Yi-Chun Chen

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PROFESSIONAL EXPERIENCE

Inventec Corporation   Taipei, Taiwan
AI Research Engineer, supervised by Dr. Wei-Chao Chen and Dr. Trista Chen   Jan. 2019 - Present
- Created a novel framework *AE-RCNN*, a semi-supervised autoencoder-enhanced RCNN, to reduce the need of labeled training data for surface defect detection, surpassing Faster R-CNN by up to 12.89% mAP **[P1]**
- Originated a combination of a dendrogram and a confusion matrix to remove 15 redundant classes from 20 defect types, reducing annotation noise for training a defect detection model
- Built an explainable hybrid model composed of Faster-RCNN and SVM to achieve 93% classification accuracy in laptop quality assessment

Viscovery   Taipei, Taiwan
Computer Vision Engineer   Apr. 2018 – Dec. 2018
- Developed a hierarchical metric learning approach for image retrieval to support the visual search on the largest e-commerce website in Taiwan; project was company's highest priority and won the major client
- Structured a million-scale real-world fashion dataset in company by creating crawlers in Python and designing knowledge system with a tree-structure to validate the proposed algorithm
- Designed a multitask analysis website to fast validate results through enhanced visualization of critical data, shortening more than 70% projects' development life cycle

Dept. of Electrical Engineering, National Tsing Hua University   Hsinchu, Taiwan
Vision Science Laboratory Research Assistant, supervised by Prof. Min Sun   Feb. 2017 – Mar. 2018
- Authored a published paper, DLWV2, on developing a 2.5-D object detection model based on YOLO9000 and prototyping a wearable vibrotactile-feedback device for a real-time guidance system that makes 83% visually impaired users confident in reaching objects **[P2]**
- Originated an automatic ground-truth labeling technique in DLWV2 to scale-up 2-D box annotation, reducing the human effort by 98% while building deep learning-based system **[P2]**
- Introduced normal-field-of-view grounding task and novel *Visual Grounding Model* to 360° videos to provide visual guidance in both indoor and outdoor scenes **[P3]**
- Invented 360° image data augmentation technique to improve average precision of normal field of view prediction for 8.6% and average recall for 4.5% **[P3]**

PUBLICATIONS

Conference Papers
[P1] AE-RCNN: An Auto-Encoder Enhanced RCNN for Surface Defect Detection, under review of Conference on Computer Vision and Pattern Recognition (CVPR), 2020
[P2] DLWV2: a Deep Learning-based Wearable Vision-system with Vibrotactile-feedback for Visually Impaired People to Reach Objects, International Conference on Intelligent Robots and Systems (IROS), 2018
[P3] Self-view Grounding Given a Narrated 360° Video, AAAI Conference on Artificial Intelligence (AAAI), 2018

Workshop Paper
[P4] Towards 360° Show-and-Tell, European Conference on Computer Vision (ECCV) 360° Perception and Interaction Workshop, 2018

EDUCATION

National Tsing Hua University   Hsinchu, Taiwan
Bachelor of Science in Power Mechanical Engineering   Sept. 2013 – June 2017

SKILLS

Programming: Python, C/C++   **OS**: Linux   **Libraries:** Pytorch, Tensorflow, OpenCV