

# Fu-En Yang

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## Research Interests

○ **Computer vision** ○ **Deep learning** ○ **Machine learning.**

My research interests include using deep learning to solve computer vision tasks such as representation learning, transfer learning, few/zero-shot classification, federated learning, parameter-efficient model tuning, and large-scale vision & language models.

## Education

- Sept. 2018 - **PhD Student**, National Taiwan University (NTU), Taipei, Taiwan.  
Jul. 2023 Graduate Institute of Communication Engineering (GICE)  
Vision and Learning Laboratory [📄](#)  
Advisor: Prof. Yu-Chiang Frank Wang [📄](#) [link](#)
- Sept. 2014 - **Bachelor of Science**, National Taiwan University (NTU), Taipei, Taiwan.  
Jun. 2018 Department of Electrical Engineering (EE)  
○ Overall GPA: 4.12/4.3  
○ Ranking: 26/184


## Research & Industrial Experiences


- Feb. 2023 - **Research Intern**, NVIDIA Research [📄](#) [link](#).  
Aug. 2023 Manager: Prof. Yu-Chiang Frank Wang [📄](#) [link](#)  
○ Parameter-efficient model personalization in federated learning (ICCV-2023).  
○ Vision-language models for open-vocabulary and language-driven visual analysis
- Sept. 2018 - **Ph.D. Researcher**, Vision and Learning Laboratory [📄](#), NTU, Taipei, Taiwan.  
Jul. 2023 Advisor: Prof. Yu-Chiang Frank Wang [📄](#) [link](#)  
**1. Style Transfer & Domain Adaptation**  
○ Published as a journal paper in the IEEE Transactions on Image Processing (TIP) [📄](#).  
**2. Video Generation and Translation**  
○ Accepted as conference papers in CVPR-2020 [📄](#) & ICPR-2020 [📄](#)  
**3. Few-Shot & Zero-Shot Learning**  
○ Accepted as conference papers in IJCV-2023 [📄](#), WACV-2022 [📄](#), & ICIP-2021 [📄](#)  
**4. Domain Generalization**  
○ Accepted as a conference paper in NeurIPS-2021 as spotlight presentation (top 3%) [📄](#)  
**5. Federated Learning**  
○ Accepted as a conference paper in ICCV-2023
- Sept. 2020 - **AICS PhD Program**, ASUS Intelligent Cloud Services (AICS) [📄](#) [link](#).  
Oct. 2022 Student Researcher for computer vision and medical imaging applications mentored by Prof. Yu-Chiang Frank Wang [📄](#) [link](#) and Prof. Stefan Winkler [📄](#) [link](#)  
○ Cross-Domain Medical Image Analysis [📄](#) [Paper](#)  
○ Privacy-Preserving Medical Image Analysis

## Publications

- ICCV 2023 **Efficient Model Personalization in Federated Learning via Client-Specific Prompt Generation.**  
Fu-En Yang, Chien-Yi Wang, and Yu-Chiang Frank Wang  
IEEE International Conference on Computer Vision (ICCV), October 2023

- IJCV 2023 **Semantics-Guided Intra-Category Knowledge Transfer for Generalized Zero-Shot Learning.**  
Fu-En Yang, Yuan-Hao Lee, Chia-Ching Lin, and Yu-Chiang Frank Wang  
International Journal of Computer Vision (IJCV), 2023 [i](#) [Paper](#)
- WACV 2023 **Self-Supervised Pyramid Representation Learning for Multi-Label Visual Analysis and Beyond.**  
Cheng-Yen Hsieh, Chih-Jung Chang, Fu-En Yang, and Yu-Chiang Frank Wang  
IEEE Winter Conference on Applications of Computer Vision (WACV), Jan 2023 [i](#) [Paper](#)
- WACV 2022 **A Pixel-Level Meta-Learner for Weakly Supervised Few-Shot Semantic Segmentation.**  
Yuan-Hao Lee, Fu-En Yang, and Yu-Chiang Frank Wang  
IEEE Winter Conference on Applications of Computer Vision (WACV), Jan 2022 [i](#) [Paper](#)
- NeurIPS 2021 **Adversarial Teacher-Student Representation Learning for Domain Generalization.**  
Fu-En Yang, Yuan-Chia Cheng, Zu-Yun Shiao, and Yu-Chiang Frank Wang  
Conference on Neural Information Processing Systems (NeurIPS), December 2021 [i](#) [Paper](#)  
(top 3% for spotlight presentation)
- CVPR 2021 **LayoutTransformer: Scene Layout Generation with Conceptual and Spatial Diversity.**  
Cheng-Fu Yang, Wan-Cyuan Fan, Fu-En Yang, and Yu-Chiang Frank Wang  
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), June 2021 [i](#) [Paper](#)
- ICIP 2021 **Few-Shot Classification in Unseen Domains by Episodic Meta-Learning Across Visual Domains.**  
Yuan-Chia Cheng, Ci-Siang Lin, Fu-En Yang, and Yu-Chiang Frank Wang  
IEEE International Conference on Image Processing (ICIP), September 2021 [i](#) [Paper](#)
- CVPR 2020 **Learning Identity-Invariant Motion Representations for Cross-ID Face Reenactment.**  
Po-Hsiang Huang, Fu-En Yang, and Yu-Chiang Frank Wang  
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), June 2020 [i](#) [Paper](#)
- ICPR 2020 **Dual-MTGAN: Stochastic and Deterministic Motion Transfer for Image-to-Video Synthesis.**  
Fu-En Yang\*, Jing-Cheng Chang\*, Yuan-Hao Lee, and Yu-Chiang Frank Wang  
(\* indicates equal contribution)  
IEEE International Conference on Pattern Recognition (ICPR), Jan 2021 [i](#) [Paper](#)
- ICPR 2020 **Semantics-Guided Representation Learning with Applications to Visual Synthesis.**  
Jia-Wei Yan, Ci-Siang Lin, Fu-En Yang, Yu-Jhe Li, and Yu-Chiang Frank Wang  
IEEE International Conference on Pattern Recognition (ICPR), Jan 2021 [i](#) [Paper](#)
- TIP 2020 **A Multi-domain and Multi-modal Representation Disentangler for Cross-Domain Image Manipulation and Classification.**  
Fu-En Yang\*, Jing-Cheng Chang\*, Chung-Chi Tsai, and Yu-Chiang Frank Wang  
(\* indicates equal contribution)  
IEEE Transactions on Image Processing (TIP), 2020 [i](#) [Paper](#)

ICIP 2019 **Learning Hierarchical Self-Attention for Video Summarization.**  
Yen-Ting Liu, Yu-Jhe Li, Fu-En Yang, Shang-Fu Chen, and Yu-Chiang Frank Wang  
IEEE International Conference on Image Processing (ICIP), September 2019  [Paper](#)

CVPRW 2018 **Adaptation and Re-Identification Network: An Unsupervised Deep Transfer Learning Approach to Person Re-Identification.**  
Yu-Jhe Li, Fu-En Yang, Yen-Cheng Liu, Yu-Yin Yeh, Xiaofei Du, and Yu-Chiang Frank Wang  
IEEE Conference on Computer Vision and Pattern Recognition (CVPR) workshop, June 2018  
 [Paper](#)

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## Academic Services

- NeurIPS **Conference Reviewer.**  
Conference on Neural Information Processing Systems (NeurIPS) 2023
- CVPR **Conference Reviewer.**  
IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2023, 2022
- ICCV **Conference Reviewer.**  
International Conference on Computer Vision (ICCV) 2023
- AAAI **Conference Reviewer.**  
AAAI Conference on Artificial Intelligence (AAAI) 2024, 2023, 2022, 2021, 2020
- WACV **Conference Reviewer.**  
Winter Conference on Applications of Computer Vision (WACV) 2023, 2022
- ACCV **Conference Reviewer.**  
Asian Conference on Computer Vision (ACCV) 2022
- ICIP **Conference Reviewer.**  
IEEE International Conference on Image Processing (ICIP) 2023, 2020
- Spring 2019 **Teaching Assistant**, NTU GICE, Taipei Taiwan.  
Deep Learning for Computer Vision  
  - Instructor: Prof. Yu-Chiang Frank Wang
  - Designed, checked and scored homework assignments.
  - Designed the final project.

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## Skills

Programming Python, C++, Matlab,  $\text{\LaTeX}$   
Libraries/Tools PyTorch, Tensorflow, Keras, OpenCV  
Language Chinese (native), English

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## Selected Courses

Mathematics Calculus, Engineering Mathematics – Linear Algebra, Probability and Statistics, Discrete Mathematics, Engineering Mathematics – Differential Equation, Engineering Mathematics – Complex Variables, Selected Topics in Engineering Mathematics\*

Programmings Computer Programming, Data Structure and Programming

Applications Machine Learning\*, Deep Learning for Computer Vision\*, Computer Vision: from recognition to geometry\*, Advanced Digital Signal Processing\*, Time-frequency Analysis and Wavelet Transform\*, Introduction to Biomedical Informatics\*, Data Science\*, Introduction to Computer

\* indicates graduate level courses