Yi-Chun Chen

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OBJECTIVE

AI engineer with 2.5 years of working experience in developing computer vision products ranging from physical machines to digital services. Seeking an internship position working on computer vision applications and research problems.

EDUCATION

Carnegie Mellon University, School of Computer Science Pittsburgh, PA
Master of Science in Computer Vision (MSCV) **-** *Beginning in Feb. 2021* May 2022
National Tsing Hua University Hsinchu, Taiwan
Bachelor of Science in Power Mechanical Engineering June 2017

WORK EXPERIENCE

Inventec Corporation Taipei, Taiwan
AI Research Engineer Jan. 2019 – Sept. 2020

- Deployed an end-to-end machine learning system using LibTorch and C++ on Windows for a laptop inspection machine to inspect millions of laptops every year
- Designed an interpretable anomaly detection model that encodes feature sets from an object detector and combines them with an attention mechanism to classify surface quality of laptops and localize critical defects
- Invented a self-supervised autoencoder-enhanced RCNN framework for surface defect detection that reduces labeling efforts on 16 industrial products and brain MRI data by up to 100 times **[T1]**

Viscovery Taipei, Taiwan
Computer Vision Engineer Apr. 2018 – Dec. 2018

- Devised a hierarchical metric learning approach for image retrieval to support the recommendation system handling millions of products on the largest e-commerce website in Taiwan
- Developed a tree-structured knowledge system to support the proposed generalized image retrieval model on a million-scale real-world fashion dataset
- Built web crawlers in Python that collected over 6 million fashion images, enabling research and development of product recognition, product search and shopping experience optimization

RESEARCH EXPERIENCE

Robotics Institute, Carnegie Mellon University Pittsburgh, PA
Kris Kitani's Lab Aug. 2020 - Present

- Optimize image segmentation models with multi-center learning and hard pixel mining to detect cracks in concrete images
- Devise an evaluation metric called kernel-based average precision that overcomes the bias of standard segmentation metrics against thin segments

Dept. of Electrical Engineering, National Tsing Hua University Hsinchu, Taiwan
Research Assistant, Vision Science Lab Feb. 2017 – Mar. 2018

- Established a 2.5-D object detection model based on YOLO9000 and prototyped a wearable vibrotactile-feedback device for a real-time guidance system, making 83% visually impaired users confident in reaching objects **[P2]**
- Introduced normal-field-of-view grounding task and novel Visual Grounding Model to navigate 360° videos from video subtitles in both indoor and outdoor scenes **[P3]**
- Proposed Show-and-Tell model to select and caption salient views in 360° images by extending concept of Cycle-GAN to translate between vision and language domain **[P4]**

TALK AND PUBLICATIONS

[T1] Trista Chen and **Yi-Chun Chen**. "Toward Taming the Training Data Complexity in Smart Manufacturing". In NVIDIA's. GPU Technology Conference (GTC), 2020. [Talk link]

[P1] D. S. Tan, **Yi-Chun Chen**, T. P.-C. Chen, W.-C. Chen. "TrustMAE: A Noise-Resilient Defect Classification Framework using Memory-Augmented Auto-Encoders with Trust Regions". In *WACV*, 2021. [Paper link]

[P2] M.-L. Shih, **Yi-Chun Chen**, C.-Y. Tung, C. Sun, C.-J. Cheng, L. Chan, S. Varadarajan, M. Sun. "DLWV2: a Deep Learning-based Wearable Vision-system with Vibrotactile-feedback for Visually Impaired People to Reach Objects". In *IROS*, 2018. [Paper link]

[P3] S.-H. Chou, **Yi-Chun Chen**, K.-H. Zeng, H.-N. Hu, J.-l. Fu, M. Sun. "Self-view Grounding Given a Narrated 360° Video". In *AAAI*, 2018. [Project page]

[P4] S.-H. Chou, **Yi-Chun Chen**, C. Sun, K.-H. Zeng, C.-J. Cheng, J. Fu, M. Sun. "Towards 360° Show-and-Tell", In *ECCV Workshops*, 2018. [Poster]

SKILLS

Programming Languages: Python, C/C++
Tools: PyTorch, LibTorch, Tensorflow, Docker, Git, OpenCV, Scikit-Learn
Computing Environments: Linux, Windows, Raspberry Pi