Yuwen Tan

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EDUCATIONAL BACKGROUND

Huazhong University of Science and Technology Wuhan, China
B.E., Department of Artificial Intelligence and Automation 09/2017-06/2021

Huazhong University of Science and Technology Wuhan, China
M.S., Department of Artificial Intelligence and Automation Advisor: Xiang Xiang 09/2021-06/2024

Boston University Boston, MA
Ph.D., Department of Computer Science Advisor: Boqing Gong 09/2024-Present

PUBLICATIONS

- Xiang X, Wang F, **Tan Y**, et al. Imbalanced regression for intensity series of pain expression from videos by regularizing spatial-temporal face nets. Pattern Recognition Letters (PRL), 2022, 163: 152-158.
- Xiang X, **Tan Y**, Wan Q, et al. Coarse-to-fine incremental few-shot learning. European Conference on Computer Vision (ECCV 2022), 2022: 205-222.
- **Tan Y**, Xiang X, et al. Coupling Bracket Segmentation and Tooth Surface Reconstruction on 3D Dental Models. International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2023), 2023: 411-420.
- **Tan Y**, Xiang X, et al. Boundary-Constrained Graph Network for Tooth Segmentation on 3D Dental Surfaces. The 14th International Workshop on Machine Learning in Medical Imaging (MLMI), 2023: 94-103.
- **Tan Y**, Xiang X. Cross-Domain Few-Shot Incremental Learning for Point-Cloud Recognition. Winter Conference on Applications of Computer Vision (WACV 2024), 2024: 2307-2316.
- **Tan Y**, Zhou Q, et al. Semantically-Shifted Incremental Adapter-Tuning is A Continual ViTransformer. Conference on Computer Vision and Pattern Recognition (CVPR 2024).
- **Tan Y,** Gong B. Lifting Data-Tracing Machine Unlearning to Knowledge-Tracing for Foundation Models. (Submission, 2025)
- **Tan Y,** Qing Y, Gong B. Vision LLMs Are Bad at Hierarchical Visual Understanding, and LLMs Are the Bottleneck. (Submission, 2025)

RESEARCH EXPERIENCE

Machine Unlearning in Foundation Models 09/2024-02/2025
Vision and Graphics group, BU *Instructor: Prof. Boqing Gong*

- Design realistic unlearning settings for vision-language foundation models, construct a comprehensive unlearning benchmark, and refine the evaluation metrics to further advance research on unlearning in foundation models
- Develop novel machine unlearning algorithms to achieve effective and scalable unlearning while preserving model quality. Investigate different strategies to ensure the balance between unlearning effectiveness, computational efficiency, and real-world applicability

Object Recognition in Open Environments 03/2023-06/2024
HUST AIA Image & Vision Learning Lab, HUST *Instructor: Prof. Xiang Xiang*

- Construct training sets with the known categories, and define the unknown categories as unknown sub-classes under the same coarse granularity. Label the attributes of the dataset and build attribute classifiers

- Identify the unknown targets based on attribute knowledge graph and category hierarchy
- Design incremental algorithms to enable the model to continuously learn the fine-grained unknown classes

Orthodontic Assist System based on 3D dental models 03/2022-03/2023

HUST AIA Image & Vision Learning Lab&West China Hospital, Sichuan University Instructor: Prof. Xiang Xiang

- Collected and labeled 3D dental models to build the tooth segmentation and bracket segmentation dataset
- Proposed the robust tooth segmentation method which could process 3D dental models with different morphologies. The algorithm aimed at improving the performance of boundary segmentation through several auxiliary losses
- Proposed the graph-based bracket segmentation network with residual connection and dilated knn construction which could segment brackets on 3D dental models automatically and then designed a hole-filling method to construct the 3D dental models with brackets removed

Coarse-to-Fine Few-shot Class Incremental Learning 08/2021-12/2021

HUST AIA Image & Vision Learning Lab, HUST Instructor: Prof. Xiang Xiang

- Proposed a new setting named coarse-to-fine few-shot class-incremental learning
- Proposed a method which could evolve a generic model to both avoid catastrophic forgetting of source-blind coarse classes and prevent over-fitting the new few-shot fine-grained classes
- Theoretically analyzed why our approach can solve it well in the sense of getting more balanced performance

WORK EXPERIENCE

Pixocial, Human-First AI 05/2025-08/2025

Applied Research Intern

- Research Topic: Video generation acceleration and evaluation
- Supervisor: Dr. Haoxiang Li

TEACHING ASSISTANT

Computer Vision （Spring 2023） 02/2023-06/2023

- Instructor: Prof. Xiang Xiang (School of Artificial Intelligence and Automation)
- Credit 2; Undergraduate Courses; 50 juniors

Pattern Recognition （Spring 2023） 02/2023-06/2023

- Instructor: Prof. Xiang Xiang (School of Artificial Intelligence and Automation)
- Credit 3; Graduate Courses; International Students

HONOR & AWARDS

- Excellent New Student Award 02/2018
- Social Responsibility Award 09/2019
- The First Prize Scholarship, HUST 09/2021
- Merit Student, HUST 09/2022
- Excellent Graduate, HUST 06/2024
- Hariri Institute 2025 Graduate Student Fellow Award 05/2025

PERSONAL PROFICIENCY

- **Communication:** Mandarin (Native), English.
- **Coding Languages:** Python (Pytorch, Tensorflow), Matlab, C