JIEYI (JOY) WANG

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RESEARCH INTEREST:
• Agentic RL • AI for Healthcare • Trustworthy Machine Learning

EDUCATION

Peking University, Beijing, China (PKU, "Double First-Class" university) Sep 2023 - Jun 2026
Master of Software Engineering, National Engineering Research Center for Software Engineering
Advisor: Prof. Hanpin W. and Prof. Yu H. **GPA: 3.55/4.0**

Shanghai University, Shanghai, China ("Double First-Class" university) Sep 2019 - Jun 2023
Bachelor of Computer Science and Technology (national first-class undergraduate specialty)
Outstanding Dissertation, Advisor: Prof. Wei X. **GPA: 3.83/4.0, Rank 2nd/367**

PUBLICATIONS

- **Wang, J.**, Huang, Y., Liu, Z., Xu, D., Wang, C., Shi, X., ... & Huang, Y. (2025). STAMPsy: Towards SpatioTemporal-Aware Mixed-Type Dialogues for Psychological Counseling AAAI 2025 Oral Presentation (CCF A), 39(24): 25371-25379.

  To address the challenge of ambiguous symptom descriptions in **psychological counseling**, we collected STAMPsy, a goal-oriented dataset targeting mixed-type helping needs and stamped by **spatiotemporal**-aware knowledge. Additionally, we develop Self-STAMPsy, an **iterative self-feedback** psychological dialogue generation framework. Recently, we are delving into an agent-based workflow under Cognitive Behavioral Therapy and neuroscience.

- **Wang J.**, Niu Y., Xu D. & Wei Z. " Speak With Dual Reasoning: Audio Perceptual Understanding with Explicit Reflection and Latent Reasoning" (going to be submitted to ACL2026, Code, Dataset)

  We proposed an adaptive framework that couples **perceptual** grounding with reasoning for **LALMs**, ConfAudio, which unifies explicit, reflective reasoning (**fine-tuned** on our novel dataset) with implicit, **pause-driven latent GRPO** training, via a controller monitors **lowest-group-confidence** and a **composite reward function**.

- Xu, D.*, Chen, Y.*, **Wang, J.**, Huang, Y., ... & Huang, Y. (2024). Mlevlm: Improve multi-level progressive capabilities based on multimodal large language model for medical visual question answering. ACL, 2024. (CCF A), pp. 4977-4997.

  We propose MLeVLM, a Multi-level Visual Language Model for **Medical Visual Question Answering** focusing on recognition, details, diagnosis, knowledge, and reasoning. We construct a high-quality multi-level dataset (MLe-VQA) and a multi-level feature alignment module, and create a benchmark which MLeVLM outperforms.

- Xu D., **Wang J.**, Chai Z. ...& Hu Y. "MedMKEB: A Comprehensive Knowledge Editing Benchmark for Medical Multimodal Large Language Models" (with *Dr. Huamin Zhang*)(arXiv preprint, arXiv:2508.05083., accepted by AAAI2026)

  A **medical multimodal knowledge-editing benchmark** with FT, KE, IKE, MEND, SERAC, and evaluated on 10+ knowledge-editing models. Ongoing Work: "**CPD-MoE**: Parameter-Efficient Lifelong Knowledge Editing for Vision Language Models with **CP-Decomposed** Experts and Dual Routing" (*submitted to CVPR2026*)

- Chen S., **Wang J.**, Chen W., & Wei Z. "SpeechMedAssist: Efficiently and Effectively Adapting Speech Language Model for Medical Consultation" (a **SpeechLM** natively capable of conducting multi-turn speech-based interactions with patients, with modality alignment, satefy and efficiency check.)(submitted to ICLR2026, Case Demo., Code.)
- **Wang J.**, Xu D, Chao Y., ...& Huang Y. "RLPF: Towards Curriculum Reinforcement Learning with Psychologist-like Feedback. (a **RL** framework simulating clinical psychologist, incorporating **an adaptive thinking reward** based on task complexity, submitted to IEEE Transactions on Affective Computing (TAFFC), with *Dr. Ruiyuan Guan*)
- **Wang J.**, Zhao F., Chen B., ...& Hu Y. "RedRAG: A RefinED Multi-Agent RAG System Towards Complex Queries and Information Confliction in Generative Search Engines."

RESEARCH EXPERIENCES

- **Project Manager of National Key R&D Program of China, PKU** Beijing, China, Nov 2022 - Nov 2025
  Research on Intelligent Diagnosis and Treatment Models and Efficacy Evaluation for Insomnia Disorders (No. 2022YFC2503903). Supervised by Prof. Wang Hanpin and Huang Yu Together with Prof. Guan Ruiyuan, director of Department of Medical Psychology, School of Medical Humanities, Peking University. Published Work in AAAI2025.

  1. Coordinated closely with multiple top-tier hospitals and professionals, and gained **3 publications, 5 authorized invention patents and 1 software copyright**.
  2. **Data Analysis**: Processed clinical data(sleep logs, EEG, and fMRI data) with **missing modalities completion**.
  3. **Dataset Construction**: Built **STAMPsy** (5k+ sessions), a Chinese multi-turn dialogue corpus, based on case conceptualization and CBT-guided spatio-temporal prompt engineering.
  4. **Model Training and Deployment**: Shipped a spatio-temporal-aware mixed-type dialogue platform with **SFT, RAG**, multi-Agent, released on PKU Xplore. Designed session-level reward and trained a **GRPO-enhanced** LLM.
  5. Studied several professional theories in psychology. **Teaching assistant** for "**Music therapy** in the medical field".

- **The Wharton School, the University of Pennsylvania** Online, USA
  Research Assistant, Advisor: Prof. Zhao Bingxin Aug 2025 - Nov 2025

  1. Designed an **Search-R1-like** workflow for auto systematic literature review enabling robust protein-disease mining.

- **Shanghai AI Lab, Pujiang National Key Lab (Top-tier AI research institution)** Shanghai, China
  Large Model Reinforcement Learning Algorithm Intern, Preprint work for ICLR2026 Apr 2025 - Oct 2025

  1. Daily maintenance of the self-built RLHF framework, LightRLHF, DI-engine, and algorithm and model transfer;
  2. Optimized large audio model on Audio QA, via self-iterative chain-of-thought and a **group-confidence**-aware controller for **latent reasoning**, evaluate on MMAU $\uparrow 10pts$, MMAR$\uparrow$ $25pts$.
  3. Participated in **reaction model to music** through deep reasoning and Music Personality Simulator.

- **Fudan Data Intelligence and Social Computing (DISC) Lab, Fudan University** Shanghai, China
  Research Assistant, Advisor: Prof. Wei Zhongyu, Publication for ICLR2026 May 2025 - Sep 2025

  1. Produced **time-series analyses** to support **long-term medical assistance** and randomized controlled trials (RCTs) design; Cooperate with a renowned specialist hospital.
  2. Adapted SpeechLMs to develop an efficiently and effectively for medical consultation.
  3. Developing an interactive AI agent for mental healthcare with active reasoning, audio analysis, and reinforcement learning to enhance diagnostic reliability and safety, especially for Cantonese with mental health disorders.

- **Baichuan Co., Ltd (Top-tier Firm of LLM in medical industry in China)** Beijing, China
  Algorithm Engineer, Medical AI Department Nov 2024 - Apr 2025

  1. Built **Baichuan-M2**, a Large Verifier System with dynamic closed-loop RL: mixed-type scenarios to develop **Patient Simulator Agents** and **Clinical Rubrics Generator**(colloquial style transfer, multimodal report interpretation);
  2. **Active Reasoning** for diagnosis: Trained an R1-like medical LLM with enhanced deep reasoning and proactive care; Specifically focused on pediatric diagnostic inquiry and **evidence-based medicine**.

- **Key Member, National Engineering Research Center for SE, PKU** Beijing, China
  Together with Prof. Yue Weihua, dean of Peking University Sixth Hospital, China's only National Health Commission-designated Class III Grade A specialized psychiatric hospital Sep 2023 – Jun 2026

  1. Participated in the application and Oral Defense Session of National Natural Science Foundation of China. Facilitated two successful acquisition of **1,000,000** RMB in Natural Science Foundation of Beijing and other funding programs.
  2. Developed a multimodal empathy dataset and a trusted Cognitive Agent Platform that integrates multi-modal features from voice, facial expression, and text.
  3. Contributed to the framework design of the **China Hospital Association's group standard** "Medical Cohort Platform Data Technology (MCPDT)" and drafted multiple sections of the standard.
  4. Other research in medicine, especially in **medical imaging(2 publications)**. Grasped Knowledge in autism, traditional Chinese medicine, dermatology, myocardial infarction, sepsis, depression, etc.

- **Project Leader, International Centre for Quantum and Molecular Structure, QuArtist** Shanghai, China
  Research Assistant, Advisor: Prof. Ren Wei Oct 2019 - Jun 2023

  1. Proposed methods for **automatic extraction** of computational materials information(NER and knowledge graph).

CONFERENCE PRESENTATIONS

- **Wang, J.**, Huang, Y., ... & Huang, Y. (2025). STAMPsy. (AAAI2025 Oral Presentation), USA. Feb 2025
- **Wang J.**, Huang Y. (2025). AI-Driven Sleep Revolution: LLM-Based CBT-I Enhancement Technology and Clinical Applications. Training sessions of the National Key R&D Program of China, China. Feb 2025
- Xu, D., Chen, Y., **Wang, J.**, ... & Huang, Y. (2024). Mlevlm. (ACL2024 Poster), Thailand. Jul 2024

AWARDS

- **Education Scholarship**, **Twice**, Peking University Oct 2024 & 2025
- Outstanding Participant in "Top 1000+" Pilot Program for Graduate Student Leaders, Peking University Sep 2024
- **Distinguished Graduate Award**, Shanghai Municipal Education Commission Jun 2024
- **Shanghai Municipal Government Scholarship**, Shanghai Municipal Education Commission Jun 2023
- **Finalist** Prize(Top 2%), The Internation Mathematical Contest in Modeling (MCM & ICM), COMAP May 2022
- Outstanding Student Award, for three years in a row, Shanghai University Jun 2021-2023

SKILLS

- **Solid Python&Java programming and data analysis**; **Hands-on experience with distributed training**
- **Proficient in mainstream LLMs and DL, ML algorithms**(open-source projects: Tianji, MindNLP, etc.);
- **Software:** Matlab(SPM), SPSS, LaTeX, Tableu, Word/Powerpoint/Excel, AutoCAD, PS, Material Studio
- **Languages:** Chinese (Native), English (Fluent)
- **Interests:** Volleyball(Varsity Athlete, blocker), Calligraphy(highest level in National Association), Cooking, Skiing