

Wenxuan Xu

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Highlights

Graduate researcher with hands-on experience in large language model (LLM) training and inference. Skilled in running sglang-based local deployments and contributing to its LoRA integration roadmap. Experienced in LoRA fine-tuning and reinforcement learning for LLMs on 8× H200 clusters, with a solid grasp of Transformer architecture, FSDP.

Education

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| Dartmouth College | 2024/09 – 2026/12 (Expected) |
| MS, Computer Science with Concentration on Digital Arts | Hanover, NH, USA |
| University of Liverpool (Xi'an Jiaotong-Liverpool University) | 2020/09 – 2024/07 |
| BS, Computer Science (GPA 3.78/4.00, First Class Honors, Dual Degree) | Liverpool, UK Suzhou, China |

Technical Skills

Machine Learning & Optimization: PyTorch, DeepSpeed, LoRA Fine-tuning, Reinforcement Learning (DPO,GRPO),Hugging Face, SGLANG, vLLM, Transformers, FSDP

Systems & Infrastructure: Docker, Kubernetes, Redis, MySQL, GCP, HDFS, Amazon SNS, etcd

Programming & Software Development: Python, C++, C#, Java, Shell, SQL, Git, CMake

Experience

HealthX Lab, Dartmouth College | Research Assistant 2025/03 - present

Symp2Text – Multimodal LLM for Mental-Health Narratives | Advisor: [Prof. Andrew Campbell](#)

- Built a **multimodal large-language-model framework** that links wearable sensor **time-series** with clinical text using synthetic labels from Ecological Momentary Assessments (EMA), enabling the model to generate Patient Health Questionnaire-9 (PHQ-9) symptom narratives for depression-severity tracking.
- Developed a **patch-based MLP adapter** to connect wearable sensor signals to the **Qwen-3-14B backbone**, and benchmarked two setups on an 8× **A6000 GPU** cluster – **adapter-only MLP vs. MLP + LoRA fine-tuning** – letting the model reason jointly over sensor patterns and clinical text.
- Converted EMA item scores into rule-based templates, then ran an **sglang-based local inference stack** for narrative rewriting and a multi-agent LLM-as-a-Judge ensemble in parallel, processing and quality-checking **60 k+ labeled narratives** fully on-premise.
- Reached state-of-the-art performance, beating both text-only and adapter-only baselines (including **gpt-oss-20b**) on PHQ-9 narrative generation; one paper submitted to **CHI '26**.

Pervasive HCI Group, Tsinghua University | Research Intern

FIT-AWE Lab, the Hong Kong University of Science and Technology (Guangzhou) | Research Intern 2022/07 – 2024/09

Multimodal LSTM for Ray Pointer Prediction in VR | Advisor: [Prof. Hai-Ning Liang](#) and [Prof. Yuntao Wang](#)

- Built a VR study platform in Unity + Meta Quest Pro, recording 72 k head-, eye-, and hand-tracking sequences at 90 Hz from bare-hand ray-pointing tasks.
- Trained a **tri-modal stacked LSTM** on velocity- and distance-time-series to predict ray-landing poses, added gaze-driven early-stage prediction and cross-user generalization, and ran **head / hand / eye ablation tests** to quantify each modality’s role in human motor control.
- Reached **1.9×** lower angular error and **3.5×** higher hit-rate at 40 % of the movement phase, outperforming kinematic baselines; results published at **IEEE VR '25**.

Projects

Vision-Language R1 Alignment

- Built a vision-language model by combining a **CLIP-based** image encoder with a **Qwen-VL-style** decoder, adding an R1-style reinforcement step on top of supervised fine-tuning to improve referring-expression comprehension (REC) and open-vocabulary detection (OVD).
- Implemented custom IoU-based box overlap and embedding-similarity rewards and trained with a **GRPO-like optimizer**, fine-tuning only the language head with LoRA while keeping the vision backbone frozen.
- Trained on a 4× A6000 GPU setup and saw about 10 % better REC accuracy and fewer hallucinated boxes compared with the SFT baseline.

Selected Publication

[1] [IEEE VR' 25] **Wenxuan Xu**, Yushi Wei, Xuning Hu, Wolfgang Stuerzlinger, Yuntao Wang, Hai-Ning Liang. “Predicting Ray Pointer Landing Poses in VR Using Multimodal LSTM-Based Neural Networks”

[2] [IEEE VR' 25] Xuning Hu*, **Wenxuan Xu***, Yushi Wei, Zhang Hao, Jin Huang, Hai-Ning Liang. “Optimizing Moving Target Selection in VR by Integrating Proximity-Based Feedback Types and Modalities” (**Co-first author**)

[3] [CHI '26 (under review)] Shaoyue Wen, Songming Ping, Zijian Ding, **Wenxuan Xu**, Liyun Ma, Yukang Yan, Hai-Ning Liang. “AdaptiveAudience: Bridging Gaming Emotion and Virtual Reality with Reinforcement-Learning-Driven Non-Player Character Behavior”