Baiqiao Zhang

CONTACT INFORMATION

School of Mechanical, Electrical and Information Engineering
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EDUCATION

Shandong University, Shandong, China

B.S. Computer Science, August 2021 - July 2025

- **Advisor:** Yulong Bian and Juan Liu
- **Courses:** Human-Computer Interaction Technology(99), Machine Learning, VR System Development and Usability Evaluation(99), Digital Image Processing(92), 3D Content Design and Creation(96), Web Technology(93), Java Programming(93), Calculus(91), Linear Algebra, Probability Theory, Data Structures, Database Systems, Algorithm Design and Analysis.
- **GPA**: 86.89/100

RESEARCH EXPERIENCE

Exploring The Features and Method of Detecting Simultaneous Flow Experiences Based on EEG Signals.
Research Assistant — May. 2023 to present
Shandong University, Shandong, China
Supervisor: Yulong Bian

- Designed a two-user task for continuously measuring simultaneous flow in collaboration based on which we constructed the first multichannel EEG dataset of simultaneous flow.
- Through intensive experiments and analyses of ML models, validated the effectiveness of inter-brain synchrony features in team flow state recognition.

Enhancing Recognition of Stereotyped Movements in ASD Children through Action Pattern Mining and Multi-Channel Fusion.
Research Assistant — Aug. 2023 to Apr. 2024
Shandong University, Shandong, China
Supervisor: Xiangxian Li, Juan Liu

- Proposed a multi-modal fusion framework for ASD stereotyped movements recognition through the effective construction of structured modeling of skeleton point information and the achievement of efficient fusion of visual and structural information.
- Achieved SOTA performance in stereotyped movements recognition in children with autism, significantly aiding in early screening.

AttentionGo: A Family-based Tangible Neurofeedback Tool Supporting Sustainable Training for Children with ADHD
Research Assistant — Feb. 2024 to present
Shandong University, Shandong, China
Supervisor: Yulong Bian, Juan Liu

- Collected a 64-channel EEG dataset of tongue motor imagery using high-precision EEG equipment.
- Designed the transfer learning algorithm META-EEG, which uses full-channel EEG signals from the training data to enhance the representation learning of

target low-channel EEG signals, enabling accurate real-time tongue movement recognition with low-channel EEG devices in interactive tasks.

Becoming An Animal? Exploring Proteus Effect Based on Human-avatar Hand Gesture Consistency
Research Assistant Feb. 2024 to present
Shandong University, Shandong, China
Supervisor: Yulong Bian, Juan Liu

- Explored the impact of the Proteus Effect on human cognition and behavior when using non-human avatars in VR environments. To objectively assess this effect, I developed and trained a hand gesture recognition model based on Gated Recurrent Units (GRU), capable of detecting the consistency between user gestures and avatar gestures in real-time.

From LLM Agent Personality to Human Personality: Exploring A Gamified Assesment Method through Trust Game
Research Assistant May. 2024 to present
Tsinghua University, Beijing, China
Supervisor: Yulong Bian, Chao Zhou, Yongjin Liu

- Implemented personality editing for LLM agents using prompt engineering to explore user preferences and effectiveness in game scenarios.
- Designed a conceptual architecture and gamified assessment pipeline. Created an integrated system architecture for LLM agents, combining role-playing, perception, cognition, and game environment interaction to simulate realistic interactions and assess personality traits.

Research Interests

My long-term research goal is to use AI technology to better understand human needs, emotions, and behavior by analyzing physiological signals, user interactions, and behavior data, and to advance the development of intelligent systems in human-computer interaction, personalized services, and mental health.

As a part of my research, my interests covering the following areas:

- Human-Computer Interaction
- Brain-Computer Interface
- Pattern Recognition
- Ubiquitous Computing
- VR
- User Experience
- LLM
- Machine Learning

Honors And Awards

- **Second Prize in National College Student Software Innovation Competition** 20th/1139 2024
- **CHCI 2023 Best Paper Honorable Mention Award** 2023
- **Shandong University Special Talent Scholarship** 2022-2023
- **Shandong University Academic Scholarship** 2022

Programing

Python, PyTorch, Matlab, SQL, C/C++, Java, Unity and LaTeX.

Publications

1. **Baiqiao Zhang**, Xiangxian Li, Yunfan Zhou, Juan Liu, Weiying Liu, Chao Zhou, Yulong Bian. *Are We in The Zone? Exploring The Features and Method of Detecting Simultaneous Flow Experiences Based on EEG Signals*, submitted to **IMWUT/Ubicomp**, 2024, *Accepted*.

2. **Baiqiao Zhang**, Yanran Yuan, Wei Qin, Xiangxian Li, Weiying Liu, Wenxin Yao, Yulong Bian and Juan Liu. *Enhancing Recognition of Stereotyped Movements in ASD Children through Action Pattern Mining and Multi-Channel Fusion*, submitted to **IEEE Journal of Biomedical and Health Informatics**, 2024, *Major Revision*.
3. Yunfan Zhou**, **Baiqiao Zhang****, Juan Liu, Yulong Bian. *Research on Team Flow Experience Recognition Based on EEG Signals*, **CHCI**, 2023, *Best Paper Honorable Mention Award*, ** Co-first authors.
4. Weiying Liu, Yanyan Zhang, **Baiqiao Zhang**, Qianqian Xiong, Hong Zhao, Sheng Li, Juan Liu, Yulong Bian. *Self-Guided DMT: Exploring a Novel Paradigm of Dance Movement Therapy in Mixed Reality for Children with ASD*, **IEEE Transactions on Visualization and Computer Graphics**, 2024.
5. Tangjun Qu, Junjie Wang, Yongjiu Lin, Juan Liu, Chao Zhou, **Baiqiao Zhang**, Kaiyuan Jiang, Yulong Bian. *Becoming An Animal? Exploring Proteus Effect Based on Human-avatar Hand Gesture Consistency*, **IEEE International Symposium on Mixed and Augmented Reality (ISMAR)**, 2024.
6. Chao Zhou, Juan Liu, Wenxiu Geng, **Baiqiao Zhang**, Kaiyuan Jiang, Yulong Bian. *Positive or Negative? The Effect of Self-motion Speed on Flow Experience is Moderated by Susceptibility to VR Sickness*, **IEEE International Symposium on Mixed and Augmented Reality (ISMAR)**, Poster, 2024.