

# 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 100k)**, 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