

# Tai-Yu (Daniel) Pan

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[Website](#) ♦ [Google Scholar](#) ♦ [LinkedIn](#)

## SUMMARY

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My research focuses on **Large-Scale Computer Vision** and **Machine Learning**, including:

- **3D Perception & Generation:** [ICLR'24](#), [ICLR'25](#), [CVPR'25](#), [IC10I](#)
- **Multi-Modal, Vision & Language (VLM), Navigation:** [CVPR'22](#)
- **2D Detection & Segmentation:** [ICCV'21](#), [NIPS'21](#), [ECCV'22](#), [CVPR'23](#), [arXiv'25](#)
- **Imbalanced, Long-Tailed Learning:** [ICCV'21](#), [NIPS'21](#), [ECCV'22](#)
- **Representation Learning:** [ICCV'21](#), [CVPR'23](#), [ICLR'24](#)
- **Autonomous Driving, Multi-Agent Collaborative Driving:** [ICLR'24](#), [ICLR'25](#), [CVPR'25](#), [IC10I](#)

## RESEARCH & EMPLOYMENT

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<a href="#">Meta</a>	May 2023 – Aug. 2023
Research Scientist Intern, GenAI	Bellevue, WA
• Researched efficient training of large <u>vision and language foundation models (VLM)</u>	
<a href="#">Adobe</a>	May 2022 – Dec. 2022
Research Intern	Columbus, OH
• Researched <u>open-world part segmentation</u>	
• Published in CVPR'23, applied patent for the developed algorithm	
<a href="#">Buckeye AutoDrive</a> , The Ohio State University	Aug. 2020 – Dec. 2024
Team Lead	Columbus, OH
• Developed <u>2D/3D perception</u> algorithms, pipeline & message with Robot Operating System (ROS)	
• Managed and mentored 50+ undergraduate & graduate students	
• Designed tutorials and workshops (topics: general programming, image processing, object detection, machine learning, and deep learning, 3D point cloud, etc.)	
• Won 2nd place in nationwide collegiate SAE AutoDrive Challenge II (held by General Motors)	
<a href="#">Computer Science and Engineering</a> , The Ohio State University	Aug. 2018 – Dec. 2024
Graduate Research Assistant	Columbus, OH
• Developed <u>sensory (LiDAR) simulation</u> with generation techniques	
• Developed a new learning scenario for <u>collaborative autonomous driving</u>	
• Developed a <u>pre-training</u> algorithm that saves 80% of annotation effort for <u>3D detection</u>	
• Improved <u>object detection</u> on <u>large-scale long-tailed</u> dataset	
• Improved <u>vision and language</u> model for <u>multi-modal navigation</u> task	
• Built <u>3D detection</u> models for lung nodule detection ( <u>medical imaging</u> )	
• Built <u>2D detection</u> models for the detection and segmentation of pancreas neoplasia ( <u>medical imaging</u> )	

## EDUCATION

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<a href="#">The Ohio State University (OSU)</a> , Columbus, OH	Sep. 2018 – Dec. 2024
<b>Ph.D. and M.S.</b> in Computer Science and Engineering, advised by <a href="#">Wei-Lun (Harry) Chao</a>	
<a href="#">University of Washington (UW)</a> , Seattle, WA	Sep. 2016 – Jun. 2018
<b>M.S.</b> in Chemical Engineering / Data Science, advised by Jim Pfaendtner	
<a href="#">National Taiwan University (NTU)</a> , Taipei, Taiwan	Sep. 2010 – Jun. 2014
<b>B.S.</b> in Chemical Engineering	

## HONORS

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- Graduate Student Research Award at OSU
- Invited talk to workshop in ICCV'21

## PUBLICATIONS

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### Conferences

- [C11] Transfer Your Perspective: Controllable 3D Generation from Any Viewpoint in a Driving Scene  
**Tai-Yu Pan**, Sooyoung Jeon, Mengdi Fan, Jinsu Yoo, Zhenyang Feng, Mark Campbell, Kilian Q Weinberger, Bharath Hariharan, Wei-Lun Chao  
*IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2025.
- [C10] An Exploratory Journey in Extremely Sparse LiDAR-Guided Stereo Through the Lens of Depth Pre-Fill  
Jinsu Yoo, Sooyoung Jeon, **Tai-Yu Pan**, Wei-Lun Chao  
*Under submission*.
- [C9] Learning 3D Perception from Others' Predictions  
Jinsu Yoo, Zhenyang Feng, **Tai-Yu Pan**, Yihong Sun, Cheng Perng Phoo, Xiangyu Chen, Mark Campbell, Kilian Q Weinberger, Bharath Hariharan, Wei-Lun Chao  
*International Conference on Learning Representations (ICLR)*, 2025.
- [C8] Static Segmentation by Tracking: A Frustratingly Label-Efficient Approach to Fine-Grained Segmentation  
Zhenyang Feng, Zihe Wang, Saul Ibaven Bueno, Tomasz Frelek, Advikaa Ramesh, Jingyan Bai, Lemeng Wang, Zanning Huang, Jianyang Gu, Jinsu Yoo, **Tai-Yu Pan**, Arpita Chowdhury, Michelle Ramirez, Elizabeth G Campolongo, Matthew J Thompson, Christopher G. Lawrence, Sydne Record, Neil Rosser, Anuj Karpatne, Daniel Rubenstein, Hilmar Lapp, Charles V. Stewart, Tanya Berger-Wolf, Yu Su, Wei-Lun Chao  
*arXiv preprint arXiv:2501.06749*, 2025.
- [C7] 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  
*International Conference on Learning Representations (ICLR)*, 2024.
- [C6] Towards Open-World Segmentation of Parts  
**Tai-Yu Pan**, Qing Liu, Wei-Lun Chao, Brian L. Price  
*IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023.
- [C5] 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.
- [C4] One Step at a Time: Long-Horizon Vision-and-Language Navigation with Milestones  
Chan Hee Song, Jihyung Kil, **Tai-Yu Pan**, Brian Sadler, Wei-Lun Chao, Yu Su  
*IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2022.
- [C3] On Model Calibration for Long-Tailed Object Detection and Instance Segmentation  
**Tai-Yu Pan**\*, Cheng Zhang\*, Yandong Li, Hexiang Hu, Dong Xuan, Soravit Changpinyo, Boqing Gong, Wei-Lun Chao  
*Conference on Neural Information Processing Systems (NeurIPS)*, 2021.
- [C2] MosaicOS: A Simple and Effective Use of Object-Centric Images for Long-Tailed Object Detection  
Cheng Zhang\*, **Tai-Yu Pan**\*, Yandong Li, Hexiang Hu, Dong Xuan, Soravit Changpinyo, Boqing Gong, Wei-Lun Chao  
*IEEE/CVF International Conference on Computer Vision (ICCV)*, 2021.  
Invited research talk at LVIS Challenge 2021 in ICCV 2021.
- [C1] Computer-aided detection of advanced neoplasia in intraductal papillary mucinous neoplasms using confocal laser endomicroscopy  
Somashekar G Krishna, Wei-Lun Chao, Sarah Poland, Victoria Alexander, Tassiana Maloof, Kelly Dubay, Olivia Ueltschi, Dana M Middendorf, Muhammed O Jajeh, Aadit Vishwanath, Kyle Porter, David Carlyn, **Tai-Yu Pan**, Georgios Papachristou, Phil A Hart, Zobeida Cruz-Monserrate, Darwin L Conwell  
*GASTROENTEROLOGY*. Vol. 158. No. 6.

### Journals

- [J1] High Performance in Risk Stratification of Intraductal Papillary Mucinous Neoplasms by Confocal Laser Endomicroscopy Image Analysis with Convolutional Neural Networks

Jorge D. Machicado, Wei-Lun Chao, David E. Carlyn, **Tai-Yu Pan**, Sarah Poland, Victoria L. Alexander, Tassiana G. Maloof<sup>3</sup>, Kelly Dubay, Olivia Ueltschi, Dana M. Middendorf, Muhammed O. Jajeh, Aadit B. Vishwanath, Kyle Porter, Phil A. Hart, Georgios I. Papachristou, Zobeida Cruz-Monserrate, Darwin L. Conwell, Somashekar G. Krishna  
*Gastrointestinal Endoscopy*

## MENTORSHIP & TEACHING

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Instructor, The Ohio State University

Summer of 2019 & 2020

- CSE 1222 Computer Programming in C++ for Engineers and Scientists

Graduate Teaching Assistant, The Ohio State University

Sep. 2018 – Aug. 2020

- CSE 5523 Machine Learning and Statistical Pattern Recognition
- CSE 1222 Computer Programming in C++ for Engineers and Scientists

## ACADEMIC SERVICE

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Reviewer: CVPR 2025/2024/2023/2022, ICLR 2024, NeurIPS 2023, ECCV 2024/2022, ICCV 2025/2023, BMVC 2022

## SKILLS

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- Programming Languages: Python, C++, JavaScript, WebGL, Bash Script, MATLAB, Fortran
- Other Computer Skills: Unix, Linux, PyTorch, ROS, AWS, Docker, AutoCAD
- Languages: Native Mandarin, Fluent English