Tsung-Han (Patrick) Wu

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Education

Ph.D. in Computer Science   *Aug. 2023 – Present*
University of California, Berkeley
- **GPA:** 4.0/4.0 (up to date)
- **Advisor:** Prof. Trevor Darrell, Prof. Joseph E Gonzalez
- **Lab Affiliation**: BAIR, Sky Computing Lab

M.S. in Computer Science   *Sep. 2020 – Jun. 2022*
National Taiwan University (NTU)
- **GPA:** 4.2/4.3 [Transcript]
- **Advisor:** Prof. Winston H. Hsu
- **Lab Affiliation**: Communication and Multimedia Lab (CMLab)
- **Honors:** 2021 Foxconn Technology Award, 2022 IPPR Outstanding MS Thesis Award
- **MS Thesis:** Active Learning for Semantic Segmentation: Region Diversity and Dynamic Domain Density

B.S. in Computer Science   *Sep. 2016 – Jun. 2020*
National Taiwan University (NTU)
- **GPA:** overall: 4.18/4.3, CS-related: 4.24/4.3, graduate ranking: 6/117 (5%) [Transcript]
- **Honors:** Dean's List Award * 3 (F'16, S'17, F'19)

Research Interests

- Post-2023 Focus: In the post-ChatGPT era, my research focuses on **analyzing the limitations and exploring the zero-shot applications of LLMs / LMMs**, as the advanced capabilities of large pre-trained models have significantly reduced the traditional labeling burden.
- Pre-2023 Endeavors: My earlier research was dedicated to **creating trustworthy visual applications with low-cost sensors and minimal labeling burden** in real-world scenarios.

Selected Publications [Google Scholar Page]

Preprints

[1] **Tsung-Han Wu**, Giscard Biamby, Jerome Quenum, Ritwik Gupta, Joseph E Gonzalez, Trevor Darrell, David M. Chan. "Visual Haystacks: Answering Harder Questions About Sets of Images".

Conference Papers

[2] **Tsung-Han Wu***, Giscard Biamby*, David M. Chan, Lisa Dunlap, Ritwik Gupta, Xudong Wang, Joseph E Gonzalez, Trevor Darrell. "See, Say, and Segment: Teaching LMMs to Overcome False Premises". **CVPR** 2024.

[3] **Tsung-Han Wu***, Long Lian*, Joseph E Gonzalez, Boyi Li, Trevor Darrell. "Self-correcting LLM-controlled Diffusion Models". **CVPR** 2024.

[4] Tsung-Lin Tsou, **Tsung-Han Wu**, Winston H Hsu. "WLST: Weak Labels Guided Self-training for Weakly-supervised Domain Adaptation on 3D Object Detection". **ICRA** 2024.

[5] **Tsung-Han Wu**, Yi-Syuan Liou, Shao-Ji Yuan, Hsin-Ying Lee, Tung-I Chen, Kuan-Chih Huang, Winston H Hsu. "D2ADA: Dynamic Density-aware Active Domain Adaptation for Semantic Segmentation". **ECCV** 2022.

[6] Kuan-Chih Huang, **Tsung-Han Wu**, Hung-Ting Su, Winston H Hsu. "MonoDTR: Monocular 3D Object Detection with Depth-Aware Transformer". **CVPR** 2022.

[7] **Tsung-Han Wu**, Yueh-Cheng Liu, Yu-Kai Huang, Hsin-Ying Lee, Hung-Ting Su, Ping-Chia Huang, Winston H Hsu. "ReDAL: Region-based and Diversity-aware Active Learning for Point Cloud Semantic Segmentation". **ICCV** 2021.

[8] Yu-Kai Huang, Yueh-Cheng Liu, **Tsung-Han Wu**, Hung-Ting Su, Yu-Cheng Chang, Tsung-Lin Tsou, Yu-An Wang, Winston H Hsu. "S3: Learnable Sparse Signal Superdensity for Guided Depth Estimation". **CVPR** 2021.

Workshop Papers

[8] **Tsung-Han Wu**, Hung-Ting Su, Shang-Tse Chen, Winston H Hsu. "Fair Robust Active Learning by Joint Inconsistency". **ICCVW** 2023.

[9] Yu-Kai Huang*, **Tsung-Han Wu***, Yueh-Cheng Liu, Winston H Hsu. "Indoor Depth Completion with Boundary Consistency and Self-Attention". **ICCVW** 2019. (* indicates equal contribution)

Teaching Experience

Teaching Assistant *2019, 2020 Spring*
CS2311: Network Administration and System Administration, NTU
- **Lab Lecturer**: Teach shell script, system partition, file system and Linux kernel. Develop two programming assignments. Won the **Best Teaching Assistant Awards** in the EECS department. (2019 Spring)
- **Head of TAs**: Assist in course syllabus planning and lead the TA team to complete all in-class lab teaching, assignments, and exams. (2020 Spring)

Teaching Assistant *2019 Fall*
EE5184: Machine Learning, NTU
- Develop two machine learning programming assignments on the Kaggle platform. Design a set of hand-written homework and several problems in the final exam.

Work Experience

Network and System Administrator *Apr. 2021 – Mar. 2022*
Communication and Multimedia Lab (CMLab), NTU
- Maintain all networking services in the lab, including switches, wireless access points, and a DHCP server.
- Manage 14 GPU servers, web services, and account systems in the lab. Automate data backup and package upgrade with open-source tools.

System Administrator [Certificate Link] *Feb. 2018 – Jun. 2020*
Department of Computer Science and Information Engineering (CSIE), NTU
Supervisor: Prof. Hsin-Mu Tsai
- **Head of Mail Services**: Maintain mail servers for all students, and faculties in the department. Automate system deployment with open-source tools. (2018 – 2019)
- **SysAdmin Team Leader**: Lead the team to improve the backup and monitoring services. Plan and execute the data center relocation project of the CS department. (2019 – 2020)

Data Scientist Intern *Jul. 2019 – Aug. 2019*
ASUS Inc., AICS Team
- Develop a denoising and rectification toolkit to boost OCR performance on printed paper.
- Implement an object detection model on private datasets.

Awards and Service

Conference & Journal Reviewers, at CVPR, ECCV, ICCV, BMVC, ICMR, TMM	*Apr. 2021 – Present*
IPPR Outstanding MS Thesis Award (Top 3 Computer Vision Master Thesis in Taiwan)	*Aug. 2022*
Foxconn Technology Award (Top 19 applied students in Taiwan, 250K NTD scholarship)	*Dec. 2021*
Best Teaching Assistant Awards, at NTU EECS	*Spring'19*
Dean's List Award, at NTU CSIE (For top 5% students); 3x Recipient	*Fall'16, Spring'17, Fall'19*

Skills

Languages: Experienced in C, Python and capable of C++. Fluent in Tensorflow, PyTorch and Scikit-Learn.

System administration: Git, Linux, Ansible, QEMU-KVM and Docker.