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: Edge AI / Network Quantization / Neural Architecture Search
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)
Affiliation: Computer Vision and Geometry Group (CVG)
Undergrad research topics: investigate 3D reconstruction methods
Advisor: Prof. Marc Pollefeys

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

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
- Developed a multi-modal (image, depth, and normal) to improve 2D segmentation network's accuracy of best robot picking area (mIoU from 85% to 91%)
- Leveraged synthetic training data in Blender to improve the accuracy of best robot picking area (mIoU from 41.38% to 76.62%) for unseen items
- Developed deep learning services (segmentation/object detection) in Robot Operating System (ROS) in products
- Developed and deployed a cloud platform for deep learning pipeline (e.g., data uploading, downloading, labeling, and model training) with two team members

Software Engineer Internship, Cywee Motion, Taipei, Taiwan   Nov. 2016 - Feb. 2017

- Implemented a two-view essential matrix to estimate camera odometry

Software Engineer Internship, Foxconn, Taipei   Jun. 2014 – Jan. 2015
- Implemented a gyro-based 3D point cloud fusion with a PrimeSense RGB-D camera

Academic Experience
Graduate Research Assistant, UT, Texas, USA   Aug. 2021 – Now
- Research Direction: Edge AI / Network Quantization / Neural Architecture Search

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

Master Student, NTU, Taiwan, Taipei   Sep. 2016 - Sep. 2018

3D point cloud semantic segmentation
- Proposed 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 was published at 3DV 2019

3D shape retrieval
- Proposed a cross-domain framework for image to 3D shape retrieval
- Proposed a new feature aggregation method to encode a 3D shape
- The work was published at 3DV 2018

Netizen style commenting bot
- Proposed NetiLook dataset which contains 300K posts (photos) with 5M comments
- We fused the topic model with the commenting bot to generate netizen style comments
- The work was 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 Xue Hai Fei Yang, 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

Publications
- *MobileTL: On-device Transfer Learning with Inverted Residual Blocks.* **Hung-Yueh Chiang**, Natalia Frumkin, Feng Liang, and Diana Marculescu, AAAI 2023
- *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

Programming Skills
Deep Learning Framework Platform: Pytorch, Tensorflow, MXNet, ONNX
Libraries: Robot Operating System (ROS), Point Cloud Library (PCL), OpenCV
Tools: Blender
Language: Python, C/C++, CUDA
Web Framework: Django, jQuery, Bootstrap

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
- **Yen-Liang Lin**, Applied Research Scientist, Amazon, Palo Alto, USA
- **Jiaji Zhou**, Chief Executive Officer (CEO) at XYZ Robotics, Shanghai, China
- **Peter Kuan-Ting Yu**, Chief Technology Officer (CTO) at XYZ Robotics, Shanghai, China
- **Kai-Chiang Wu**, Associate Professor, Department of Computer Science, National Yang Ming Chiao Tung University, Taiwan
- **Yung-Yu Chuang,** Professor and former Chairman, Department of Computer Science and Information Engineering, National Taiwan University, Taiwan