HAU CHU

github.com/B10532021 hchoward1998@gmail.com +886-932-297-232
38F-5, No. 366, Wenhua Rd. Sec. 1, Banqiao Dist., New Taipei City 220, Taiwan (R.O.C)

EDUCATION

National Taiwan University of Science and Technology (NTUST) *Sep 2016 - Jan 2020*
B.S. in Computer Science and Information Engineering
GPA: 3.76 / 4.30 (Overall), 3.92 / 4.30 (Last 2 years), 3.83 / 4.30 (Major)

PUBLICATIONS

Hau Chu, Jia-Hong Lee, Yao-Chih Lee, Ching-Hsien Hsu, Jia-Da Li, Chu-Song Chen, "Part-aware Measurement for Robust Multi-View Multi-Human 3D Pose Estimation and Tracking," 2021 CVPR Workshop

RESEARCH EXPERIENCE

National Taiwan University (NTU) **Taipei, Taiwan**
Research Assistant, Research Center for AI Technology and All Vista Healthcare *Jan 2021 - Aug 2021*

Automated Segmentation of Nasopharyngeal Tumor and Lymph Nodes on CT and MRI

- Undertook a project collaborated with Koo Foundation Sun Yat-Sen Cancer Center and developed a CNN-based algorithm for tumor target segmentation.
- Investigated a novel neural architecture that uses Transformer as U-Net encoder to solve the CNN's limitations in explicitly modeling long-range dependency.
- The ultimate model reached 81% accuracy on the 3D Dice Similarity Coefficient Metric and is the process of integrated into clinical medical equipment.

Ultrasonographic Identification of the Cricothyroid Membrane

- Partnered with National Taiwan University Hospital.
- Developed an algorithm on the basis of YOLOv5 with 500 patients' cricothyroid membrane data to perform real-time instance detection, which achieves 89% accuracy with 25 fps.

Academia Sinica **Taipei, Taiwan**
Research Assistant, AI Application and Integration Lab *Aug 2020 - Dec 2020*

Industrial Human Security Surveillance System

- In charge of an industry-academia project with NADI SYSTEM, a start-up committed to the smart city solutions and visualization management system.
- Developed a framework for multi-view multi-human 3D pose estimation and tracking utilizing key-point detection model and geometric computer vision in Python.
- The resulting method achieved 96.8% performance on public benchmarks.

Product Image Retrieval for E-Commerce

- Partnered with Ucfunnel, an AI company devoted to programmatic marketing automation.
- Built a fine-grained items retrieval prototype aimed at retrieving similar product images based on user's preference.
- Investigated into Knowledge Distillation and Backward Compatible Training for fine-grained image retrieval in incremental setting.

National Taiwan University of Science and Technology **Taipei, Taiwan**
Undergraduate Researcher, Graphics Animation Multimedia Edutainment Lab *Aug 2018 – Jan 2020*

Live 3D Scene Reconstruction on Smart Phone

- Partnered with the Taipei City Police Department.
- Designed a C# -based app using augmented reality and Truncated Sign Distance Function to instantly regenerate 3D street scenes from a set of consecutive images using a smartphone.

Mahjong AI Character Chatbot

- Built a mahjong chatbot in C++, incorporating AIML technology to define continuing playing circumstances and applying Longest Common Subsequence to pick out conversations suitable for production.
- Carried out in conjunction with the Ministry of Science and Technology.

SELECTIVE PROJECTS

3D Semantic Reconstruction Using Single RGB Image *Dec 2019 – Jan 2020*

- Designed single-view 3D semantic reconstruction approach by integrating the techniques of semantic segmentation and depth estimation, written in Python.

Road Map Based on Adaptive IPM and Planar Homography *Aug 2019 – Oct 2019*

- Implemented an adaptive model for the IPM to accurately transform perspective road images to bird's-eye view images by using inertial measurement unit (IMU) motion information.
- Stitched bird's-eye view images into a road map with Planar Homography.

OpenCV ID Number Identification with KNN *Jul 2020*

- Built an OCR application using OpenCV to identify the ID number on Taiwan's National Identification Card; by training a KNN model with EMNIST dataset, the accuracy reached 83%.

TEACHING EXPERIENCE

3D Computer Vision and Deep Learning Applications Course **NTU**
Teaching Assistant, graduate-level class of 50+ students *Mar 2021 – Jun 2021*

- Gave lectures on the applications of deep learning in 3D computer vision.
- Prepared tutorials, course materials, and assignments for the classes, e.g. deep local feature, optical flow, visual odometry, human pose.

Computer Science and Information Technology Course **NTU**
Teaching Assistant, undergraduate-level class of 100+ students *Nov 2020*

- Gave sophomores two lectures on the process of Simultaneously Localization and Mapping (SLAM) and an intro to the development of traditional computer vision in deep learning.

LEADERSHIP

EECS Department Student Association **NTUST**
Vice President *Sep 2017 – Jun 2018*

- Led a team of 10+ members.
- Organized Freshmen Welcome Party, an activity with approximately 200 students participated.
- Hosted Christmas Party, a seven-schools eleven-departments collaboration campaign with over 900 people.
- Strove for the rights and interests of department classmates; such as when students were only allowed to choose courses within the department that had the same course name as in other departments, so we sought the right for interdepartmental course selection.

SKILLS AND INTERESTS

Programming Languages	C/C++, C# , Python, OpenCV, PyTorch
Operating System	Windows, Linux (Ubuntu)
Software	Unity, MS Office