Zunzhi You

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Education

The University of Sydney — Sydney, Australia
Ph.D. in Computer Science — *Mar. 2023 –*

Sun Yat-sen University — Guangzhou, China
B.E. in Software Engineering, School of Computer Science and Engineering — *Aug. 2017 – June 2021*
Overall Average: 90.25%, Ranking: 13/174, Outstanding Graduate

National Chiao Tung University — Hsinchu, Taiwan
Exchange Student in the Department of Computer Science — *Sep. 2019 – Jan. 2020*
Overall Average: 92.5%

Publications and Transcripts

Zunzhi You, Daochang Liu, Chang Xu. Beyond Pretrained Features: Noisy Image Modeling Provides Adversarial Defense. In submission to CVPR, 2023.

Zunzhi You, Yi-Hsuan Tsai, Wei-Chen Chiu, Guanbin Li. Towards Interpretable Deep Networks for Monocular Depth Estimation. ICCV, 2021. [Paper] [Code]

Chung-Sheng Lai, Zunzhi You, Ching-Chun Huang, Yi-Hsuan Tsai, Wei-Chen Chiu. Colorization of Depth Map via Disentanglement. ECCV, 2020. [Paper] [Code]

Ricong Huang, Haofeng Li, Zunzhi You, Weikai Chen, Yizhou Yu, Guanbin Li. SENSE: Self-Evolving learNing for SElf-Supervised Monocular Depth Estimation.

Research Highlights

Adversarial Defense from Noisy Image Modeling Pretraining — *Aug. 2022 – Nov. 2022*
Advisors: Prof. Chang Xu, Dr. Daochang Liu

- Proposed a self-supervised pretraining framework that brings adversarial robustness to downstream models
- Recognized that replacing masking in the mask image modeling framework by adding noise can learn strong noise-invariant features
- Exploit the reconstruction ability of the NIM model from noisy images to remove adversarial perturbations
- Showed that the proposed method improves the adversarial robustness with little sacrifice of the clean accuracy

Interpretability of DNNs for Monocular Depth Estimation — *Apr. 2020 – Mar. 2021*
Advisors: Prof. Wei-Chen Chiu, Dr. Yi-Hsuan Tsai, Prof. Guanbin Li

- Quantified and enhanced the interpretability of DNNs for monocular depth estimation
- Observed some neural units are selective to certain ranges of depth based on the qualitative and quantitative behavior of each unit
- Identified that selective units are more meaningful to the estimation performance by ablating units successively in different orders
- Proposed to assign a depth range for each unit to select to tackle issues caused by batch-wise optimization, resulting in more interpretable and accurate DNNs for monocular depth estimation
- Validated the proposed method's reliability and applicability, e.g. providing cues to explain models' mistakes

Depth Colorization and its Applications — *Sep. 2019 – Mar. 2020*
Advisors: Prof. Wei-Chen Chiu, Dr. Yi-Hsuan Tsai

- Verified the applicability of our proposed depth colorization model
- Defined a metric of consistency upon the prediction difference of RGB-based vision models to address the problem of unavailable ground truth
- Conducted experiments on two datasets with an object detection model YOLOv3, showing our method was able to maintain the vision model's performance in ill-lighted situations