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*

Publication

- **H.-K Yang**, T.-C Chiang, T.-R Liu, C.-W Huang, J.-M Liu, C.-Y Lee, "Visual Forecasting as a Mid-level Representation for Avoidance", in *IROS*, 2024

- T.-R Liu, **H.-K Yang**, J.-M Liu, C.-W Huang, T.-C Chiang, Q. Kong, N. Kobori, C.-Y Lee, "Reprojection Errors as Prompts for Efficient Scene Coordinate Regression", in *ECCV*, 2024

- T.-C Hsiao, H.-W Chen, **H.-K Yang**, C.-Y Lee, "Confronting Ambiguity in 6D Object Pose Estimation via Score-based Diffusion on SE(3)," in *CVPR*, 2024

- L. Yang, Q. Kong, **H.-K Yang**, W. Kehl, Y. Sato, N. Kobori, "Deco: Decomposition and Reconstruction for Compositional Temporal Grounding via Coarse-to-fine Contrastive Ranking," in *CVPR*, 2023

- H.-W Chen, T.-H Liao, **H.-K Yang**, C.-Y Lee, "Pixel-Wise Prediction based Visual Odometry via Uncertainty Estimation," in *WACV*, 2023

- C.-C Chiu, Hsuan-Kung Yang, Hao-Wei Chen, Yu-Wen Chen, Chun-Yi Lee, "ViTVO: Vision Transformer based Visual Odometry with Attention Supervision", in Proceedings of the International Conference on Machine Vision and Applications (MVA), 2023

- **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 *IROS*, 2022

- Y.-W Chen, **H.-K Yang**, C.-C Chiu, C.-Y Lee, "S2F2: Single-Stage Flow Forecasting for Future Multiple Trajectories Prediction," in *ECCV*, 2022

- H. Kato, M. Nakazawa, **H.-K Yang**, M. Chen, B. Stenger, "Parsing Line Chart Images Using Linear Programming," in *WACV*, 2022

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

- **H.-K Yang***, P.-H Chiang*, M.-F Hong, C.-Y Lee, "Flow-based Intrinsic Curiosity Module," in *IJCAI*, 2020

- **H.-K Yang***, T.-J Fu*, K.-W Ho, P.-H Chiang, C.-Y Lee, "Embedding Cluster for Accelerating Semantic Video Segmentation," in *ICCD*, 2019 (Oral)

- **H.-K Yang**, A.-C Cheng, K.-W Ho, C.-Y Lee, "Visual Relationship Prediction via Label Clustering and Incorporation of Depth Information," in *ECCVW*, 2018

- Z.-W Hong, **H.-K Yang***, Y.-M Chen*, S.-Y Su*, T.-Y Shann*, C.-Y Lee, "Virtual-to-Real: Learning to Control in Visual Semantic Segmentation," in *IJCAI*, 2018

- Y.-S Xu, **H.-K Yang***, T.-J Fu*, C.-Y Lee, "Dynamic Video Segmentation Network," in *CVPR*, 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 by Toyota, Inc.   *Tokyo, Japan*
RESEARCH SCIENTIST & TECHNICAL LEAD   *Nov. 2021 - Current*

Mercari US, 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)