

# Han Muchen (*Miranda*)

Independent Researcher

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## RESEARCH

Co-first author of a paper submitted to NeurIPS 2026. Title, anonymous repository identifier, and distinctive method/numerical details are withheld below to preserve double-blind review integrity; full information is available on request after the review period.

**Co-first author.** Deployment-failure audit suite for Vision-Language-Action (VLA) models — mutually-exclusive failure-mode taxonomy with calibrated confidence intervals and a CI-style ship-gate; demonstrates shipping-blocking failure modes that look acceptable on aggregate-success metrics alone.

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## EXPERIENCE

**Undergraduate Research Opportunities Program (UROP), HKUST** 2025 – Present  
*Explainable AI from Cognitive Science Perspectives* · Advisor: Prof. Janet H. Hsiao, Attention Brain and Cognition (ABC) Lab

- AI-side of a project that uses human attention data (eye-tracking, EEG) to evaluate and improve saliency-based XAI methods for deep vision models, building on the lab's line of work on human-attention-guided XAI for object detection.
- Comparing model saliency maps (GradCAM, attention rollout) against human attention as ground truth; using EEG-decoded neural representation quality as an additional faithfulness signal for XAI explanations.

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## EDUCATION

**Hong Kong University of Science and Technology** Sep 2025 – 2029 (*expected*)  
BEng in Computer Science, School of Engineering

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## TECHNICAL SKILLS

**Languages.** Python, Rust, TypeScript.

**Research & ML.**

- *Statistical evaluation for ML deployment* — failure-mode taxonomies, Wilson and bootstrap confidence intervals, CI-style ship gates for closed-loop VLA rollouts.
- *Computer vision & XAI* — saliency methods (GradCAM, attention rollout), human-attention-guided faithfulness evaluation.
- *EEG & signal processing* — multi-channel EEG, decoding-based readouts of neural representation quality.
- *Stack* — PyTorch with HuggingFace Transformers / datasets; NumPy / SciPy / pandas.

**Rust.** Async services and CLIs with `tokio` / `clap` / `request` / `serde`; self-hosted VPS proxy manager (sing-box, VLESS+Reality, Hysteria2).

**Web.** Astro / TypeScript; built and deployed a static research-collective site.

**Platforms.** Native development across Windows, macOS, and Linux (Ubuntu, Arch Linux).