

# 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 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 – Nov.2020

Advisor: Prof. Winston H. Hsu (CMLab, NTU)

- Researched on improving the quality and structure of **Depth Completion**. [ICCVW'19]
- Researched on boosting **Stereo Matching** and **Depth Estimation** with sparse signal guidance. [CVPR'21]

## Publications \* indicates equal contribution

- Ru-Fen Jheng, **Tsung-Han Wu**, Jia-Fong Yeh, Winston H. Hsu. "Free-form 3D Scene Inpainting with Dual-stream GAN". **BMVC** 2022.
- Hsin-Ying Lee, Hung-Ting Su, Bing-Chen Tsai, **Tsung-Han Wu**, Jia-Fong Yeh, Winston H. Hsu. "Learning Fine-Grained Visual Understanding for Video Question Answering via Decoupling Spatial-Temporal Modeling". **BMVC** 2022.
- **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.
- Kuan-Chih Huang, **Tsung-Han Wu**, Hung-Ting Su, Winston H. Hsu. "MonoDTR: Monocular 3D Object Detection with Depth-Aware Transformer". **CVPR** 2022.
- **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.
- 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.
- Yu-Kai Huang\*, **Tsung-Han Wu**\*, Yueh-Cheng Liu, Winston H. Hsu. "Indoor Depth Completion with Boundary Consistency and Self-Attention". **ICCVW** 2019.
- **Tsung-Han Wu**, Shang-Tse Chen, Winston H. Hsu. "Fair Robust Active Learning by Joint Inconsistency". arXiv preprint (Under review).
- Ching-Yu Tseng, Yi-Rong Chen, Hsin-Ying Lee, **Tsung-Han Wu**, Wen-Chin Chen, Winston Hsu. "CrossDTR: Cross-view and Depth-guided Transformers for 3D Object Detection". arXiv preprint (Under review).

## Teaching and Work Experience

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### Teaching Assistant

2019, 2020 Spring

CS2311: Network Administration and System Administration, NTU

Instructor: Prof. Hsin-Mu Tsai

- **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)

### 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 printing paper.
- Implement an object detection model on private datasets.

## Honors and Awards

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**Conference Reviewers**, at CVPR, ECCV, BMVC, ICMR

Apr.2021 – Present

**IPPR Outstanding MS Thesis Award** (Top 3 Computer Vision Master's 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

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**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.

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