

# Wan-Cyuan (Chris) Fan

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## Introduction

Currently, I'm a research assistant at National Taiwan University (NTU) in Vision and Learning Lab advised by Prof. Yu-Chiang Frank Wang. My research interests span the fields of Deep Learning (DL) and Computer Vision (CV), particularly multi-modal learning, text-to-image synthesis, x-to-video generation, and text-guided image manipulation.

## Education

Jan 2022    📖 **M.Sc. Communication Engineering** at National Taiwan University  
in Vision and Learning Lab advised by Prof. Yu-Chiang Frank Wang  
GPA: 4.11 / 4.3

June 2020    📖 **B.Sc. Electrical Engineering** at National Taiwan University  
GPA: 3.98 / 4.3

## Work Experience

- Sep. 2022 – Present    📖 **Research Assistant** in Vision and Learning Lab (VLL) at NTU  
advised by Prof. Yu-Chiang Frank Wang  
- *Build a text guided image manipulation network under weakly supervised setting*  
- *Learning scene layout generation with spatial and conceptual diversity*
- Mar. 2022 – Sep. 2022    📖 **Research Intern** in Azure Computer Vision Research at Microsoft  
- *Working with Yen-Chun Chen, DongDong Chen, Yu Cheng, and Lu Yuan*  
- *Exploring a multi-scale diffusion and denoising strategies of the diffusion model for conditional complex scene image generation*
- July 2019 – Aug. 2020    📖 **Student Research Intern** in Institute of Information Science, Academia Sinica, Taiwan, advised by Prof. Tyng-Luh Liu  
- *Design models for the long-tailed object detection and instance segmentation tasks*  
- *Explore the adaptive batch-wise regularization for image classification under long-tailed and fine-grained distribution*
- July 2017 – Jan. 2018    📖 **Student Intern** in Digital Learning Center, National Taiwan University  
- *Problem-solving using design thinking and activity planning*

## Research Publications

### Pre-prints

1. **Wan-Cyuan Fan**, Yen-Chun Chen, Dong Dong Chen, Yu Cheng, Lu Yuan, Yu-Chiang Frank Wang. "Frido: Feature Pyramid Diffusion for Complex Scene Image Synthesis." In submission, 2022.
2. **Wan-Cyuan Fan**, Cheng-Fu Yang, Chiao-An Yang, Yu-Chiang Frank Wang. "Target-free Text-guided Image Manipulation." In submission, 2022.

3. **Wan-Cyuan Fan**, Cheng-Yao Hong, Yen-Chi Hsu, Tyng-Luh Liu. "IOU-Aware Multi-Expert Cascade Network via Dynamic Ensemble for Long-tailed Object Detection." In submission, 2022.
4. Yen-Chi Hsu, Cheng-Yao Hong, **Wan-Cyuan Fan**, Ming-Sui Lee, Davi Geiger, Tyng-Luh Liu. "ACE: Adaptive Confusion Energy for Natural World Data Distribution." In submission (journal), 2022.
5. **Wan-Cyuan Fan**. "Auto-drawer: Generating and Modifying Images Continually by Visual-Relational Knowledge Graph." Arxiv pre-print, 2019.

## Conference Proceedings


1. Cheng-Fu Yang, Yao-Hung Hubert Tsai, **Wan-Cyuan Fan**, Yu-Chiang Frank Wang, Louis-Philippe Morency, Ruslan Salakhutdinov. "Paraphrasing Is All You Need for Novel Object Captioning." In Proceedings of the Conference on Neural Information Processing Systems (NeurIPS), 2022.
2. Chiao-An Yang, Cheng-Yo Tan, **Wan-Cyuan Fan**, Cheng-Fu Yang, Meng-Lin Wu, Yu-Chiang Frank Wang. "Scene Graph Expansion for Semantics-Guided Image Outpainting." In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2022.
3. Chih-Chun Yang, **Wan-Cyuan Fan**, Cheng-Fu Yang, Yu-Chiang Frank Wang. "Cross-Modal Mutual Learning for Audio-Visual Speech Recognition and Manipulation." In Proceedings of Thirty-Sixth AAAI Conference on Artificial Intelligence (AAAI), 2022.
4. Cheng-Fu Yang\*, **Wan-Cyuan Fan\***, Fu-En Yang, Yu-Chiang Frank Wang. "LayoutTransformer: Scene Layout Generation With Conceptual and Spatial Diversity." In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2021.
5. **Wan-Cyuan Fan**, Cheng-Yao Hong, Yen-Chi Hsu, Tyng-Luh Liu. "Multi-expert heads of Long-tailed Instance Segmentation." Tech. Report of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (ECCV) workshop, 2020.

## Miscellaneous Experience

### Awards and Achievements

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| 2022 |  <b>Honorable Master Thesis Award</b> , The Chinese Image Processing and Pattern Recognition Society, Taiwan.                            |
| 2021 |  <b>Master Student Research Scholarship</b> , Novatek Foundation, Taiwan.  |
| 2020 |  <b>Top 10 Winner</b> (World Ranking 7), Large Vocabulary Instance Segmentation Challenge, ECCV workshop.                                |
| 2018 |  <b>Third prize</b> , the Contest of Innovation and Entrepreneurship of Biotechnology of Ministry of Education, Taiwan.                  |
| 2017 |  <b>First prize</b> , the Final Competition of the Clinical Application of Medical Electronic Device Course, National Taiwan University. |
| 2016 |  <b>First prize</b> , the Final Competition of the Clinical Observation and Need Investigation Course, National Taiwan University.       |

### Position of Responsibility

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| 2016-2017 |  <b>Vice leader of Public Relations Department</b> in the Aboriginal Service Club at National Taiwan University.<br>- Manage the Public Relations Department and host the training courses and 2 days camp for almost 80 members. |
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## Miscellaneous Experience (continued)

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### Professional Activity

- 2021-2022    ■ **Conference Reviewer or Program Committee.**  
Thirty-Sixth Annual Conference on Neural Information Processing Systems (NeurIPS), 2022  
Thirty-Seventh AAAI Conference on Artificial Intelligence (AAAI), 2022  
IEEE Conference on Computer Vision and Pattern Recognition (CVPR) (2020, 2021)  
IEEE International Conference on Computer Vision (ICCV) (2021)  
Thirty-Sixth AAAI Conference on Artificial Intelligence (AAAI), 2021
- **Teaching Assistant of the Course for the graduate students.**  
Deep Learning for Computer Vision, National Taiwan University (NTU), 2020  
Deep Learning for Computer Vision, National Taiwan University (NTU), 2021