

CHENYU GE

chenyuge@ucmerced.edu | LinkedIn: linkedin.com/in/kristinege/

RESEARCH INTERESTS

Medical Artificial Intelligence; Computer Vision; Vision-Language Models; Test-Time Adaptation; Reinforcement Learning; Trustworthy and Robust Machine Learning

EDUCATION

University of California, Merced | *Ph.D. in Electrical Engineering and Computer Science* | August 2026 - Present | Merced, CA

University of Southern California | *M.S. in Computer Science* | GPA: 3.9/4.0 | Los Angeles, CA

Shandong University | *M.S. in Artificial Intelligence* | GPA: 3.85/4.0 | China

Shandong University | *B.Eng. (Honors)* | GPA: 3.79/4.0 | Minor: Multiple Intelligence | China

PUBLICATIONS

- **Ge, K., et al.** "Calibrated Test-Time Prompt Tuning for Vision-Language Models in Medicine via Information-Theoretic Methods." *International Journal of Machine Learning and Cybernetics*, 2026.
- **Song, G., Zhao, K., Ge, C., Hu, W., Liu, X., et al.** "Active Test-Time Adaptation for Continual Medical Image Classification." *Pattern Recognition*, 2026.
- **Ge,** "Selection of potential cancer biomarkers based on feature selection method." *Third International Conference on Intelligent Computing and Human-Computer Interaction (ICHCI 2022)*, vol. 12509, SPIE, 2023.
- **Ge, et al.** "FRL: An integrative feature selection algorithm based on the Fisher score, recursive feature elimination, and logistic regression to identify potential genomic biomarkers." *BioMed Research International*, 2021, 4312850.

RESEARCH EXPERIENCE

Reinforcement Learning for Robotic Manipulation | June 2025 - February 2026

- Implemented, tuned, and benchmarked PPO, SAC, DDPG, and TD-MPC2 alongside Behavior Cloning and ACT in ManiSkill environments, systematically comparing training stability, sample efficiency, and manipulation performance.
- Integrated the R3M pretrained visual encoder into SAC-based pipelines and conducted ablations comparing frozen representations with end-to-end fine-tuning to study the interaction between pretrained visual features and policy learning.

Information-Theoretic Test-Time Prompt Tuning for Medical Vision-Language Models | January 2025 - April 2025

- Developed an information-theoretic test-time prompt tuning framework for vision-language models in medical image classification, targeting improved calibration under distribution shifts.
- Reduced expected calibration error (ECE) by 4.42% on WSSS4LUAD versus the C-TPT baseline; reduced ECE from 41.93% to 34.33% on Camelyon17 through uncertainty quantification and model ensembling.
- Improved model calibration by an average of 4.63% on HAM10000 through test-time adaptation.

Active Test-Time Adaptation for Medical Image Classification (ATMC) | April 2024 - January 2025

- Designed an active test-time adaptation framework to address distribution shifts and catastrophic forgetting in streaming medical data.
- Developed the DTSS module using clustering and uncertainty-based querying to identify informative samples for expert annotation and pseudo-labeling; proposed the WLNA module using augmentation and class-balanced weighting to improve stability.
- Achieved more than 30% accuracy improvement on HAM10000 using only 5% of the original annotation cost.

Reinforcement Learning Optimization for NeRF Two-Layer Sampling | May 2022 - January 2024

- Applied Soft Actor-Critic to optimize NeRF hierarchical sampling, achieving a 6% PSNR improvement over baseline NeRF models.
- Implemented the full SAC-NeRF training pipeline in PyTorch and demonstrated gains in sample efficiency, convergence speed, and reconstruction fidelity across LLFF and synthetic datasets.

Feature Selection Algorithm for Cancer Biomarkers | October 2020 - January 2022

- Led development of an FRL feature-selection framework across 10 cancer datasets, achieving 96.32% classification accuracy.
- Outperformed GEO2R by 30% on high-noise datasets using ensemble learning and recursive feature elimination.
- This work resulted in two peer-reviewed publications on computational methods for cancer biomarker identification.

ACADEMIC SERVICE

Peer Reviewer

- IEEE Transactions on Artificial Intelligence
- IEEE Transactions on Signal Processing
- Image and Vision Computing
- Scientific Reports

PROFESSIONAL EXPERIENCE

Shandong University | *AI Research Assistant* | January 2023 - January 2024 | China

- Developed computer vision and machine learning pipelines for interactive visual environments, including real-time inference across 50+ maze configurations.
- Implemented adaptive voice-recognition and visual-input processing systems, reducing average task completion time by 20%.

TEACHING EXPERIENCE

University of California, Merced | Teaching Assistant, EE 101 Lab | August 2026 – Present | USA

- Lead laboratory sections and provide hands-on instruction in fundamental electrical circuits, measurement techniques, and laboratory equipment.

Shandong University | *Teaching Assistant* | September 2022 - June 2025 | China

- Supported course logistics for 100+ students and led laboratory sections covering artificial intelligence concepts and hands-on exercises.