HSUAN-KUNG **YANG**

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Education

National Tsing Hua University (NTHU)   *Hsinchu, Taiwan*
PH.D IN COMPUTER SCIENCE   *Feb. 2021 - Current*

National Tsing Hua University (NTHU)   *Hsinchu, Taiwan*
B.S. & M.S. IN COMPUTER SCIENCE   *Sep. 2014 - Feb. 2020*

Research Interests

- Semantic Segmentation
- Optical Flow Estimation
- Vision Robotics
- Deep Reinforcement Learning

Publication

- **H.-K Yang**, T.-C Hsiao, T.-H Liao, H.-S Liu, L.-Y Tsao, T.-W Wang, S.-Y Yang, Y.-W Chen, H.-R Liao, C.-Y Lee "Investigation of Factorized Optical Flows as Mid-Level Representations", in *International Conference on Intelligent Robots and Systems (IROS)*, Oct. 2022.

- Y.-W Chen, **H.-K Yang**, C.-C Chiu, C.-Y Lee, "S2F2: Single-Stage Flow Forecasting for Future Multiple Trajectories Prediction", in *European Conference on Computer Vision (ECCV))*, Oct. 2022.

- H. Kato, M. Nakazawa, **H.-K Yang**, M. Chen, B. Stenger, "Parsing Line Chart Images Using Linear Programming", in *Winter Conference on Applications of Computer Vision (WACV)*, Jan. 2022.

- **H.-K Yang***, P.-H Chiang*, Z.-W Hong, and C.-Y Lee, "Mixture of Step Returns in Bootstrapped DQN", in *Workshop on Reinforcement Learning Theory in ICML*, Jul. 2021.

- **H.-K Yang***, P.-H Chiang*, M.-F Hong, and C.-Y Lee, "Flow-based Intrinsic Curiosity Module", in *Proc. The 29th International Joint Conferences on Artificial Intelligence (IJCAI)*, Apr. 2020.

- **H.-K Yang***, T.-J Fu*, K.-W Ho, P.-H Chiang and C.-Y Lee, "Embedding Cluster for Accelerating Semantic Video Segmentation", in *Proc. The 37th International Conference on Computer Design (ICCD)*, Nov. 2019 (Oral).

- **H.-K Yang**, A.-C Cheng, K.-W Ho and C.-Y Lee, "Visual Relationship Prediction via Label Clustering and Incorporation of Depth Information", In *Proc. The 15th European Conference on Computer Vision (ECCV) Workshop*, Sep. 2018 (Oral).

- Z.-W Hong, **H.-K Yang***, Y.-M Chen*, S.-Y Su*, T.-Y Shann*, and C.-Y Lee, "Virtual-to-Real: Learning to Control in Visual Semantic Segmentation", In *Proc. The 27th International Joint Conference on Artificial Intelligence (IJCAI)*, Jul. 2018.

- Y.-S Xu, **H.-K Yang***, T.-J Fu*, and C.-Y Lee, "Dynamic Video Segmentation Network", In *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR)*, Jun. 2018.

Projects

Virtual-to-Real Autonomous Robotic Control
We trained the Deep Reinforcement Learning (DRL) agents in the synthetic environments created by Unity, and the trained agents can be transfer to the real-world without fine-tuning by using image segmentation as the meta states to bridge the reality gap.
* This project has won first place out of 114 teams in NVIDIA Jetson Challenge in GTC 2018.

Semantic Segmentation with Deep Learning

I implemented several semantic segmentation models based on TensorFlow, including ICNet, PSPNet, Deeplab, and FCN. These model are pre-trained on the *Cityscapes* and *ADE20k* dataset.

* These models are open-source on Github (gained about 800 stars).

Work Experience

Woven Planet Holdings | *Tokyo, Japan*
Research Scientist | *Nov. 2021 - Current*

Mercari, inc. | *Tokyo, Japan (Remote)*
Machine Learning Engineer Intern | *Sep. 2021 - Oct. 2021*

Elsa Laboratory, National Tsing Hua University | *HsinChu, Taiwan*
Research Assistant (Research and Development Substitute Services, Mandatory Military Service) | *Mar. 2020 - Feb. 2021*

I was responsible for the research toward Computer Vision and Reinforcement Learning. The research outcomes are summarized into academic papers which are accepted by international conferences.

Rakuten Institute of Technology | *Tokyo, Japan*
Computer Vision Research Intern | *Aug. 2019 - Nov. 2019*
- Responsible for graph digitization project.
- Developed a framework to analyze financial charts by applying Optical Character Recognition (OCR) and machine learning techniques.

Teaching Experience

National Tsing Hua University | *HsinChu, Taiwan*
Teaching Assistant | *Feb. 2018 - Jun. 2021*
- Fall 2018, Introduction to Parallel Computing (NTHU CS 411100)
- Fall 2021, Deep Reinforcement Learning (NTHU CS 565700)

NVIDIA Deep Learning Institute | *Taipei, Taiwan*
Teaching Assistant and Lecturer | *Jul. 2017 - Current*
- Tutorials of CUDA programming and Computer Vision.
- Lecturer of Jetson Edge Computing and Deep Learning Bootcamp.

Honors & Awards

2020	Student Paper Award Honorable Mention in Image Processing and Pattern Recognition Society	*Taiwan*
2019	Novatek Graduate Fellowship	*Hsinchu, Taiwan*
2018	1st People in Context (PIC) Challenge in ECCV2018 - 2nd place (2/4)	*Munich, Germany*
2018	**NVIDIA Jetson Developer Challenge Contest in GTC2018 - 1st place (1/114)**	*San Jose, US*
2018	Eletrical Engineering and Computer Science Contest - 1st place (1/10)	*NTHU, Taiwan*
2018	Novatek Graduate Fellowship	*Hsinchu, Taiwan*

Professional Skills

Programming	Python, C/C++
Parallel Computing	MPI, CUDA
Operating System	Windows, Linux
Deep Learning	TensorFlow, Pytorch, MXNet
Language	Chinese (native speaker), English (professional working proficiency), Japanese (elementary proficiency, JLPT N3)