Yu-Hsuan Yeh

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EDUCATION

Carnegie Mellon University (CMU)   **Pittsburgh, PA, US**
Master of Science in Computer Vision   *Aug. 2022 - Dec. 2023*

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.

- **LED²-Net: Monocular 360° Layout Estimation via Differentiable Depth Rendering** [paper][github]
  <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]
  <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

Illumination and Imaging Laboratory (ILIM), Carnegie Mellon University   **Pittsburgh, PA, US**
Graduate Research, Advised by Prof. <u>Srinivasa Narasimhan</u>   *Jan. 2024 - Apr. 2024*
- **GenAI research: Object Insertion on Road Scene**
  Using a diffusion inpainting model for scene editing

Enriched Vision Applications Lab, National Yang Ming Chiao Tung University   **Hsinchu, Taiwan**
Graduate Research, Advised by Prof. <u>Wei-Chen Chiu</u>,
Prof. <u>Min Sun</u> and NEC Lab Researcher <u>Yi-Hsuan Tsai</u>   *Sep. 2019 - Aug. 2021*
- **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>,
Prof. <u>Wei-Chen Chiu</u> and NEC Lab Researcher <u>Yi-Hsuan Tsai</u>   *Oct. 2018 - Sep. 2019*
- **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

WORK EXPERIENCES

Adobe (On-Site)   **San Jose, CA, US**
Applied Scientist   *Apr. 2024 - Present*
- GanAI Research Applied, Firefly, ASML
- Proposed an enhanced VQA-score metric with more image attribute-level analysis
- Designed and implemented a novel VQA-score alignment pipeline
- Improve the Distribution Matching Distillation efficient model for image inpainting task
- Building up the first Firefly eval hub system

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