JINGHAO ZHENG

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EDUCATION

École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland Aug. 2025 – Jan. 2028 (Expected)

M.S. in Computer Science, AI & Data Science track

Shanghai Jiao Tong University (SJTU), Shanghai, China Sept. 2021 – June. 2025

B.E. in Automation

• Major GPA: 3.82/4.3 • Centesimal grade average: 89.23/100

Related Courses: Probability and Statistics (A+), Pattern Recognition (A+), Artificial Intelligence (A)

PUBLICATION

D. Nguyen*, J. Li*, **J. Zheng***, B. Mirzasoleiman. Do We Need All the Synthetic Data? Towards Targeted Synthetic Image Augmentation via Diffusion Models. **I**nternational **C**onference on **L**earning **R**epresentations, 2026. ***(Accepted)***

Z. Huang, X. Cheng, **J. Zheng,** H. Wang, Z. He, T. Li, and X. Huang. Unified Gradient-Based Machine Unlearning with Remain Geometry Enhancement. **Neural I**nformation **P**rocessing **S**ystems, 2024. ***(Accepted as a spotlight)***

RESEARCH & PROJECT EXPERIENCE

Continual Learning for LLMs: A Parameter Sorting Approach to Mitigate Catastrophic Forgetting

Research Assistant Nov. 2024 – June. 2025

Advisor: **Xiaolin Huang,** Professor, Vice Dean, Department of Automation, SJTU

- Proposed a dynamically block-wise parameter sorting method to mitigate catastrophic forgetting within a continual learning setting for large language models (LLMs).
- Improved overall performance (OP) by 4.88%, backward transfer (BWT) by 6.5%, and training efficiency by 58.37% compared to the state-of-the-art (SOTA) method trained on Qwen2-1.5B.

Fewer Generated Images for Better Augmentation

Research Assistant July. 2024 – May. 2025

Advisor: **Baharan Mirzasoleiman,** Assistant Professor, Computer Science Department, UCLA

- Leveraged the GLIDE, a text-to-image model, with real guidance strategies to diversify the training datasets.
- Conducted experiments on multiple datasets and across multiple architectures using upsampling and our method.
- Improved the classification accuracy by 1% than that without augmentation and training efficiency by 70% than 2× scale Diffusion-based data augmentation using selectively incorporating generated data.

Unified Gradient-Based Machine Unlearning (MU) with Remain Geometry Enhancement

Co-author Mar. 2024 – June. 2024

Advisor: **Xiaolin Huang,** Professor, Vice Dean, Department of Automation, SJTU

- Proposed using KL divergence on the remaining output distribution, instead of Euclidean distance in vanilla methods, as the manifold metric to prevent deviations in the model output on the remaining set, improving MU performance.
- Conducted experiments and parameter tuning to compare the performance of our algorithm with other MU methods in image classification and generation across various datasets and models of different architectures.
- Improved the averaging disparity by 1.8% on average in random subset forgetting on CIFAR-10 in image classification and the FID by 80 on average in class-wise forgetting on ImageNet in image generation.

Polyp Detection and Segmentation Augmented by Diffusion Model

Individual Researcher Feb. 2024 – June. 2024

Advisor: **Manhua Liu,** Professor, Artificial Intelligence Research Institute, SJTU

- Implemented yolov10 and ResUnet++ as baselines to finish object detection and segmentation on medical images.
- Proposed using Diffusion-based generative models to generate synthetic data for data augmentation, which improved the mAP0.5@0.95 in the object detection by 1% and the IoU in the segmentation by 5%.

SKILLS

- Programming: Python, C/C++, ROS/ROS2, Matlab, LaTeX, Markdown, Stata17, Excel
- Languages: Chinese (native), English (proficient)
- Leadership Experience: Head of Sports Department, School of Electronic Information and Electrical Engineering (SEIEE) Student Union, Shanghai Jiao Tong University Dec. 2022 – Dec. 2023