Li Zhang

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EDUCATION

University of California, San Diego (UCSD)   **Ph.D.**   09/2022 - Now
- **Major:** Intelligence Systems, Robotics & Control

Zhejiang University, China (ZJU)   **Master**   09/2019 - 03/2022
- **Major:** Control Science & Engineering

Zhejiang Sci-Tech University, China (ZSTU)   **Bachelor**   09/2015 - 07/2019
- **Major:** Measurement & Control Technology   **GPA:** 4.01/5.0   **Ranking:** 1/41

PUBLICATIONS

[1] **Li Zhang**, Basu Jindal, et al. *Generative AI Enables Medical Image Segmentation in Ultra Low-Data Regimes.* Nature Communication, 2025.

[2] **Li Zhang***, Han Guo*, Leah Schaffer, et al. *ProteinAligner: A Tri-Modal Contrastive Learning Framework for Protein Representation Learning.* ICML Workshop on Multi-modal Foundation Models and Large Language Models for Life Sciences, 2025.

[3] **Li Zhang**, Youwei Liang, et al. *BLO-SAM: Bi-level Optimization Based Overfitting-Preventing Finetuning of SAM.* International Conference on Machine Learning (ICML), 2024.

[4] **Li Zhang**, Bhanu Garg, et al. *Learning From Mistakes: A Multi-level Optimization Framework.* IEEE Transactions on Artificial Intelligence, 2024

[5] Sai Ashish Somayajula, Youwei Liang, **Li Zhang**, et al. *Generalizable and Stable Finetuning of Pretrained Language Models on Low-Resource Texts.* NAACL, 2024

[6] Hosseini Ramtin, **Li Zhang**, et al. *Fair and accurate decision making through group-aware learning.* International Conference on Machine Learning (ICML), 2023.

[7] Bhanu Garg*, **Li Zhang***, et al. *Learning from Mistakes - A Framework for Neural Architecture Search.* AAAI Conference on Artificial Intelligence (AAAI), 2022. (*These authors contributed equally)

[8] Jie Yu, **Li Zhang**, et al. *An Integrated Bottom-Up Approach for Leak Detection in Water Distribution Networks Based on Assessing Parameters of Water Balance Model.* Water, 2021.

[9] **Li Zhang**, Yao Xiao, et al. *Detection method of DMA partition tube burst based on pressure and flow information fusion.* The 31st China Process Control Conference, 2020.

[10] **Li Zhang**, Yifan Ji, and Bowen Zhao. *A Design of Elecomb.* UMAP Journal, 39(2), 2018.

RESEARCH EXPERIENCE

Bi-level finetune the SAM for semantic segmentation   09/2023 - Present
Supervisor: Prof. Pengtao Xie

- Apply Bi-level optimization to finetune Segment Anything Model (SAM) for specific semantic segmentation tasks.
- Evaluate the proposed method on six different semantic segmentation tasks, including general scenarios and medical images.

Protein foundation model pre-train and applications 06/2023 - 09/2023
Supervisor: Prof. Eric Xing, Prof. Pengtao Xie
- Train a large foundation model for protein area based on contrastive learning.
- Apply the pre-trained model to protein-related downstream tasks.

Generate synthetic data to train semantic segmentation models 10/2022 - Present
Supervisor: Prof. Pengtao Xie
- Designed an end-to-end framework, which can generate semantic segmentation data to train a semantic segmentation model, to get rid of the data limitation.
- Evaluate both the in-distribution and out-of-distribution generalization performance of our methods on several medical segmentation tasks.

Learning from Mistakes: A Multi-level Optimization Framework 03/2021 - 06/2022
Supervisor: Prof. Pengtao Xie
- Formulated the idea about Learning from Mistakes (LFM) as an end-to-end optimization framework that can be adapted to various Machine Learning methods and improve their performance.
- Evaluate the LFM framework on neural architecture search task and data re-weighting for general neural network.

Leakage or burst detection of urban water supply network 09/2019 - 03/2022
Supervisor: Prof. Dibo Hou
- Based on the pressure or flow data gathered by the SCADA system to complete the pipe burst or leakage detection.
- Based on related deep learning to detect the pipeline image defects.

River pollution detection by self-designed underwater vehicle 04/2016 - 07/2019
Supervisor: Prof. Zhen Hong
- Based on the self-designed underwater vehicle to detect the contamination in the river. (Including the hardware and software designs)
- Awarded as "Xiaoping Science and Innovation team". (The highest honour of youth science and innovation in China, Head of the undergraduate group)

Hours and Awards

07/2021	Excellent graduate student & Academic Scholarship, ZJU
07/2020	Academic Scholarship, ZJU
07/2019	Outstanding Graduate, Zhejiang Province
07/2018	National Scholarship; Principal scholarship, ZSTU; Top ten college students, ZSTU
07/2018	Second prize, College innovation and entrepreneurship competition
02/2018	**Outstanding Award** (The highest honour, Top 0.16% of global participating teams) & **INFORMS Award** (One quota for each problem), Mathematical Contest in Modeling
11/2017	Second prize, Zhejiang Maker Education Base Alliance Competition
07/2016	Government Scholarship, Zhejiang Provincial
2016-2019	Academic Excellent Scholarship (Every semester), ZSTU

Leadership Experience

Head of the Organization Department, ZJU 03/2022-09/2019
- Organize the students to carry out the theme activities monthly.

Class leader, ZSTU 09/2015-07/2019
- Organize the students to carry out the theme class meeting.
- Do a good job in the hub work among the department leaders, head teacher and students.