

Cheng-hsin Emily WUU

Computer Vision • Computer Graphic • Deep Learning

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Education

Carnegie Mellon University – Robotics Institute

Master of Science in Computer Vision | GPA:4.11/4.33

📍 *Pittsburgh, PA*

Aug. 2020 - Dec. 2021

Hong Kong University of Science and Technology (HKUST)

📍 *Hong Kong, China*

Bachelor of Engineering in Computer Science | GPA:3.82/4.30

Sep. 2015 - May 2020

Bachelor of Business Administration in Business Management | GPA:3.82/4.30

• Minor: Social Science & Big Data Technology

Industrial Experience

Zoox

📍 *Foster City, CA*

Incoming Perception Software Engineering Intern

May 2021 - Aug. 2021

Facebook Reality Lab

📍 *Pittsburgh, PA*

Research Collaborator

Jan. 2021 - Dec. 2021

• Investigated neural rendering models' interpolating capacity of viewpoint and expression on real-time face reconstruction

Tencent Youtu Lab

📍 *Shenzhen, China*

Software Engineering Intern

Jan. 2019 - Feb. 2019

• Documented data collection rules for preserving data-balanced human detection dataset for localization algorithm training

• Deployed YOLO3-based neural network model using PyTorch for human attribute localization on mobile devices

Da-Jiang Innovations (DJI)

📍 *Shenzhen, China*

Software Engineering & Algorithm Intern

May 2018 - Sep. 2018

• Established a hierarchical and extendable robotics vehicles dataset (20k+ images) for training car detection system

• Developed an AR live-stream car detection system with C & C++ for judging system in DJI's 2019 RoboMaster Competition; applied neural network with YOLO3 as backbone and model compression via mobileNet, network pruning and model quantization, achieving in 3x faster and 15x smaller compared to original working model

Project Experience

HAA500: Human-Centric Atomic Action Dataset with Curated Videos [[Paper](#)/ [Dataset](#)]

📍 *HKUST, China*

Undergraduate Researcher (PROF. Chi-Kenug Tang)

Apr. 2019 - Nov. 2019

• Built a human-centric atomic action dataset including 500 fine-grained and hierarchical classes with JavaScript to mitigate issues of coarse class, noisy content and human occlusion for improving performance of action recognition in videos

Anchor-free Object Detection

📍 *Princeton Vision & Learning Lab, NJ*

Research Intern (PROF. Jia Deng)

Jun. 2019 - Aug. 2019

• Established training and evaluation pipeline of CornerNet on Open Images dataset with PyTorch from scratch and applied data rebalancing and multi-stages zoom-in to handle data imbalance, crowded scenes, and non-exhaustive data labeling

• Achieved **best anchor-free detectors** (mAP: 58.1%) in **2019 Open Images Challenge-Object Detection (ICCV)**

Automobiles and Electric Vehicle [[Press](#)]

📍 *Harvard University (SEAS), MI*

Research Intern (PROF. Evelyn Hu)

Jun. 2017 - Aug. 2017

• Designed a simple electric circuit system and a car avoidance function using C++ for personal electric vehicles

Underwater Remote Operating Vehicles [[Press](#)/ [Video](#)]

📍 *HKUST Robotics Team, China*

Software Developer

Sep. 2015 - Jan. 2017

• Implemented communication program via ROS and dashboard via QT creator with C++ for remote control for robots

Awards

Creative Micro Fund Grant (HKD 10w), Cyberport University Partnership Programme

Cyberport, Hong Kong 2021

Bronze, Hong Kong ICT Awards 2020: Student Innovation Award

OGCIO, Hong Kong 2020

Gold, FinTech Awards 2019

ET Net 2019

4th Place, International MATE ROV Competition

NASA Robotics 2016

Champion, IET/MATE Hong Kong Underwater Robot Challenge

IET Hong Kong 2016

Skills

Programming Languages/ Frameworks: C++, C, Python, JavaScript, PyTorch, PyTorch3D, Tensorflow, Darknet

Library/OS/Tools: OpenCV, OpenGL, ROS, Linux, LATEX, Git, Jupyter Notebook