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, cross-dataset transfer learning, meta-learning for few-shot classification, zero-shot learning, self-supervised learning, and cross-modal learning.

Education

Sept. 2018 - Present **PhD Student**, National Taiwan University (NTU), Taipei, Taiwan.
Graduate Institute of Communication Engineering (GICE)
Vision and Learning Laboratory
Advisor: Prof. Yu-Chiang Frank Wang link

Sept. 2014 - Jun. 2018 **Bachelor of Science**, National Taiwan University (NTU), Taipei, Taiwan.
Department of Electrical Engineering (EE)
- Overall GPA: 4.12/4.3
- Ranking: 26/184

Research & Industrial Experiences

Feb. 2023 - Present **Research Intern**, NVIDIA Research link.
Research intern for computer vision and deep learning supervised by
Prof. Yu-Chiang Frank Wang link
- Cross-Domain and Cross-Modal Learning

Sept. 2018 - Present **Ph.D. Research**, Vision and Learning Laboratory, NTU, Taipei, Taiwan.
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 WACV-2022, ICIP-2021 & Submitted to IJCV-2021

4. Domain Generalization
- Accepted as a conference paper in NeurIPS-2021 as spotlight presentation (top 3%)

5. Federated Learning
- In submission, 2023

Sept. 2020 - Oct. 2022 **AICS PhD Program**, ASUS Intelligent Cloud Services (AICS) link.
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

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

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 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 Paper

NeurIPS 2021 Spotlight **Adversarial Teacher-Student Representation Learning for Domain Generalization**.
Fu-En Yang, Yuan-Chia Cheng, Zu-Yun Shiau, and Yu-Chiang Frank Wang
Conference on Neural Information Processing Systems (NeurIPS), December 2021 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 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 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 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 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 Paper

TIP 2019 **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), 2019 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

Academic Services

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) 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.

Fall 2018 **Teaching Assistant**, NTU GIEE, Taipei Taiwan.
Computer Vision: from recognition to geometry
- Instructor: Prof. Shao-Yi Chien & Prof. Yu-Chiang Frank Wang
- Designed and graded programming assignments of 120+ students.

Skills

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

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