 in Neurosciences)
14. Liu, G., **Zheng**, **Y.**, Tsang, M., Zhao, Y., Hsiao, J. H.* (2025). Understanding the role of eye movement pattern and consistency during face recognition through EEG decoding. *npj Science of Learning*, *10*, 28. (IF = 4.3, rank 9/104 in Psychology, Experimental)
15. Que, Y., **Zheng, Y.**, Hsiao, J. H., & Hu, X.* (2025). Using eye movements, electrodermal activities, and heart rates to measure cognitive load during reading with self-selected background music. *Scientific Reports.* (IF = 4.9, rank 21/140 in Multidisciplinary Sciences)
16. Buchanan, E. M., Cuccolo, K., Heyman, T., ..., Hsiao, J. H., ..., **Zheng, Y.**, ..., & Lewis, S. (2025). Measuring the Semantic Priming Effect Across Many Languages. Measuring the semantic priming effect across many languages. *Nature Human Behaviour*, 1-20. (IF = 17.5, rank 2/104 in Psychology, Experimental)
17. Heyman, T., Pronizius, E., Lewis, S. C., ..., **Zheng, Y.**, Buchanan, E. M. (2025). Crowdsourcing multiverse analyses to explore the impact of different data-processing and analysis decisions: A tutorial. *Psychological Methods*. (IF = 7.5, rank 8/222 in Psychology, Multidisciplinary)
18. Nan, Y., Mehta, P., Liao, J., **Zheng, Y.**, Han, C., & Wu, Y.* (2024). Testosterone administration decreases sensitivity to angry facial expressions in healthy males: A computational modeling approach. *Psychoneuroendocrinology*, *161,* 106948. (IF = 3.7, rank 75/145 in Endocrinology & Metabolism)
19. **Zheng, Y.**, & Hsiao, J. H.* (2023). Differential audiovisual information processing in emotion recognition: An eye-tracking Study. *Emotion, 23*(4), 1028. (IF = 5.564, rank 7/91 in Psychology, Experimental)
20. Que, Y., **Zheng, Y.**, Hsiao, J. H., & Hu, X.* (2023). Studying the effect of self-selected background music on reading task with eye movements. *Scientific Reports*, *13*(1), 1704. (IF = 4.997, rank 19/74 in Multidisciplinary Sciences) **[Top 100 Sustainability Papers of 2023]** (ranked 17th in the most downloaded papers published by *Scientific Reports* in 2023)
21. **Zheng, Y.**, Ye, X., & Hsiao, J. H.* (2022). Does adding video and subtitles to an audio lesson facilitate its comprehension?. *Learning and Instruction*, 101542. (IF = 6.636, rank 13/332 in Developmental and Educational Psychology) **[linked to Sustainable Development Goal]**

22. Hsiao, J. H.*, An, J., Hui, V. K. S., **Zheng, Y.**, & Chan, A. B. (2022). Understanding the role of eye movement consistency in face recognition and autism through integrating deep neural networks and hidden Markov models. *npj Science of Learning*, *7*(1), 1-13. (IF = 5.513, rank 8/91 in Psychology, Experimental)
23. Luo, X., Gu, J., **Zheng, Y.**, & Zhou, X.* (2022). Making a saccade enhances Stroop and Simon conflict control. *Attention, Perception, & Psychophysics*, *84*(3), 795-814. (IF = 2.199, rank 57/77 in Psychology)
24. Hsiao, J. H.*, Lan, H., **Zheng, Y.**, & Chan, A. B. (2021). Eye Movement analysis with Hidden Markov Models (EMHMM) with co-clustering. *Behavior Research Methods,* 1-14. https://rdcu.be/cjLZJ (IF = 6.242, rank 1/13 in Psychology, Mathematical; 5/91 in Psychology, Experimental)
25. Hsiao, J. H.*, An, J., **Zheng, Y.**, & Chan, A. B. (2021). Do portrait artists have enhanced face processing abilities? Evidence from hidden Markov modeling of eye movements. *Cognition, 211*, 104616. (IF = 3.650, rank 18/91 in Psychology, Experimental)
26. Turbett, K.*, Jeffery, L., Bell, J., Digges, A., **Zheng, Y.**, Hsiao, J. H., Palermo, R. (2021). Serial dependence of facial identity for own- and other-race faces. *Quarterly Journal of Experimental Psychology, 17470218211059430.* (IF = 2.143, rank 55/77 in Psychology)

Preprints

27. Qiu, L., Li, J., Kim, H., Wei, X., **Zheng, Y.**, Hsiao, J., & Chen, L.* (2026). Explaining and tuning transformer-based LLMs in arithmetic tasks with human strategies. *https://arxiv.org/abs/2607.17166*
28. Jia, T., Xie, C., Xiang, S., **Zheng, Y.**, Shen, C., Li, Y., ... & Feng, J.* (2025). Hierarchical neurocognitive model of externalizing and internalizing comorbidity. *https://www.researchsquare.com/article/rs-5397195/v1*
29. Xie, C., Xiang, S., **Zheng, Y.**, Shen, C., Peng, X., Li, Y., ... & Feng, J.* (2023). Dopaminergic-related anatomical pattern of dorsal striatum in schizophrenia. *https://www.medrxiv.org/content/10.1101/2023.11.30.23298956v1*
30. Qi, R.#, **Zheng, Y.#,** Yang, Y., Cao, C. C., & Hsiao, J. H.* (2023). Explanation strategies for image classification in humans vs. current explainable artificial intelligence. *https://arxiv.org/abs/2304.04448*
31. Qiu, L., Yang, Y., Cao, C. C., Liu, J., **Zheng, Y.**, Ngai, H. H. T., Hsiao, J. H., & Chen, L. (2021). Resisting out-of-distribution data problem in perturbation of explainable artificial intelligence. *https://arxiv.org/abs/2107.14000*.

Peer-Reviewed Conference Proceedings (Speakers underlined)

Full Papers

32. Fan, C., Yang, X., **Zheng, Y.**, Zhou, B., Wang, Y., Hu, W., Jing, H., Hung, K., Du, D., Li, H., Hsiao, J., Song, Y. (2026). GrandGuard: Taxonomy, benchmark, and safeguards for elderly-chatbot interaction safety. *The 64th Annual Meeting of the Association for Computational Linguistics (ACL 2026).* (acceptance rate: **18%** as Findings Paper)
33. Wang, E., **Zheng, Y.**, Hsiao, J. H., & Maurer, U. (2025). Emotion influences behavioral outcomes and attention during goal-directed reading. *Proceedings of the 47th Annual Conference of the Cognitive Science Society* (pp.). Cognitive Science Society. (**Oral**; acceptance rate: 13.8%)
34. Ding, R., **Zheng, Y.**, Hsiao, J. H., & He, L. (2025). Convolutional neural networks and humans display similar biases and attention distributions in visualization-based statistical judgments. *Proceedings of the 47th Annual Conference of the Cognitive Science Society* (pp.). Cognitive Science Society.
35. **Zheng, Y.**, Liao, W., Tso, R., Hsiao, J. H. (2024). The impact of mask use on face recognition in adults with autism spectrum disorder: An eye-tracking study. *Proceedings of the 46th Annual Conference of the Cognitive Science Society* (pp. 1755-1762). Cognitive Science Society.
36. Xing, W.#, **Zheng, Y.#,** Chan, A., & Hsiao, J. H. (2024). Is holistic processing associated with face scanning pattern and performance in face recognition? Evidence from deep neural network with hidden Markov modeling. *Proceedings of the 46th Annual Conference of the Cognitive Science Society* (pp. 85-92). Cognitive Science Society. (**Oral**; acceptance rate: 19%)
37. Que, Y., **Zheng, Y.**, Hsiao, J. H., Hu, X. (2024). Predicting learners' meta-cognition using eye movements during reading with background music. *Proceedings of the 24th IEEE International Conference on Advanced Learning Technologies (ICALT).*
38. **Zheng, Y.**, de la Harpe, S., Yang, A. Y., Hayward, W. G., Palermo, R., Hsiao, J. H. (2023). Cultural differences in the effect of mask use on face and facial expression recognition. *Proceedings of the 45th Annual Conference*

of the Cognitive Science Society. Cognitive Science Society, 2193-2200.

39. Qi, R., **Zheng, Y.**, Yang, Y., Zhang, J., & Hsiao, J. H. (2023). Individual differences in explanation strategies for image classification and implications for explainable AI. *Proceedings of the 45th Annual Conference of the Cognitive Science Society*. Cognitive Science Society, 1644-1651.
40. **Zheng, Y.**, Que, Y., Hu, X., Hsiao, J. H. (2022). Predicting reading performance based on eye movement analysis with hidden markov models. *Proceedings of the 22nd IEEE International Conference on Advanced Learning Technologies (ICALT)*. (**Oral**) [**Student Award**] [**Best Full Paper Award Nomination**]
41. Yang, Y., **Zheng, Y.**, Deng, D., Zhang, J., Huang, Y., Yang, Y., Hsiao, J. H., & Cao, C.* (2022). HSI: Human saliency imitator for benchmarking saliency-based model explanations. *The Tenth AAAI Conference on Human Computation and Crowdsourcing (HCOMP)*. (acceptance rate: 29.8%)
42. **Zheng, Y.**, Chen, D., Hu, X., Hsiao, J. H. (2022). The impact of mask use on social categorization. *Proceedings of the 44th Annual Conference of the Cognitive Science Society*, 2024-2630. Cognitive Science Society. (**Oral**; acceptance rate: 27%)
43. Qiu, L., Yang, Y., Cao, C. C., **Zheng, Y.**, Ngai, H. H. T., Hsiao, J. H., & Chen, L. (2022). Generating perturbation-based explanations with robustness to out-of-distribution data. The ACM Web Conference 2022 (under Web4Good special track) (acceptance rate: 24%).
44. **Zheng, Y.**, & Hsiao, J. H. (2020). Audiovisual information processing in emotion recognition: an eye-tracking study. In S. Denison., M. Mack, Y. Xu, & B.C. Armstrong (Eds.), *Proceedings of the 42nd Annual Conference of the Cognitive Science Society*, 2024-2630. Cognitive Science Society.
45. Que, Y., **Zheng, Y.**, Hsiao, J. H., Hu, X. (2020). Exploring the Effect of Personalized Background Music on Reading Comprehension. *Proceedings of the Jointed Conference on Digital Libraries (JCDL) 2020* (pp. 57–66). Association for Computing Machinery, New York, NY, USA. (acceptance rate: 31.1%)
46. **Zheng, Y.**, Ye, X., & Hsiao, J. H. (2019). Does video content facilitate or impair comprehension of documentaries? The effect of cognitive abilities and eye movement strategy. In A.K. Goel, C.M. Seifert, & C. Freksa (Eds.), *Proceedings of the 41st Annual Conference of the Cognitive Science Society*, 1283-1289. Montreal, QB: Cognitive Science Society. (**Oral**; acceptance rate: 25.3%) [**Student Travel Award**]

Abstract

A1. **Zheng, Y.**, Chen, D., Palermo, R., Hu, X., Hsiao, J. H. (2026). Cultural differences in the effect of mask use on cross-race face perception: An eye-tracking study. *Proceedings of the 44th Annual Conference of the Cognitive Science Society*. Cognitive Science Society. (accepted as a full paper)
A2. Fung, L., **Zheng, Y.**, Shi, B. E., Hsiao, J. H., Woo, J. (2025). What do older adults want from social robots and artificial intelligence? A product-oriented perspective. *Annual Scientific Meeting of the Gerontological Society of America (GSA)*.
A3. **Zheng, Y.**, Lo, W. S., Lau, E. Y. Y., Eskes, G., Hui, L. L., & Hsiao, J. H. (2025). The Role of Eye Movement Consistency in Aging-Related Decline in Face Recognition. *Proceedings of the 47th Annual Conference of the Cognitive Science Society* (pp.). Cognitive Science Society. (accepted as a full paper)
A4. Yang, A., **Zheng, Y.**, Hsiao, J. H., Chung, S. (2024). Eye Movement Modulates the Face Inversion Effect in Emotion Recognition. *Vision Science Society.*
A5. Hui, T. K., Sit, H. F., Cheung, T. W., **Zheng, Y.**, Hsiao, J. H., Li, S. X. (2023). Mediating Effect of Pre-Sleep Arousals on the Association between Sleep-related Attentional Bias and Sleep Disturbances – An Eye-tracking Study. *Asian Society of Sleep Medicine (ASSM) 2023.* [**Young Investigator Award**]
A6. Hsiao, J., Chan, K. W. S., Chan, A., **Zheng, Y.**, Lau, K. M., Tsang, H. L. M. (2021). Eye movement consistency in global-local perceptual processing predicts schizotypy. *Proceedings of the 43rd Annual Conference of the Cognitive Science Society*, 3229. Montreal, QB: Cognitive Science Society.

TEACHING EXPERIENCE

Teaching assistant for the following courses at HKU, holding a [**Certificate in Teaching and Learning in Higher Education**] awarded by the Centre for the Enhancement of Teaching and Learning of HKU.

2023 Fall	PSYC2102	Foundations of Neuroscience
2022 Spring	PSYC1001	Introduction to Psychology

2020 Spring	PSYC2066	Foundations of Cognitive Science
2019 Fall	PSYC1004	Introduction to Quantitative Methods in Psychology

COMMUNITY SERVICES & OUTREACH

2024-now	Communication Committee Member	Cognitive Science Society
2022-2024	International Committee Member	Cognitive Science Society

ACADEMIC SERVICES & ACTIVITIES

Guest Associate Editor

Frontiers in Neuroscience (Special Issue: Advances in Explainable Analysis Methods for Cognitive and Computational Neuroscience)

Ad-hoc Reviewer

Journals: Learning and Instruction; Psychonomic Bulletin & Review; International Journal of Human-Computer Interaction; Communications Psychology; Cognitive Research: Principles and Implications; Visual Cognition; Heliyon; Acta Psychologica; Brain Sciences

Conferences: Annual Meeting of Cognitive Science Society (CogSci; 2020, 2021, 2022, 2023, 2024, 2025, 2026)

Other Services & Activities

2019-now	Member	Cognitive Science Society
2026-now	Member	Chinese Psychological Society
2019-2023	Eye-tracking lab manager	Department of Psychology, HKU
2019-2021	Lab manager	Attention, Brain and Cognition Lab
2015-2018	Student mentor & academic advisor	HKU CSSAUD

VISITING EXPERIENCE

2023	University of Western Australia	Visiting Research Student
2018	Peking University	Research Intern
2016-2017	University of Tokyo	University-Wide Exchange
2016	University of Cambridge	Pembroke-King's Program
2015	University of California, Irvine	Summer Program

OTHER PRESENTATIONS/TALKS

Jul. 2021	Eye movement consistency in global-local perceptual processing predicts schizotypy. CogSci2021 Hong Kong Meetup & Symposium.
Jul. 2022	The impact of mask use on social categorization. CogSci2022 Hong Kong Meetup & Symposium.
May 2019	Does video content facilitate or impair comprehension of documentaries? Oral presentation at 5th Annual Departmental Research Postgraduate Symposium, Department of Psychology, HKU.
May 2020	Audiovisual Information Processing in Emotion Recognition: An Eye Tracking Study. Oral presentation at 6th Annual Departmental Research Postgraduate Symposium, Department of Psychology, HKU. [**Outstanding Oral Presentation Award Winner**]
Mar. 2021	Eye movement pattern and consistency predict passage reading performance of English as Second Language (ESL) Learners. Brown Bag Seminar, Department of Psychology, HKU.
Aug. 2023	Cultural differences in the Effect of Mask Use on Face and Facial Expression Recognition. CogSci2023 Shanghai Meetup & Symposium.

SKILLS & INTERESTS

Language Mandarin (Native); English (Proficient); Cantonese (Fluent); Japanese (Basic)

Skills

Programming & Software: Python (including deep learning libraries), SPSS, R/RStudio, MATLAB, C# and C++
Experimental Methods: behavioural experiments, eye-tracking, EEG, computational modelling, VR experiments using HTC Vive and Unity