# Ze RONG

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**Research Focus:** Spatial Intelligence and Visual Generalization

## EDUCATION

**University of Macau** **09/2026–Present**

- M.Sc. in Artificial Intelligence | Advisor: Prof. Zhedong Zheng

**Nantong University** **09/2022–07/2026**

- B.Eng. in Computer Science | Undergraduate advisor: Prof. Lei Ma

## PUBLICATIONS

*† Equal Contribution. * Corresponding author.*

**Published / Accepted**

- Lei Ma†, **Ze Rong†**, Xiaofeng Shen, Xinliang Cao, Leixiao Yu, Ting Li*. *FuzzyStateFormer: A Neuro-Fuzzy State-Aware Framework With Transformer Temporal Encoding for Reliability-Aware Non-Invasive Long-Sequence fMRI Semantic Decoding*. IEEE Transactions on Fuzzy Systems (TFS), 2026.
- Xiaofeng Shen†, **Ze Rong†**, Haoyang Qin, Binhao Zhao, Yue Xu, Lei Ma*. *SCORE: Soccer Curriculum for Ordinal Affect Recognition with Evidence*. ACM International Conference on Multimedia Retrieval (ICMR), 2026.
- **Ze Rong**, Xiaofeng Shen, Haoyang Qin, Yue Xu, Hongjun Li, Lei Ma*. *FIRM: Fusion-Injected Residual Memory Brings Token-Level Alignment to Unsupervised VI-ReID*. Asian Conference on Machine Learning (ACML), 2025.
- **Ze Rong**, Ziyue Zhao, Zhaoxin Wang, Lei Ma*. *FaRMamba: Frequency-based Learning and Reconstruction Aided Mamba for Medical Segmentation*. International Conference on Neural Information Processing (ICONIP), 2025.
- Zhaoxin Wang, Wenwen Yang, **Ze Rong**, Zhengyu Li, Xing Wang, Lei Ma*. *Multi-Scale Crossed Algorithm for Ultrasound Medical Image Segmentation Based on MSC-LSAM*. Journal of Data Acquisition and Processing, 2025.
- Zhaoxin Wang, Wenwen Yang, Zhengyu Li, **Ze Rong**, Xing Wang, Jincong Han, Lei Ma*. *A 25-Year Retrospective of the Use of AI for Diagnosing Acute Stroke: A Systematic Review.* Journal of Medical Internet Research (JMIR), 2024.

**Preprint / Technical Report**

- **Ze Rong**. *PACE: Polar Axis-Conditioned Estimation for PairUAV Relative Localization*. arXiv:2607.17268, 2026.

## RESEARCH EXPERIENCE

**Project: Visual Geometry, Localization and Spatial Reasoning | 2026–Present**

*Researcher*

- Developed PACE for UAV-to-UAV relative localization, separating heading and range evidence; released code and reproducibility materials.
- Investigating Sim2Real cross-view geo-localization (University-1652 to SUES) and ground-to-satellite matching, exploring geometric, semantic and generative priors.
- Investigating camera pose regression, with an emphasis on identifying and analyzing model behavior.
- Developing a benchmark for VLM spatial understanding and rigid-body motion planning under spatial constraints.

**Project: Cross-Modal Representation Learning | 2024–2025**

*Project Leader*

- Developed FIRM (ACML 2025) for unsupervised visible-infrared person re-identification, improving cross-modal token alignment under noisy pseudo-label supervision.
- Conducted model design, ablations and evaluation for visual and language-guided representations across modalities.

**Project: Multimodal Video Understanding and Reasoning | 2025–2026**

*Project Leader*

- Led task and data development for soccer-video reasoning, including temporal affect recognition and evidence-grounded multimodal understanding.
- Co-first-authored SCORE (ICMR 2026), studying ordinal affect recognition when broadcast views contain ambiguous or weak visual evidence.

**Project: Medical Imaging and Neural Semantic Decoding | 2024–2026**

*Project Leader*

- Led mouse cochlea imaging dataset curation with Nantong University collaborators; studied reconstruction and fine-structure segmentation, including FaRMamba (ICONIP 2025).
- Co-first-authored FuzzyStateFormer (IEEE TFS 2026), incorporating state-aware neuro-fuzzy temporal modeling for long-sequence non-invasive fMRI semantic decoding.

## TECHNICAL SKILLS

- Python, PyTorch, vision Transformers, multimodal learning, dataset preparation, reproducible training and evaluation, ablation studies and benchmarking.

## HONORS & AWARDS

- 1st Place, ACM MM 2026 UAVM Challenge - PairUAV Relative Localization (2026).
- Raytron / DataFountain Infrared Super-Resolution Challenge (2026) — Stage 2, 5th place; Top-10 offline finalist (139 teams).

## ACADEMIC SERVICE

- Conference reviewer: IEEE ICME (2025, 2026), ACM ICMR (2026), IEEE ICASSP (2026, 2027), ACM Multimedia Asia (2026).
- Journal reviewer: Applied Intelligence.