TIANLE CHEN

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EDUCATION

The Ohio State University *2019-2024 (Expected)*
B.S. in Computer Information Science
B.S. in Mathematics
GPA: 3.97/4.00

PUBLICATIONS

Peer-Reviewed Papers

Learning with Free Object Segments for Long-Tailed Instance Segmentation
Cheng Zhang, Tai-Yu Pan, **Tianle Chen**, Jike Zhong, Wenjin Fu, Wei-Lun Chao
European Conference on Computer Vision (ECCV), 2022. (paper)

Segment Anything Model (SAM) Enhances Pseudo Labels for Weakly Supervised Semantic Segmentation
Tianle Chen, Zheda Mai, Ruiwen Li, Wei-Lun Chao
Conference and Workshop on Neural Information Processing Systems (NeurIPS) 2023 Workshop.
(paper, code)

Conference Papers under Review

Pre-training LiDAR-based 3D Object Detectors through Colorization
Tai-Yu Pan, Chenyang Ma, **Tianle Chen**, Cheng Perng Phoo, Katie Z Luo, Yurong You, Mark Campbell, Kilian Q Weinberger, Bharath Hariharan, Wei-Lun Chao
Submitted to International Conference on Learning Representations (ICLR) 2024 (paper) (Score: 8, 8, 6 ,6)

RESEARCH EXPERIENCE

Machine Learning as the Basis Lab, OSU *Sep 2021 - Present*
Research assistant *Advisor: Dr. Wei-Lun Chao*

- **Project (i): SAM Enhanced Weakly Supervised Semantic Segmentation**
  - Prototyped an novel approach for weakly supervised semantic segmentation, refining traditional methods with segment anything model (SAM).
  - Devised experiments to test the proposed algorithm and replicated existing baselines for comparison.
  - Authored research on NeurIPS 2023 workshop, while managing the code base for project framework.

- **Project (ii): Sensor Adaptation of 3D Detection in Autodriving**
  - Developed a novel pipeline for sensor adaptation, using existing LiDAR training data to train another unlabeled LiDAR data of a different pattern.
  - Attained over 10% improvement across all categories on synthetic datasets.

- **Project (iii):Learning Instance Segmentation on Long-Tailed Datasets**
  - Utilized co-segmentation models to extract object segments from web images, further refining them through various image post-processing techniques.
  - Developed ranking methods using multiple metrics to filter and select high-quality segments, enhancing existing long-tail datasets.

- **Project (iv): Pre-training of 3D Detection Models for Autodriving**
  - Contributed to discussion and development of a novel 3D detection pre-training framework
  - Utilized 3d visualization tools to generate multiple figure on paper writing.

Capstone Research Project, OSU *Aug 2023 - Present*
Team Member *Advisor: Dr. Arnab Nandi*

- **Project (i): Talk-to-TikTok: Automated Video Editing System**
  - Led development of a pipeline to transform long videos/papers into concise TikTok-style clips, employing deep learning models such as GPT and Llama.
  - Achieved 'Most Innovative' award at HackOHI/O Hackathon for this video editing framework.

Laboratory for Autonomy in Data-Driven and Complex Systems, OSU *Aug 2023 - Present*
Research assistant *Advisor: Dr. Mrinal Kumar*

- **Project (i): Wildfire Images Segmentation from Drone Data**
  - Developed segmentation models using various architectural backbones to distinguish wildfire, vegetation, and ash in drone-captured images.
  - Aided in curating a unique dataset for wildfire detection and segmentation, labeled and managed data from drone.

Math Cycle Program, OSU *Jan 2022 - Apr 2022*
Mentee *Mentor: Brantley Vose*

- **Project (i): Topological Loss Function for Image Segmentation Using Persistent Homology**
  - Developed a software tool for computing persistent homology in high-dimensional data and integrated a novel topological loss function for training image segmentation models.
  - Presented a poster at the OSU Cycle conference, demonstrating the application of topological features in image segmentation.

WORK EXPERIENCE

Point Pro Inc, Ohio *Jan 2023- May 2023*
Software Engineer *Supervisor: Dr. Mrinal Kumar*

- Reconstructed and optimized the Adaptive Monte Carlo (AMC) algorithm, incorporating multiprocess capabilities and enhanced performance across diverse systems.

TEACHING EXPERIENCE

The Ohio State University, CSE Dept *Columbus, OH*
Teaching Assistant

- CSE 1223, Intro to Computer Programming in Java *Oct 2020 - May 2021*
- CSE 2321, Foundations I: Discrete Structures *Sep 2023 - Present*

HONORS & AWARDS

- Dean's List (All attended semesters)
- HackOHI/O 11: Most Innovative Project Award

SKILL

Tool: PyTorch, TensorFlow, Git, Jupyter Notebook, Anaconda, Docker, AWS S3
Programming Language: Python, MATLAB, Java, C, R, SQL