

Tsung-Han (Patrick) Wu

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Education

M.S. in Computer Science Sep. 2020 – Jun. 2022
National Taiwan University (NTU)

- **GPA:** 4.2/4.3 [Transcript]
- **Advisor:** Prof. Winston H. Hsu, 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

- Research on building cost-effective and trustworthy autonomous systems with low-cost sensors or limited labels.
- Specialized in active learning, domain adaptation, adversarial robustness, and depth estimation.

Research Experience

Research Assistant Aug. 2022 – Present
Advisor: Prof. Shang-Tse Chen & Winston H. Hsu (NTU)

- Researched on reaching **Fairness and Adversarial Robustness** with limited labeled data. [arXiv]

Graduate Researcher Sep. 2020 – Jul. 2022
Advisor: Prof. Winston H. Hsu (CMLab, NTU)

- Researched on **Active Learning/Active Domain Adaptation** for **Semantic Segmentation**. [ICCV'21, ECCV'22]
- Researched on **Image-based 3D Object Detection** with depth guidance. [CVPR'22]

Undergraduate Researcher Sep. 2018 – Aug. 2020
Advisor: Prof. Winston H. Hsu (CMLab, NTU)

- Researched on improving the structure of low-quality depth maps via **Depth Completion**. [ICCVW'19]
- Researched on enhancing **Dense Depth Estimation** with sparse signal guidance. [CVPR'21]

Publications

Preprints

- [1] **TH Wu**, HT Su, ST Chen, WH Hsu. "Fair Robust Active Learning by Joint Inconsistency".
- [2] CY Tseng, YR Chen, HY Lee, **TH Wu**, WC Chen, WH Hsu. "CrossDTR: Cross-view and Depth-guided Transformers for 3D Object Detection".

Conference Papers

- [3] **TH Wu**, YS Liou, SJ Yuan, HY Lee, TI Chen, KC Huang, WH Hsu. "D2ADA: Dynamic Density-aware Active Domain Adaptation for Semantic Segmentation". **ECCV** 2022.
- [4] **TH Wu**, YC Liu, YK Huang, HY Lee, HT Su, PC Huang, WH Hsu. "ReDAL: Region-based and Diversity-aware Active Learning for Point Cloud Semantic Segmentation". **ICCV** 2021.
- [5] KC Huang, **TH Wu**, HT Su, WH Hsu. "MonoDTR: Monocular 3D Object Detection with Depth-Aware Transformer". **CVPR** 2022.
- [6] YK Huang, YC Liu, **TH Wu**, HT Su, YC Chang, TL Tsou, YA Wang, WH Hsu. "S3: Learnable Sparse Signal Supersampling for Guided Depth Estimation". **CVPR** 2021.

- [7] RF Jheng, **TH Wu**, JF Yeh, WH Hsu. "Free-form 3D Scene Inpainting with Dual-stream GAN". **BMVC** 2022.
- [8] HY Lee, HT Su, BC Tsai, **TH Wu**, JF Yeh, WH Hsu. "Learning Fine-Grained Visual Understanding for Video Question Answering via Decoupling Spatial-Temporal Modeling". **BMVC** 2022.

Workshop Papers

- [9] YK Huang*, **TH Wu***, YC Liu, WH 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, 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 Reviewers, at CVPR, ECCV, TMM, BMVC, ICMR 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.