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Education Experience

- **The University of Hong Kong (HKU)** *M.S. in Data Science*   China, Hong Kong S.A.R.   2019 – 2021
  - ML, Cloud Computing, Advaned DB, Time Series, Statistical Modelling/Inference, Optimization.

- **Zhejiang University (ZJU)** *B.S. in Math of Computation*   China, Hangzhou   2014 – 2018
  - Computational Photography, Computer Graphics, Computer Org., Convex Optimization, Multivariate Statistical Analysis, Scientific Computing and Numerical Analysis, OOP.

- **ZJU Chu Kochen Honors College** *Minor in Entrepreneurship Management(ITP)*   2016 – 2018

Research Exprience

- **Learn 3D motion and depth of dynamic objects from monocular videos**   2020.02 – 2021.02

  - Master thesis, advised by **Prof. Xiaojuan Qi**, submitted **"Self-supervised Learning of Decomposed Object-aware 3D Motion and Depth from Monocular Videos"** to IROS 2021 as the co-first author. [PDF]
  - This project aims to establish a framework for learning 3D motion of dynamic objects and scene depth in a self-supervised manner. The self-supervision signal of previous works come from camera pose and scene depth of consecutive frames without considering the influence of those dynamic objects. It composes the incapability of global optimization. Hence, we propose a **multi-stage decomposition model to predict rigid and non-rigid motion** to adjust the foreground optical flow (ego and object-wise motion) and depth prediction.
  - Our algorithms boost the baseline (GeoNet, Monodepth2) optical flow performance in foreground dynamic areas by 22.8% in the field of self-supervised monocular manner.

Professional Experience

- **Apple (Beijing) - Video Engineering**   *Computer Vision Algorithms Intern*   2021.05.10 – 2021.09.30

  - Research, development and optimization of Video Instance Segmentation(VIS/MOTS) algorithms.

- **ByteDance (Beijing) - Visual Computing Group**   *Algorithms Intern*   2021.01.11 – 2021.04.30

  - Collaborated with Dr. Qi She and Ads Core team, responsible for Conversion Rate (CVR) model in online advertisement recommendation scenarios. We propose an Online Orthogonal Gradient Descent (O2GD) optimizer to address the periodic degeneration problems in Ad. System.
  - Proposed and implemented FTRML, MADGrad, FTML, AdaMom optimizer solutions in the large scale distributed parameter server for ML training to promote advertisement AUC metric with 0.1% improvment.

- **XYZ Robotics (Shanghai)**   *Vision Algorithms Core Intern*   2019.01 – 2019.08

  - Awarded with **Outstanding Intern of the Year**, worked with Dr. Jiaji Zhou and Dr. Peter Yu. Led by MIT-Princeton winner team of Amazon Robotics Challenge for logistic automation solution driven by visual perception. [**Details Link**].
  - Responsible for enhancing **piece picking** project by incorporating segmentation RGB-DDD network for densely-packed homogenous cases in clutter. Tested successfully with more than 30 kinds of cases provided by L'Oréal and Tmall.
  - Responsible for implementation of **robotic depalletizing** project by tuning Mask R-CNN in the industrial field. It integrates RGB-D sensors to locate a wide variety of boxes and interleaving motion and vision to maximize pick rates. Also rendered synthetic dataset by Blender; Calibrated RealSense RGB-D and ZED stereo cameras.

Selected Projects

- **Real-time Face, Age and Sentimental Emotion Detection Android App**   *HKU Course* 2020.04 - 06

  - Incorporated OpenCV face RoI (LBP) and TensorFlow-lite model as sentimental emotion detector to support emotion classification; Supported age and gender Caffe prediction model by Android OpenCV SDK in 30 FPS through camera capturing and integration. [Code Link]

Misc.

- **USA, MCM/ICM**   *Honorable Mention*   2017.03