Hung-Yueh Chiang (江泓樂)

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Education

The University of Texas at Austin (UT) Sep. 2021 – 2026 (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 intern project was accepted in Amazon Machine Learning Conference (AMLC) as a long presentation: *Shoe-ViTON: Detail-Preserving Virtual Shoe Try-On with Dual Conditional Diffusion Models*.

Deep Learning Engineer, XYZ Robotics, Shanghai, China Jun. 2019 - May 2021
- Developed production-level deep learning vision systems on logistic robots
- Deployed a deep learning pipeline (data uploading, downloading, labeling, and model training) on products with two team members
- Developed a multi-modal (image, depth, and normal) segmentation model for predicting best picking area on the objects
- Synthesized 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

- Proposed to optimize 2D image and 3D structural features in a unified point-based framework
- Our method was ***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
- Our method has won ***second place at SHREC17 RGB-D to CAD retrieval competition in 2017***
- The work was published at 3DV 2018

Netizen style commenting bot

- Proposed NetiLook dataset which contains 300K posts (photos) with 5M comments
- 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 competition 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
- 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

* Equal contribution

[1] Chi, T. Y., **Chiang H. Y.**, Chang C. C., Huang N. C., Wu, K. C., & Marculescu, D. (2024). QuaterMap: Efficient Post-Training Activation Pruning for Visual State Space Models, *Under review.*

[2] **Chiang, H. Y.***, Chang, C. C. *, Frumkin, N., Wu, K. C., & Marculescu, D. (2024). Quamba: A Post-Training Quantization Recipe for Selective State Space Models. *arXiv preprint arXiv:2410.13229, Under review.*

[3] Chi, T. Y., **Chiang H. Y.**, Chang C. C., Huang N. C., & Wu, K. C. (2024). V"Mean"ba: Visual State Space Models only need 1 hidden dimension, In *Workshop on ML for Systems at Advances in Neural Information Processing Systems, Vancouver, British Columbia, Canada.*

[4] **Chiang, H. Y.**, & Marculescu, D. SCAN-Edge: Finding MobileNet-speed Hybrid Networks for Commodity Edge Devices. *In 5th Workshop on practical ML for limited/low resource settings at International Conference on Learning Representations, Vienna, Austria.*

[5] Yang, Y., **Chiang, H. Y.**, Li, G., Marculescu, D., & Marculescu, R. (2024). Cache and Reuse: Rethinking the Efficiency of On-device Transfer Learning. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (pp. 8040-8049), Seattle, Washington, USA.*

[6] Yang, Y., **Chiang, H. Y.**, Li, G., Marculescu, D., & Marculescu, R. (2024). Efficient low-rank backpropagation for vision transformer adaptation. *Advances in Neural Information Processing Systems, 36, New Orleans, Louisiana, USA.*

[7] **Chiang, H. Y.**, Frumkin, N., Liang, F., & Marculescu, D. (2023, June). MobileTL: on-device transfer learning with inverted residual blocks. In *Proceedings of the AAAI Conference on Artificial Intelligence (Vol. 37, No. 6, pp. 7166-7174), Washington, DC, USA.* **(Oral)**

[8] Liu, Y. C., Huang, Y. K., **Chiang, H. Y.**, Su, H. T., Liu, Z. Y., Chen, C. T., Tseng, C. Y., & Hsu, W. H. (2021). Learning from 2d: Contrastive pixel-to-point knowledge transfer for 3d pretraining. *arXiv preprint arXiv:2104.04687.*

[9] Liu, C. H., Han, Y. S., Sung, Y. Y., Lee, Y., **Chiang, H. Y.**, & Wu, K. C. (2021). FOX-NAS: fast, on-device and explainable neural architecture search. In *Proceedings of the IEEE/CVF International Conference on Computer Vision (pp. 789-797), Virtual.*

[10] **Chiang, H. Y.**, Lin, Y. L., Liu, Y. C., & Hsu, W. H. (2019, September). A unified point-based framework for 3d segmentation. In *2019 International Conference on 3D Vision (3DV) (pp. 155-163). IEEE, Québec City, Québec, Canada.*

[11] Lee, K. Y., Huang, H. F., **Chiang, H. Y.**, Lee, H. C., Hsu, W. H., & Chen, W. C. (2019). Metadata-Augmented Neural Networks for Cross-Location Solar Irradiation Prediction from Satellite Images. In *5th Workshop on Mining and Learning from Time Series at Conference on Knowledge Discovery and Data Mining, Anchorage, Alaska USA.*

[12] Lee, T., Lin, Y. L., **Chiang, H. Y.**, Chiu, M. W., Hsu, W., & Huang, P. (2018, September). Cross-domain image-based 3D shape retrieval by view sequence learning. In *2018 international conference on 3D vision (3DV) (pp. 258-266). IEEE, Verona, Italy.* **(Oral)**

[13] Lin, W. H., Chen, K. T., **Chiang, H. Y.**, & Hsu, W. (2018, April). Netizen-style commenting on fashion photos: Dataset and diversity measures. In *Companion Proceedings of the The Web Conference 2018 (pp. 395-402), Lyon, France.*

References

- **Diana Marculescu**, Professor and Chair, Department of Electrical and Computer Engineering at The University of Texas at Austin
- **Lizy Kurian John**, Professor, Department of Electrical and Computer Engineering at The University of Texas at Austin
- **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