Jiahang Li

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Education

- **Tianjin Normal University** *Sep 2022 – Jul 2026*
  B.Eng. in Intelligent Science and Technology Tianjin, China
  - ***GPA:*** 84.85/100; ***GPA (3rd Year):*** 88.82/100

Research Interest

I am deeply interested in **multimodal foundation models**, from representation learning to generative modeling for content creation. My passion lies in developing **domain-specialist LLM agents** that enhance productivity, well-being, and creativity. Additionally, I aim to leverage my experience in **voice dubbing** and **sound design** to strengthen multimodal understanding and advance human–AI collaboration.

> *"Artificial intelligence is not a substitute for human intelligence; it is a tool to amplify human creativity and ingenuity."*
> — **Fei-Fei Li**

Publications

C=Conference, J=Journal, S=In Submission, *=Equal Contribution

[J.2] Yong Su*, **Jiahang Li***, Simin An, Hengpeng Xu & Weilong Peng. (2025). **Dual-Detector Reoptimization for Federated Weakly Supervised Video Anomaly Detection via Adaptive Dynamic Recursive Mapping**. IEEE Transactions on Industrial Informatics (TII '25, IF: 11.7).

[J.1] Yong Su, **Jiahang Li**, Simin An, Meng Xing & Zhiyong Feng. (2025). **Federated weakly-supervised video anomaly detection with mixture of local-to-global experts**. Information Fusion (Inf. Fusion '25, IF: 15.5).

[C.1] Jiawen Jiang, **Jiahang Li**, & Jin Lu. (2025). **View-Robust Backbone and Discriminative Reconstruction for Few-Shot Fine-Grained Image Classification**. IEEE International Joint Conference on Neural Networks (IJCNN '25).

Research Experience

- **Tianjin Normal University [🌐]** *Sep 2023 – Jul 2025*
  Research Intern, supervised by Lect. Yong Su Tianjin, China
  - Developed the first federated weakly supervised video anomaly detection framework for intelligent surveillance, enabling privacy-preserving anomaly recognition across distributed scenes.
  - Implemented federated learning algorithms tailored for heterogeneous-scene anomaly detection and optimized their deployment on NVIDIA Jetson AGX Xavier.
  - Conducted research on robust, privacy-preserving surveillance anomaly detection.
  - Two papers accepted to TII'25 and Inf. Fusion'25 (see [J.2] and [J.1]).

Research Projects

- **Robust Backbone for Few-Shot Fine-Grained Image Classification** *Jan 2025 – Mar 2025*
  Collaborated and Mentored [GitHub]
  - Proposed a feature-enhancement backbone that integrates cross-scale feature interaction and adaptive selection to mitigate misclassifications induced by viewpoint diversity in few-shot fine-grained image classification.
  - Introduced a module optimized via regularized ridge regression to maximize inter-class divergence and enhance intra-class compactness, enabling more discriminative and geometrically coherent feature representations.
  - Accepted by IJCNN'25 (see [C.1]).
- **Video Anomaly Detection for Real-World Heterogeneous Scenes** *May 2024 – Oct 2024*
  Supervisor: Lect. Yong Su, TJNU [GitHub]
  - Developed a dual-detector framework leveraging adaptive dynamic recursive mapping and decision-parameter interaction to generate more stable anomaly scores, thereby enhancing detection accuracy and robustness.
  - Introduced the Scene-Similarity Adaptive Local Aggregation algorithm to learn private local models, enabling effective parameter aggregation across clients and mitigating the effects of scene heterogeneity.
  - Conducted extensive experiments on the ShanghaiTech and UBnormal benchmark datasets, demonstrating superior detection performance and robustness in both federated and centralized settings.
  - The first open-source comprehensive guide for deploying federated learning on NVIDIA Jetson AGX Xavier and other edge devices.
  - Accepted by TII'25 (see [J.2]).

- **Mixture of Local-to-Global Experts for Privacy-Preserving Video Anomaly Detection** *Oct 2023 – May 2024*
  Supervisor: Lect. Yong Su, TJNU
  - Developed a federated weakly-supervised framework that ensures privacy preservation while enabling efficient anomaly detection across multi-scene surveillance systems.
  - Introduced a gated mixture of local-to-global experts detector that dynamically integrates local and global representations, addressing domain shift from pre-trained feature extractors.
  - Designed a tube-attention mechanism to localize the spatial positions of anomalous events, rather than providing only snippet-level anomaly scores. Define an accuracy evaluation metric for anomaly localization that operates independently of auxiliary detectors.
  - Accepted by Inf. Fusion'25 (see [J.1])
- **Gaze-Guided Learning: Avoiding Shortcut Bias in Visual Classification** *Sep 2023 – Dec 2024*
  Supervisor: Lect. Yong Su, TJNU [GitHub]
  - Developed a cross-modal gaze–vision framework with a Dual-Sequence Gaze Encoder and a frozen ViT, mitigating the mislocalization of representative attributed features in visual classification through human-gaze priors.
  - Proposed the Gaze-CIFAR-10 dataset, collecting time-series human gaze data for 60,000 images across 10 classes using the HTC Vive Pro Eye. Extensive experiments and gaze–attention visualizations validated that incorporating human gaze enables the extraction of precisely localized and representative visual features.

Skills

- **Language Ability:** Mandarin (Native), English (Proficient)
- **Programming & Frameworks:** Python, C, Java, JavaScript, HTML, Ruby, LaTeX, MATLAB, PyTorch, TensorFlow, Flower, FedML, Scikit-Learn, Pandas, Numpy, SciPy, OpenCV, Docker
- **Hardware & Embedded Platforms:** NVIDIA Jetson AGX Xavier, Raspberry Pi, HTC VIVE Pro Eye
- **Creative Tools & Misc:** Voice Dubbing, Sound Design, Music Composition, Adobe Audition

Honors and Awards

- **Tianjin Municipal Government Scholarship (¥ 8,000, Top $\leq$ 1%)** *Dec 2025*
- **Jiannanchun Science and Technology Innovation Scholarship (¥ 2,000, Top $\leq$ 1%)** *Nov 2025*
- **2024–2025 Academic Undergraduate Year Second-class Scholarship (Top 20%)** *Sep 2025*
- **2023–2024 Academic Undergraduate Year Second-class Scholarship (Top 20%)** *Sep 2024*
- **Contemporary Undergraduate Mathematical Contest in Modeling (National Second Prize, Top 2%)** *Nov 2023*

Leadership Experience

- **JoyVoice Studio** *Aug 2025 – Present*
  Co-founder [Website]
  - Noncommercial creative studio producing voice dubbing, original audio dramas, and original songs.
  - Our inaugural Chinese-language audio drama *Still Here* achieved 10,000 plays within the first 7 days.
  - Our future goal is to develop AI tools to assist content creation in voice acting and sound design.

Academic Service

- **Journal Reviewer:** EAAI 2025, Ad Hoc Netw 2025
- **Conference Reviewer:** BMVC 2025, CogSci 2025, IJCNN 2025
- **Workshop Reviewer:** PUT@ICML 2025, WCUA@ICML 2025, SVU@ICCV 2025