Jiayi Fan

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EDUCATION

Bachelor of Science, Psychology Jul 2025

Peking University, Beijing, China

Selected as an Outstanding Graduate

Annual UCL-PKU Summer School in Experimental Design in Psychology Summer 2022

online (Organized by University College London and Peking University)

TOEFL: 111 (Reading 30, Listening 28, Speaking 25, Writing 28)

Languages: Chinese, English, German (basic)

SKILLS

Programming: R | MATLAB | Python | SPSS

Statistical Analysis: ANOVA, Multilevel Modeling, LPA, SEM, Moderation Analysis, Cognitive Modeling, Social Network Analysis

Machine Learning: Unsupervised Learning, Deep Learning, Reinforcement Learning

Neuroscience: EEG - Data acquisition, preprocessing, and analysis (EEGLAB); fMRI - Preprocessing and statistical analysis (SPM)

CONFERENCE PRESENTATIONS AND POSTERS

Fan, J., Luo, Y., He, Y., Yu, Y., & Zang, Y. (2023). Examining the Effects and Mechanisms of Expressive Writing on Pre-College Entrance Examination Anxiety: A Cluster Randomized Controlled Trial. *Chinese Psychological Society Clinical and Counseling Psychology Professional Committee 2023 Academic Conference.*

Fan, J., & Li, Z. (2025). The Role of Unpredictability in Daily Parent-Adolescent Conflict on Adolescent Internalizing and Externalizing Problems. *SRCD 2025 Biennial Meeting.*

Fan, J., Wu, Y., & Li, Z. (2025). Moderating Effect of Sensory Processing Sensitivity on Daily Parent-Adolescent Relationship and Rumination. *SRCD 2025 Biennial Meeting.*

MANUSCRIPTS AND PUBLICATIONS

(†*co-first author, *corresponding author*)

Ju, Q., Xu, Z., Chen, Z., **Fan, J.**, Zhang, H., & Peng, Y.* (2024). Screening Social Anxiety with the Social Artificial Intelligence Picture System. *Journal of Anxiety Disorders*, 102955. https://doi.org/10.1016/j.janxdis.2024.102955

ACADEMIC EXPERIENCE

Undergraduate Thesis

DACN Lab, Peking University (Advisor: Prof. Yujia Peng) Apr 2024 - Aug 2025

Machine Learning-Based EEG Decoding and Neurofeedback Intervention for Social Anxiety

- Modified MATLAB experiment code. Collected data. Used Drift Diffusion Model to analyze participants' reactions based on their evaluations of AI-generated images depicting positive and negative social scenes.
- Applied a range of machine learning techniques to predict and decode participants' social anxiety levels based on their evaluation scores and EEG signals during the process. The models showed strong performance in both regression and classification tasks, confirming the effectiveness of the AI-generated image database in identifying social anxiety.

- Preparing MATLAB codes for the next experiment: adjusting participants' priors regarding social scenes based on the results of EEG decoding as an intervention for social anxiety.

Summer Internship Research Project

Institute of Child Development, University of Minnesota Twin Cities (Advisor: Prof. Ka I Ip) Mar 2024 - Aug 2025

Examining the Relationship Between Neighborhood Resources and Neurocognitive Development in the ABCD Study

- Reviewed and organized existing research linking neighborhood factors with resting-state functional connectivity and cognitive outcomes.
- Assisted in designing and refining the statistical analysis plan. Planned to employ a brain-wide association method called "polyneuro risk score" (PNRS) to derive adolescents' resting-state functional connectivity that supports cognitive functions. Proposed building a mixed-effects linear model to test the effects of neighborhood resources on the PNRS and using machine learning to identify the relevant contributions of various neighborhood factors.
- Contributing to writing the preregistration paper as the primary writer.

Research Assistant in National Natural Science Foundation of China Young Scientist Project

CAFI Lab, Peking University & Mt. Hope Family Center, University of Rochester (Advisor: Prof. Zhi Li) Sep 2022 - Sep 2024

A Longitudinal Study of Children's Environmental Sensitivity, the Influence of Family Environment, and Underlying Physiological Mechanisms

- Collected behavioral data from children and their mothers in various lab experiments. Coded children's behaviors following established protocols on sensory processing sensitivity (SPS) and parenting practices. Conducted interviews with mothers and coded the transcripts.
- Collected physiological data from children and their mothers during the experiments, including Autonomic Nervous System indicators using MP160 and Hypothalamic-Pituitary-Adrenal axis metrics.
- Led the collection of daily diary data from 162 parents over three weeks, including reports on parent-child conflict, parental support, parental conflict, and children's daily emotions and abnormal behaviors.
- Analyzed the daily diary data to capture how daily influences of family environment interact with children's SPS. Multilevel modeling revealed that children's SPS moderated the link between parent-child relationship and children's daily rumination.
- Analyzed daily diary data to examine the role of unpredictability in the family environment. Extracted residuals from time-effect models and employ various methods (e.g., standard deviation, autocorrelation, entropy, and color of noise) to measure unpredictability in the parent-child relationship. Results indicated a negative effect of unpredictability on children's internalizing and externalizing problems, even after controlling for the average level of the parent-child relationship.

Undergraduate Independent Research Project

IPP Lab, Peking University (Advisor: Prof. Yinyin Zang) Apr 2021 - Sep 2022

The Relationship Between Mortality Salience and Individual Behavioral Approach

- Generated the research idea and conducted an extensive literature review.
- Served as the principal investigator, overseeing all aspects of study design and data collection.
- Utilized various statistical methods, including ANOVA, moderation analysis, and latent profile analysis. Results from 50 participants indicated that mortality salience evoked participants' fun-seeking dimension of the Behavioral Approach System, while worldview, self-esteem, and close relationships mitigated the effect.

Effectiveness and Moderator of Guided Narrative Technique on Test Anxiety for High-Stakes Exams

- Developed and implemented a Guided Narrative Technique (GNT) intervention to address high school students' mental health and academic motivation issues, including material preparation, intervention planning, collaboration with the school, and overseeing the data collection process.
- Led data analysis using multilevel modeling, revealing that the GNT intervention mitigated the negative impact of upcoming college entrance exams on students' self-efficacy and intrinsic academic motivation, while also enhancing their happiness, partly through reducing expressive suppression. Presented the findings in research papers as a co-first author.

PROFESSIONAL EXPERIENCE

Teaching Assistant, Introduction of Counseling and Psychotherapy Course

School of Psychological and Cognitive Sciences, Peking University Sep 2023 - Jan 2024

- Organized class activities and discussions.
- Graded essay assignments.
- Prepared and evaluated the final exam.

Volunteer Middle School Psychological Education Teacher

Peking University Affiliated Middle School Sep 2022 - Jun 2023

- Designed the class content across two semesters.
- Conducted psychological education sessions aimed at helping adolescents improve their emotional recognition and regulation skills, while also reducing the risk of suicide and school violence.

Peer Support Volunteer

"FindSelf " Platform Mar 2022 - Mar 2023

- Volunteered as an online peer supporter, dedicating 2 hours per week communicating with individuals in need of support or advice.
- Employed positive listening techniques with a focusing on recognizing suicidal ideation and lowering suicide risk.

Peking University Yuanpei College Freshman Advisor

Yuanpei College, Peking University Sep 2021 - Jun 2023

- Assisted freshmen their transition into the university.
- Provided academic planning support, such as major and course selection.

Volunteer for One-on-One Support for Children with Autism

"Rong Ai Rong Le" Center for Families with Intellectual Disabilities Mar 2022 - Jul 2023

- Communicated with autistic children online, weekly for one semester, with a focus on providing support in socialization skills.
- Served as the program leader, organizing the peer support process.
- Designed video coding protocols for assessing socialization skills in children with autism to evaluate program effectiveness and facilitate further research.

Volunteer Teaching in Underprivileged Areas

Changzhi, Shanxi, China Jun 2021 - Sep 2021

- Volunteered at a primary school in an underprivileged area of China, teaching topics such as basic emotion recognition, responses to school violence, sexual education, and world geography.

HONORS & ACCOLADES

China National Scholarship | *National Government* 2023 - 2024

First Prize of Peking University Academic Research Cup | *Peking University* May 2023

Peking University Alumni Boya Scholarship | *Peking University* 2022 - 2023

First Prize of Peking University Academic Research Cup | *Peking University* May 2022

Undergraduate Study Scholarship | *School of Psychological and Cognitive Sciences, Peking University* 2021 - 2022

Fenjiu Group Public Welfare Scholarship | *Peking University* 2021 - 2022