Hung-Yueh Chiang (江泓樂)

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Education

The University of Texas at Austin (UT) Sep. 2021 – 2025 (anticipated)
Ph.D. in electrical and computer engineering
Affiliation: Energy-Aware Computing Group (EnyAC)
Research Direction: Efficient ML
Advisor: Prof. Diana Marculescu

National Taiwan University (NTU) Sep. 2016 - Sep. 2018
M.S. in computer science (GPA: 3.87/4.3)
Affiliation: NVIDIA-NTU AI Lab
Thesis title: A Unified Point-Based Framework for 3D Segmentation
Advisor: Prof. Winston Hsu

ETH Zurich Jan. 2015 - Sep. 2015
Undergraduate exchange student (2 nominees in NYCU CS college)

National Yang Ming Chiao Tung University (NYCU) Sep. 2011 - Sep. 2015
B.S. in computer science (GPA: 4.08/4.3, rank 2/32)
Elite program of computer and electrical engineering

Industrial Experience

Software Engineering Intern, Rivian, Palo Alto CA, USA Jun. 2023 – Aug. 2023

- Neural Architecture Search (NAS) for 3D object detection

Research Scientist Intern, Amazon, Seattle (Remote), USA May 2022 – Nov. 2022

- Image synthesis and generation for shoe virtual try-on with diffusion models
- The work, *Shoe-ViTON: Detail-Preserving Virtual Shoe Try-On with Dual Conditional Diffusion Models*, is accepted in Amazon Machine Learning Conference (AMLC) as a long presentation

Deep Learning Engineer, XYZ Robotics, Shanghai, China Jun. 2019 - May 2021

- Develop production-level deep learning vision systems on logistic robots
- Deploy a deep learning pipeline (data uploading, downloading, labeling, and model training) on products with two team members
- Develop a multi-modal (image, depth, and normal) segmentation model for predicting best picking area on the objects
- Synthesize training data with Blender for unseen items to improve the model's generalization

Academic Experience

Graduate Research Assistant, UT, Texas, USA Aug. 2021 – Now
Research Direction: Efficient ML

Research Assistant, NTU AI Research Center, Taipei, Taiwan Oct. 2018 – Apr. 2019
Research Direction: 3D Vision

Master Student, NTU, Taiwan, Taipei Sep. 2016 - Sep. 2018
3D point cloud semantic segmentation

- Propose to optimize 2D image and 3D structural features in a unified point-based framework
- Our method is ***one of the top performing methods on ScanNet benchmark in 2018***
- The work is published at 3DV 2019

3D shape retrieval

- Propose a cross-domain framework for image to 3D shape retrieval
- Propose a new feature aggregation method to encode a 3D shape
- Our method ***wins second place at SHREC17 RGB-D to CAD retrieval competition in 2017***
- The work is published at 3DV 2018

Netizen style commenting bot

- Propose NetiLook dataset which contains 300K posts (photos) with 5M comments
- Fuse the topic model with the commenting bot to generate netizen style comments
- The work is published at The Web Conference 2018

Honors and Awards

- Engineering fellowship from The University of Texas at Austin graduate school, 2021
- Second place at ScanNet benchmark and invited talk at CVPR 2019
- Second place at SHREC17 RGB-D to CAD retrieval competition, 2017
- Taiwan Ministry of Education exchange scholarship, 2014
- Pan Wen-Yuan Foundation undergraduate scholarship (3 nominees in NCTU EE/CS), 2014
- Academic achievement award (for students at the top 5% in the class), 2014
- Research creativity award from the National Science Council, Taiwan, 2014

Programming Skills

- Programming Language: Python, C/C++, CUDA
- Deep Learning Frameworks: Pytorch, Tensorflow, MXNet, ONNX
- Deep Learning Platforms: Nvidia Jetson Series, Google Edge TPU, Intel Neural Compute Stick
- CUDA Libraries: CUTLASS, cuBLAS, cuSPARSE, PTX, and ISA
- Vision/Robotic Libraries: Robot Operating System (ROS), Point Cloud Library (PCL), OpenCV
- Development Tools: Docker, Cmake, PyLint, Pytest, MyPy, Google Test, Git
- Web Language: HTML, JQuery, Java Script, CSS
- Web Framework: Django, Bootstrap, React
- 3D Rendering Tools: Blender

Publications

- *Quamba: A Post-Training Quantization Recipe for Selective State Space Models*. **Hung-Yueh Chiang**, Chi-Chih Chang, Natalia Frumkin, Kai-Chiang Wu, and Diana Marculescu, Under reviewing 2024
- *SCAN-Edge: Finding MobileNet-speed Hybrid Networks for Diverse Edge Devices via Hardware-Aware Evolutionary Search.* **Hung-Yueh Chiang** and Diana Marculescu, ICLR Practical ML for Limited/Low Resource Settings Workshop 2024
- *Cache and Reuse: Rethinking the Efficiency of On-device Transfer Learning*. Yuedong Yang, **Hung-Yueh Chiang**, Guihong Li, Diana Marculescu, Radu Marculescu, CVPR Efficient Deep Learning for Computer Vision Workshop 2024
- *Efficient Low-rank Backpropagation for Vision Transformer Adaptation*. Yuedong Yang, **Hung-Yueh Chiang**, Guihong Li, Diana Marculescu, Radu Marculescu, NeurIPS 2023
- *MobileTL: On-device Transfer Learning with Inverted Residual Blocks.* **Hung-Yueh Chiang**, Natalia Frumkin, Feng Liang, and Diana Marculescu, AAAI 2023 (**Oral**)
- *Learning from 2D: Pixel-to-Point Knowledge Transfer for 3D Pretraining*. Yueh-Cheng Liu, Yu-Kai Huang, **Hung-Yueh Chiang**, Hung-Ting Su, Zhe-Yu Liu, Chin-Tang Chen, Ching-Yu Tseng, and Winston Hsu, Arxiv 2021
- *FOX-NAS: Fast On-device and Explainable Neural Architecture Search*. Chia-Hsiang Liu, Yu-Shin Han, Yuan-Yao Sung, Yi Lee, **Hung-Yueh Chiang**, Kai-Chiang Wu, ICCVW 2021
- *A Unified Point-Based Framework for 3D Segmentation*. **Hung-Yueh Chiang**, Yen-Liang Lin, Yueh-Chen Liu, Winston Hsu. 3DV 2019
- *Metadata-Augmented Neural Networks for Cross-Location Solar Irradiation Prediction from Satellite Images*. Kuan-Ying Lee, Hsin-Fu Huang, **Hung-Yueh Chiang**, Hu-Cheng Lee, Winston Hsu, and Wen-Chin Chen. KDDW2019
- *Cross-Domain Image-Based 3D Shape Retrieval by View Sequence Learning*. Tang Lee, Yen-Liang Lin, **Hung-Yueh Chiang**, Ming-Wei Chiu, Winston Hsu. 3DV 2018 (**Oral**)
- *Netizen-Style Commenting on Fashion Photos: Dataset and Diversity Measures*. Wen Hua Lin, Kuan-Ting Chen, **Hung-Yueh Chiang**, and Winston Hsu. The Web Conference 2018

References

- **Diana Marculescu**, the Chair of the Department of Electrical and Computer Engineering at The University of Texas at Austin; Professor of ECE and holder of the Motorola Regents Chair in ECE
- **Winston Hsu**, Chief Technology Officer (CTO) and Vice President for MobileDrive (富智捷), Director of NVIDIA-NTU AI Lab; Professor, Department of Computer Science and Information Engineering, National Taiwan University, Taiwan
- **Kai-Chiang Wu**, Professor, Department of Computer Science, National Yang Ming Chiao Tung University, Taiwan
- **Peter Kuan-Ting Yu**, Chief Technology Officer (CTO) at XYZ Robotics, Shanghai, China