Chengyuan Li

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Education

Southeast University — Nanjing, Jiangsu
M.S., Software Engineering — *Sep. 2022 – Jun. 2025 (expected)*

- **GPA**: 3.9/4.0 (Top 1/129)
- **Supervisor**: Professor Hui Xue and Associate Professor Lei Qi
- **Awarded National Scholarship (Graduate)**

Wuhan University of Technology — Wuhan, Hubei
B.S., Computer Science — *Sep. 2018 – Jun. 2022*

- **GPA**: 91/100 (Top 1/257)
- **Supervisor**: Professor Shengwu Xiong and Professor Congjun Rao
- **Awarded National Scholarship (Undergraduate)**

RESEARCH INTERESTS

My research focuses on Computer Vision (e.g., vision-language models, anomaly detection), Machine Learning (e.g., diffusion models, unsupervised learning), and Data Mining (e.g., Partial Label Learning).

Publications

- **Chengyuan Li**, Suyang Zhou, Jieping Kong, *et al.* *KAnoCLIP: Zero-Shot Anomaly Detection through Knowledge-Driven Prompt Learning and Enhanced Cross-Modal Integration*. In **ICASSP 2025**, CCF B.
- **Chengyuan Li**, Haoran Zhu, Hanjun Luo, *et al.* *Spread Prediction and Classification of Asian Giant Hornets Based on GM-Logistic and CSRF Models*. **Mathematics** (JCR Q1, cover paper).

Research Projects

KAnoCLIP: Zero-Shot Anomaly Detection through Knowledge-Driven Prompt Learning
(Accepted by ICASSP 2025)
Developed KAnoCLIP, a framework for zero-shot anomaly detection (ZSAD) addressing limited data and privacy challenges. It integrates general knowledge from GPT-3.5 and image-specific insights from Llama3 using **Knowledge-Driven Prompt Learning (KnPL)**, replacing fixed textual prompts with learnable anomaly prompts for better generalization. Key innovations include: **CLIP-VV** for preserving local visual semantics, **Bi-CMCI** for cross-modal fusion, and **Conv-Adapter** for aligning global visual and textual features. KAnoCLIP achieves state-of-the-art performance on 12 industrial and medical datasets, outperforming existing ZSAD methods in generalization and accuracy.

Asian Giant Hornets Spread Prediction Using GM-Logistic and CSRF Models
(Published in Mathematics, JCR Q1)
Proposed a **GM-Logistic model** combining an improved grey prediction model with the logistic model to predict hornets' spread rules, achieving high accuracy and effective fitting with limited non-equally spaced data. Developed a **cost-sensitive random forest (CSRF) model** to address classification and priority survey decisions on unbalanced datasets, improving adaptability and robustness compared to standard classifiers (Random Forest, CART, SVM) in accuracy, F1-measure, G-mean, and AUC. Incorporated **human control factors and cycle parameters** into the logistic model for optimizing pest elimination and report update frequencies, demonstrating feasibility and effectiveness through goodness-of-fit tests.

Awards

- **Scholarships:**
  - **2023**, **National Scholarship (Graduate) (Top 1)**
  - **2019**, **National Scholarship (Undergraduate) (Top 1)**
  - **2024**, **Zhi-Shan Scholarship (Top prize, SEU)**
  - **2023**, SEU First-Class Scholarship (Top 5%)
- **Honors:**
  - **2024**, Outstanding Graduate Communist Party Member, SEU
  - **2023**, Model Graduate Student of Excellence, SEU **(Top 1%)**
  - **2022**, Outstanding Graduate, WHUT
  - **2022**, Excellent Student of the Year, WHUT

Mathematics and Programming Achievements

- **Mathematics Competitions:**
  - **Second Prize** in the National College Student Mathematical Contest
  - **Finalist** in the U.S. Mathematical Contest in Modeling **(Team Leader, Global Top 1%)**
  - **First Prize** in the APMCM (Asia-Pacific Mathematical Contest in Modeling) (Team Leader, Top 5%)
- **Programming Competitions:**
  - **Gold Medal** in the China National Collegiate Computer Competition (Team Programming)
  - **Silver Medal** in the Huawei Green Computing Innovation Competition
  - **Silver Medal** in the Lanqiao Cup C/C++ Programming (University A Group)

Internship Experience

- **ByteDance** *TikTok Department, Beijing*
  Jun. 2023 – Mar. 2024
  - Contributed to Douyin CRM big data platform development.
  - Developed an AI Q&A assistant for sales data analysis.
  - Optimized n**atural language to SQL (NL2SQL)** conversion through model training and prompt tuning.
- **CHINA HI-TECH** *Software Department, Suzhou*
  Feb. 2023 – May 2023
  - Led a team to develop *Huihu Garbage Sort*, a **WeChat mini-program** with a VUE-based backend.
  - Built a photo recognition module using Res2Net for enhanced accuracy.
  - **GitHub:** Huihu Garbage Sort
- **Hikvision** *AI Lab, Hangzhou*
  Jun. 2022 – Sep. 2022
  - Developed deep learning models using Pytorch and C++.
  - Contributed to a research paper on **person re-identification**.

Technical Skills

Languages: C/C++, Go, Python, SQL, LaTex
Technical Skills: PyTorch, Git, Linux, TensorFlow, MATLAB
Specialized Skills: Deep Learning, Computer Vision, Mathematical Modeling, Algorithm Programming
Libraries: C++ STL, Python Libraries, CUDA Libraries
Soft Skills: Self-driven, Energetic, Problem Solving, Presentation, Adaptability