Xing Xie

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Summary

I am an undergraduate student at the **School of Artificial Intelligence, Southeast University (SEU)**. I have a solid grasp of academic knowledge from my coursework, while my research interests extend broadly outside the classroom. These include large language models, neural networks, contrastive learning, and unsupervised learning paradigms in machine learning. I enjoy exploring the unknown and excel in the practical application of technical skills. Beyond my studies and research, I have a strong passion for open-source projects and deeply value the collaborative spirit they embody.

Education

- **Southeast University** (B.E. in Artificial Intelligence), Nanjing, China — Sep. 2022 — Present

Professional basic courses: Complex Function(96, top1), Mathematical Analysis for Engineering (96), Linear Algebra(95), University Physics(90), C++ Programming(90)

Major courses: Digital Logic Circuits(96, top4%), Pattern Recognition(91, top7%), Machine Learning(88, top10%), Signals and Systems(88,top5%), Professional Skills Training (College-Enterprise)(94)

Courses currently being studied:

Computer Vision, Natural Language Processing, Knowledge Engineering, Deep Learning and Applications, Computer Graphics, Game Theory, New Distributed Computing Technology, etc.

Conference Papers / Presentations

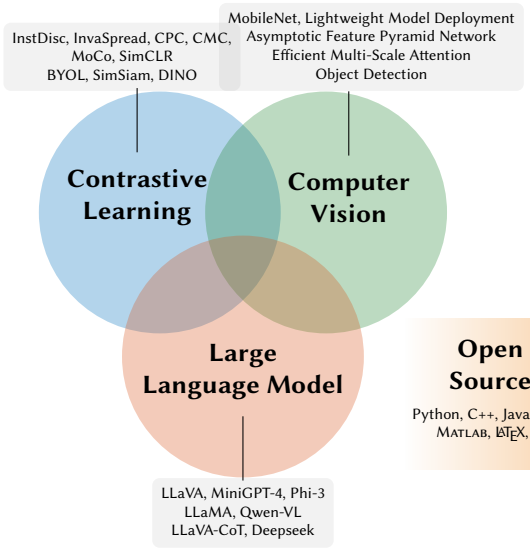
[C1] **X. Xie**, Y. Wang, H. Liang, C. Lou, and B. Gao, "**An Efficient Bird Detection Method for Substation Inspection via Improved YOLOv5**," in *Proc. IEEE Int. Conf. CYBER Technology in Automation, Control, and Intelligent Systems (CYBER)*, Copenhagen, Denmark, 2024, finalist of best poster award. [IEEE]

Research

My research integrates **large language model**, **computer vision**, and **contrastive learning** to solve amazing problems.

The three fields under discussion all make use of **Machine Learning** and **Artificial Intelligence** techniques. The following are some of the areas in which research is of particular interest.

- **Large Language Model**: LLaVA [NeurIPS 2023], MiniGPT-4 [ICLR 2024], Phi-3 [arXiv], LLaMA [arXiv], Qwen-VL [arXiv], LLaVA-CoT [arXiv], Deepseek [arXiv]
- **Computer Vision**: MobileNet [arXiv], Lightweight Model Deployment [IEEE], Asymptotic Feature Pyramid Network [arXiv], Efficient Multi-Scale Attention [arXiv], Object Detection [IEEE]
- **Contrastive Learning**: InstDisc [arXiv], InvaSpread [IEEE], CPC [arXiv], CMC [arXiv], MoCo [CVPR 2020], SimCLR [arXiv], BYOL [NeurIPS 2020], SimSiam [CVPR 2021], DINO [ICCV 2021]



Projects

- **Leveraging Graph Neural Retrieval-Augmented Generation for Open Table-Text Hybrid QA**

  Nov. 2024 — Present

  - This project is funded by Key Laboratory of New Generation Artificial Intelligence Technology and Its Interdisciplinary Applications (Southeast University), Ministry of Education and is guided by Prof. Dr. Guilin Qi.
  - The project is expected to publish one paper, accept one patent, and develop a TableRAG system.

- **Research on Monocular Depth Estimation from RGB Images**

  Oct. 2024 — Dec. 2024

  - This project improves the traditional multi-scale feature extraction module, effectively improves the feature expression ability of the depth estimation model.
  - The project improves the accuracy of monocular depth estimation from RGB images while ensuring the reduction of depth error.

- **Research on intelligent bird detection and repelling technology for substation based on audio-visual integration(Provincial Innovation)**

  Apr. 2024 — Present

  The main content of the project is to build an integrated audio-visual bird-repelling private server device, combining deep learning and other technologies and devices to build a complete project with full-featured intelligent system device.

- **Intelligent bird recognition technology for substations based on deep learning(School-level SRTP)**

  Oct. 2023 — Oct. 2024

  - Published a paper in *IEEE-CYBER 2024* and obtained **finalist of best poster award**;
  - The final project evaluation received an **excellent** rating;
  - Innovatively designed an enhanced, efficient, and lightweight bird detection model.

Selected Open-Source Projects

1. **TikZ-Collection** (Collection of TikZ diagrams and examples for creating high-quality LaTeX graphics) [GitHub (2 stars)]
2. **RAG-Collection** (A repository to collect and categorize RAG-related papers based on my research) [GitHub (2 stars)]
3. **CG-NeRF2Mesh** (Project page of my computer graphics assignment) [GitHub (2 stars)] [website]

Honors and Awards

- **1st Place**, Deep Learning and Applications Video Description Competition 2024 on Kaggle, Southeast University Dec. 2024
- **Provincial Third Prize**, 6th Global Campus Intelligent Algorithm Elite Competition Oct. 2024
- **Three Good Students Award**, Southeast University Sep. 2024
- **Finalist**, Best Poster Award, *IEEE-CYBER 2024* in Danmark Jul. 2024
- **First Prize** (Top 1%), 15th National College Students Mathematics Competition Apr. 2024
- **Outstanding Communist Youth League Member**, Southeast University Jun. 2023
- **First Prize** (Top 1%), 20th Jiangsu Provincial College Student Mathematics Competition May 2023

Scholarships and Grants

- Undergraduate Open Topics of Key Laboratory of New Generation Artificial Intelligence Technology and Its Interdisciplinary Applications (Southeast University), Ministry of Education, ¥10,000 (expected) Apr. 2025 — Apr. 2026
- Student Research Training, ¥8,000 Apr. 2024 — Apr. 2025
- Southeast University Competition Scholarship for Two Consecutive Years, ¥800 2023 — 2024

Services

- Participated in three social practice projects, rated as **excellent** Dec. 2022 — Aug. 2024
- **Member** of Southeast University Student Science and Technology Association Oct. 2022 — Jun. 2023

Skills

- **Programming**: Python, C/C++, MATLAB, JavaScript, Rust
- **Misc**: PyTorch, TensorFlow, OpenGL, LaTeX, Markdown
- **OS**: LINUX, MacOS, Windows