Yu-Hsuan Yeh

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EDUCATION

Carnegie Mellon University (CMU)   **Pittsburgh, PA**
Master of Science in Computer Vision   *Aug. 2022 - Present*

National Yang Ming Chiao Tung University (NYCU)   **Hsinchu, Taiwan**
Master of Science, Artificial Intelligence Graduate Program   *Sep. 2019 - Aug. 2021*

National Chung Hsing University (NCHU)   **Taichung, Taiwan**
Bachelor of Science, Electrical Engineering   *Sep. 2013 - Jun. 2017*

RESEARCH INTERESTS & KEY SKILLS

Domain: Deep Learning, Computer Vision, Omnidirectional(360-degree) Image Application
Programming Languages: Python(Pytorch & Tensorflow), C/C++, MATLAB
Os & Tools: Linux(Ubuntu), Latex

PUBLICATIONS

○ **BiFuse++: Self-supervised and Efficient Bi-projection Fusion for 360 Depth Estimation** [paper][github]
Fu-En Wang, <u>Yu-Hsuan Yeh</u>, Yi-Hsuan Tsai, Wei-Chen Chiu, Min Sun
[TPAMI 2022]
- We propose a new fusion module and Contrast-Aware Photometric Loss to improve the performance of BiFuse and increase the stability of self-training on real-world videos.

○ **LED^2-Net: Monocular 360° Layout Estimation via Differentiable Depth Rendering** [paper][github][project]
<u>Yu-Hsuan Yeh</u>*, Fu-En Wang*, Min Sun, Wei-Chen Chiu, Yi-Hsuan Tsai
[CVPR 2021 Oral]
- We propose a differentiable layout-to-depth procedure to convert the 360° layout representation into the 360° horizon-depth map, thus enabling the training objective for our layout estimation network to take advantage of 3D geometric information.

○ **BiFuse: Monocular 360° Depth Estimation via Bi-projection Fusion** [paper][github][project]
<u>Yu-Hsuan Yeh</u>*, Fu-En Wang*, Min Sun, Wei-Chen Chiu, Yi-Hsuan Tsai
[CVPR 2020]
- We propose a two-branch neural network leveraging two common projections – equirectangular and cubemap projections – as inputs to predict the depth map of a monocular 360° image.

DATASET PAPER

○ **LayoutMP3D: Layout Annotation of Matterport3D** [paper][github]
<u>Yu-Hsuan Yeh</u>*, Fu-En Wang*, Min Sun, Wei-Chen Chiu, Yi-Hsuan Tsai
[Technical Report]
- We release the first real-world dataset containing paired depth and layout annotations.

RESEARCH EXPERIENCES

Enriched Vision Applications Lab, National Yang Ming Chiao Tung University   **Hsinchu, Taiwan**
Graduate Research, Advised by Prof. <u>Wei-Chen Chiu</u>,   *Sep. 2019 - Aug. 2021*
Prof. <u>Min Sun</u> and NEC Lab Researcher <u>Yi-Hsuan Tsai</u>
○ **360 Degree Indoor Room Layout Estimation**
Utilizing depth information to improve room layout prediction

Vision Science Lab, National Tsing Hua University   **Hsinchu, Taiwan**
Graduate Research, Advised by Prof. <u>Min Sun</u>,   *Oct. 2018 - Sep. 2019*
Prof. <u>Wei-Chen Chiu</u> and NEC Lab Researcher <u>Yi-Hsuan Tsai</u>
○ **360 Degree Depth Estimation**
Fusing depth information from two different projections

Mediacore Lab, National Cheng Kung University   **Tainan, Taiwan**
Graduate Research, Supervised by Prof. Jar-Ferr Yang   *Jul. 2017 - Oct. 2018*
○ **Unsupervised Monocular Depth Estimation Refinement**
Utilizing instance segmentation algorithm to capture objects for accurate depth estimation

National Chung Hsing University   **Taichung, Taiwan**

Undergraduate Research, Supervised by Prof. Jan-Ray Liao   *Sep. 2015 - Jun. 2016*

- **A Fast and Accurate Unconstrained Face Detector**
  Evaluating importance of parameters of face detection model

WORK EXPERIENCES

Adobe (On-Site)   **San Jose, CA, US**

Machine Learning Engineer Intern   *May. 2023 - Aug. 2023*

- Parameter Efficiency Fine-Tuning Research

Lumachain (Remote)   **Sydney, Australia**

Computer Vision Intern   *Feb. 2022 - Jun. 2022*

- Multi-Objects Tracking Project:
  Building a deep-learning tracking model to monitor workers' behavior

Wistron NeWeb Corporation (On-Site)   **Hsinchu, Taiwan**

Advance Technology Developement AI Lab - AI Summer Intern   *Jul. 2018 - Aug. 2018*

- Derain - Rain Removal Project:
  Building variational autoencoder and modifying style transfer models to remove rain

HONORS & AWARDS

- **Outstanding graduate student award**: around 8 people granted every year ($< 5\%$)   Jun. 2021
  - in College of Electrical and Computer Engineering
- **Outstanding thesis awards**: only 3 master thesis awards were given   Aug. 2021
  - Institute for Public Policy Research(IPPR)
  - Conference on Computer Vision, Graphics, and Image Processing(CVGIP)
- **NovaTek Scholarship**: around 14 people granted every year ($< 5\%$)   Aug. 2021
- **NovaTek Scholarship**: around 14 people granted every year ($< 5\%$)   Aug. 2020
- **MOST AI scholarship**: a travel subsidy for CVPR 2020   Jun. 2020

INVITED TALKS

- Jul. 2020: CVPR2020 paper sharing [BiFuse], MediaTek Inc and National Taiwan University
- Jul. 2020: CVPR2020 paper sharing [BiFuse], AILabs