Han Mengfan

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Education

University of Electronic Science and Technology of China (Project 985)
Candidate for Master of Applied Psychology | CGPA: 3.99/4 (Top 1) | Score: 90.7
Supervisor: Prof. Benjamin Becker | Chengdu, China | 09.2023–06.2026

Ningbo University (Double First-Class University)
Bachelor of Applied Psychology | CGPA: 3.54/4 | Score: 85.7
Supervisor: Prof. Zhang Lin | Ningbo, China | 09.2016–06.2020

Research Experience

►Pharmacological Modulation of Human Fear and Attention | Eye-Tracking

Programmed tasks in MATLAB-Psychtoolbox and collected multimodal data (gaze/pupil/behavior) from 117 participants under pharmacological intervention (Vasopressin/Losartan). Led three analytical streams:

(1) Dynamic Cognitive Control: Utilized emotional anti-saccade task and trial-history modeling; demonstrated Losartan enhances post-error adaptive control through trial-based learning.

(2) Threat Processing Decoupling: Applied Shannon entropy, pupil linear modeling, and coupling analysis; revealed AVP phase-specifically modulates pupillary-saccade coordination during imaginary threat.

(3)Computational Phenotyping: Developed an FPCA-Cluster-HMM model to identify threat-response phenotypes and differentiate drug effects.

►Neural Mechanisms of Looming Threat Processing in Females | fMRI

Investigating sex-specific neural dynamics of threat processing using fMRI. Current progress: 14/40 participants acquired.

Publications

Han, M., Dong, W., Fu, K., Wang, J., Xu, Y., Zheng, Y., ... & Becker, B. (2025). Vasopressin and angiotensin II differentially modulate human fear response dynamics to looming threats. medRxiv, 2025-05. (Under Review at *PLOS biology*)

Li, Z., **Han, M.**, Shen, D., Wang, Y., Becker, B., Qin, J., & Xu, X. Top-down rather than bottom-up attention processing mediates the pathway from childhood trauma exposure to depression in adolescents. (Ready for Submission)

Cheng, C., Tsang, M., **Han, M**., Zhang, J., Maes, M., Klugah-Brown, B., ... & Becker, B. (2025). Neural systems underlying autobiographical memory dysregulations in depressive and at-risk individuals: A neuroimaging meta-analysis. medRxiv, 2025-04.

Wang, J., Gan, X., **Han, M.**, Dong, W., He, J., Fu, K., ... & Becker, B. (2025). Effects of exogenous oxytocin on human brain function are regulated by oxytocin gene expression: A meta-analysis of 20 years of oxytocin neuroimaging and transcriptomic analyses. medRxiv, 2025-08.

Skills

Programming: Python (NumPy, Pandas, Scikit-learn, Matplotlib, Statsmodels), R (lme4, brms, ggplot2), MATLAB (Psychtoolbox)
Analysis: GLMM, FLMM, FPCA, HMM, Time-Series Analysis, Coupling Analysis, Computational Modeling fitting
Tools: SPSS, PsychoPy, Git
English: IELTS 6.5(6.0)

Personal Statement

Highly motivated with developing expertise in multimodal data analysis, pharmacological interventions, and computational modeling. Passionate about investigating neural and cognitive mechanisms underlying human behavior and mental processes.