CHENG-YOU LU

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EDUCATION

Brown University — Providence, Rhode Island, USA
M.S. in Computer Science — Aug 2021 — May 2023

National Chiao Tung University — Hsinchu, Taiwan
B.S. in Computer Science, GPA 3.91/4.0 — Sept 2015 — June 2019

Shanghai Jiao Tong University — Shanghai, China
Exchange Program in Computer Science and Technology Department — Sept 2017 — Jan 2018

PUBLICATION

- S. Y. Pan[1], **C. Y. Lu**[1], S. P. Lee, and W. H. Peng, "Weakly-Supervised Image Semantic Segmentation Using Graph Convolutional Networks", IEEE International Conference on Multimedia and Expo, July 2021.
- Y. C. Huang, Y. H. Chen, **C. Y. Lu**, H. P. Wang, W. H. Peng, and C. C. Huang, "Video Rescaling Networks with Joint Optimization Strategies for Downscaling and Upscaling," IEEE Conference on Computer Vision and Pattern Recognition, June 2021.

RESEARCH AND WORKING EXPERIENCE

University of Washington - National Chiao Tung University Artificial Intelligence Laboratory — Hsinchu, Taiwan
Wafer Defect Inspection — Sept 2020 – Dec 2020

- Attended wafer defect inspection project with Vanguard International Semiconductor Corporation; Adopted an unsupervised domain adaptation method to classify each wafer according to its defect; The accuracy of the model is 20% higher than the source-only model

NCTU Multimedia Architecture and Processing Laboratory — Hsinchu, Taiwan
Weakly Supervised Machine Learning — Jan 2021 – Mar 2021

- Introduced a feature propagation framework based on Graph Neural Network in IRNet; the model Weakly Supervised Semantic Segmentation with Graph Neural Network resulted in a mIoU of 69.3%
- Avoided DeepLabV2-ResNet101 loading pre-trained weight of COCO, which should not be used in weakly supervised semantic segmentation; modified its backbone so that people can load pre-trained weight of ImageNet from torchvision and fine-tuned it with our pseudo labels without freezing the batch normalization to obtain a mIoU of 68.8%

Video Rescaling Machine Learning

- Implemented joint optimization approaches based on invertible neural networks with coupling layers, which yielded better performance than IRN, and CAR; the model Video Rescaling Network with Joint Optimization Strategies for Downscaling and Upscaling resulted in a PSNR-Y of 33.79dB
- Designed a center loss to largely mitigate the quality fluctuation in the corresponding reconstructed high-resolution video

NCTU-Independent Study — Hsinchu, Taiwan
Weakly Supervised Hand Segmentation for Smart Store Applications — Feb 2018 – Jan 2019

- Created pseudo labels through bounding box and GrabCut; refined the pseudo labels with hand-crafted inner bounding boxes and self-training with DeepLab; processed final segmentations by denseCRF

SELECTED COURSE PROJECTS

Simple Does It: Weakly Supervised Instance and Semantic Segmentation — Feb 2018 – July 2018

- Reproduced SDI with Tensorflow; made a poster of SDI and presented it in the course workshop; the code is released on GitHub and has received 40 GitHub stars

AWARDS

- 2018 Ministry of Science and Technology's College Student Research Program
- 2016 Certificate of Appreciation for Vice Teaching Assistant from dean of computer science department

TEACHING EXPERIENCE

- 2016 Undergraduate Course Vice Teaching Assistant in Introduction to Computers and Programming

SKILLS

Programming Language — Python, C, MATLAB
Machine Learning Tools — Tensorflow, Pytorch, Scikit-Learn

[1]indicates equal contribution