TIMING YANG

| timingyang24@gmail.com| +86-18885525888|+1-213-544-6725| Los Angeles, USA

EDUCATION

University of Southern California, *Los Angeles, United States* 08/2023-06/2025
Master of Science in ECE – Machine Learning and Data Science
GPA 4.0/4.0

University of Southern California, Los Angeles, United States 09/2022-04/2023
Upon successful completion of the pre-master's program, I would enter the Master of Computer Engineering – Machine Learning and Data Science at the University of Southern California

Dalian University of Technology, *Dalian, China* 09/2018-07/2022
Bachelor of Science in Electronic Information Engineering;
GPA 87/100

PUBLICATIONS/CURRENT AND FUTURE SUBMISSIONS

Yang T, Feng Wang, Jieru Mei, Alan Yuille. Interpreting Mamba. *Target submission to CVPR 2025*. 11/2024

Feng Wang, **Yang T**,…,Alan Yuille, et al. "Causal Image Modeling for Efficient Visual Understanding." *Submitted to **ICLR 2025***. 10/2024

Yang T *, Yuanliang Ju*, Li Yi. ImOV3D: Learning Open Vocabulary Point Clouds 3D Object Detection from Only 2D Images. Accepted to ***NeurIPS 2024.*** 05/2024

Jiang C, Liu T, **Yang T**, et al. Mask R-CNN based deep learning analysis on in-situ measured crystal images with automatic dataset labelling[C]//*2022 41st Chinese Control Conference (CCC). IEEE, 2022: 6261-6266.* 04/2022

Yang T, Jiang C, Meng Q. Optimized Methods for Online Monitoring of L-Glutamic Acid Crystallization[C]//*2021 International Conference on Signal Processing and Machine Learning (CONF-SPML). IEEE, 2021: 93-97.* 08/2021

Yang T. Supervised Sliding Window Smoothing Loss Function Based on MS-TCN for Video Segmentation[C]//*Computing and Data Science: Third International Conference, CONF-CDS 2021, Virtual Event, August 12-17, 2021, Proceedings 3. Springer Singapore, 2021: 302-314* 06/2021

HIGHLIGHT RESEARCH

Interpreting Mamba 05/2024-now
CCVL (Computational Cognition, Vision, and Learning), Johns Hopkins University *Advisor: Alan Yuille*

- Use DINO for feature visualization and interpretation of the Mamba model, investigating whether the class token exhibits bias towards neighboring tokens, as expected in a causal model.
- Conduct exploratory analysis of feature distribution to reveal potential biases, providing significant insights into the model's behavior

Open vocabulary 3D Object Detection 05/2023-05/2024
Institute for Interdisciplinary Information Sciences, Tsinghua University *Advisor: Li Yi (Eric)*

- Leveraged 2D large-scale datasets for Open Vocabulary 3D Object Detection by converting 2D images into depth images and lifting RGB-D data to 3D space, enabling OV-3Det learning from 2D images alone
- Developed a Multimodal Open Vocabulary 3D Detector by combining 3D data and integrating multimodality by rendering point clouds into images, handling cross-modal data from point clouds and rendered images.
- Applied a pre-trained CLIP model to achieve open vocabulary.
- Achieved state-of-the-art performance on SUNRGBD and ScanNet.

PROFESSIONAL EXPERIENCE

Undergraduate Thesis Project few-shot learning 12/2021-06/2022

DLUT_VLG at Dalian University of Technology *Advisor: Prof. Peihua Li*

- Through data augmentation and ensemble learning methods, the accuracy on the CUB-200-2011 and CIFAR-FS public datasets under the 1/5-shot settings improved by 4.36%, 2.17%, 3.64%, and 2.02%, respectively, achieving state-of-the-art (SOTA) performance.
- Proposed the Res9ViT model (convolution + Transformer), which outperformed the ResNet-12 model on the CUB-200-2011 dataset under 1/5-shot settings, with an improvement of 2.4% and 1.2%.

Underwater Object Detection 03/2021-09/2021

IIAU-Lab at Dalian University of Technology *Advisor: Prof. Dong Wang*

- Used Cascade-RCNN with Mixup, Deformable Convolution, Multi-Scale Training, and attention mechanisms for underwater object detection.
- Replaced Cascade-RCNN with yolov5m6 on NVIDIA Jetson AGX Xavier, improving detection speed by 7.5x.
- Cleaned training data using bbox confidence and IoU, and added focal loss and senet-attention, boosting yolov5m6 accuracy by 15.57%.

  This project won a finalist award in the China Underwater Robot Professional Contest, ranking 13th out of 2000 teams in the finals.

Video Action Segmentation based on MS-TCN 10/2020- 06/2021

HPC & AI Lab at DUT *Advisor: Prof. Shenglan Liu*

- Proposed a Supervised Sliding Window Smoothing Loss (SSWS) function, improving F1@10 by 6.60%, 9.20%, and 1.57% on the 50salads, Breakfast, and GTEA datasets, respectively.
- Applied SSWS to MS-TCN, MS-TCN++, and ASRF networks, achieving at least 1% improvement in each model.

A Deep-Learning Based Online Image Monitoring Method for Crystallization Process 11/2019-12/2021

Research Assistant in the Institute of Advanced Control Technology, School of Control Science and Engineering, Dalian University of Technology *Advisor: Prof. Tao Liu*

- Developed automatic and semi-automatic crystal labeling using Python-OpenCV, Canny, and Mask-RCNN.
- Used data augmentation and Mask-RCNN for crystal recognition, improving mAP0.5 by 6.42% through hyperparameter optimization.
- Applied kernel density estimation to calculate crystal size distribution.

RESEARCH INTERESTS

- 2D/3D Scene Understanding(Object detection, Segmentation)
- Transformer/Mamba for model interpreting**.**
- Few-Shot Learning for classification
- Video Action Segmentation

INTERNSHIP

Intern, **Matsushita Electrical Software Development (Dalian) Co. LTD** 06/2021-07/2021

- Developed the "Shentu" station entry verification system using Baidu-API for face recognition and health code detection, enabling passengers to be screened for entry during COVID-19. Displayed results on a GUI.

SELECTED HONORS

- The Intelligent Algorithm Contest Finalist Award In Underwater Object Detection (National) 05/2021
- Second Prize Scholarship (Top 20%) by DUT 11/2019
- Outstanding Contribution on Voluntary Work by School of Information and Communication Engineering at DUT 12/2019