YANG Cheng

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Education

- **Huazhong University of Science and Technology** — Wuhan, China
  Master of Engineering - Electronic Information and Communication Engineering — *September 2018 - June 2021*
- **Hunan Agricultural University** — Changsha, China
  Bachelor of Engineering - Electronics and Communication Engineering — *September 2014 - June 2018*

Paper

- **A novel Pose-based Copy and Paste method (PCP) for ReID in complex scenarios**: *under review*
- **Hyperspectral Image Classification Based on Gramian Angular Fields Encoding**: *Accepted by CCECE2022*

Experiences

- **Model optimization** — Shenzhen state-owned enterprise Co.,Ltd
  Computer Vision Engineer — *July 2021 - Now*
  - **MediaFlow - Traffic Analysis Application**: Based on the python concurrency, detection(YoLov5) and tracking(ByteTrack) model. As one of the main contributors, in the case of inputting a 200w pixel video, I easily demonstrated the whole scheme in real-time on CPU(i7-10870H).
  - **Model compression**: I implemented a 35% reduction in FLOPs and parameters in typical model without negatively impacting mAP, e.g. YoLov5.
  - **Various classification tasks**: Based on my PyCR pipeline and yolov5, I solved many classification(Road slogan, Vegetation destruction, vehicle) and detection(traffic, fire, fumes, dust) tasks quickly and efficiently.
- **Optimize classification models** — Beijing YITU Co.,Ltd
  Computer Vision Intern — *Nov 2020 - May 2021*
  - **Optimize models**: Optimize several classification models, for example, cyclist and pedestrian model, ReID model, etc.
  - **Find a data augmentation strategy**: Copy and Paste method based on Pose for Re-identification.
- **The Commodity Automatic Checkout Counter** — Beijing Baidu Co.,Ltd
  Computer Vision Intern — *April 2020 - July 2021*
  - **Optimize detection model**: Under the condition of ensuring the detection accuracy(98%), the yolov3 is used to replace the CascadeRCNN, and then saved calculation cost(fps from 15 to 90 in V100).
  - **Refactoring the image retrieval framework**: Optimize the loss constraint from CE loss to CE + Triplet loss, and improve the retrieval accuracy(from 98% to 99%).
- **Cross-platform Tencent Cloud image and speech processing interface tool** — Shenzhen Tencent Co.,Ltd
  Software Development(backend) Intern — *June 2019 - October 2019*
  - **Develop the cross-plateform tool**: In order to better provide users with related image and speech processing services, I developed this set of interface processes based on Golang, which can be used on multiple operating systems such as windows, linux, and mac.
- **Aegis-The Blue Army Attack Platform** — Shenzhen Tencent Co.,Ltd
  Software Development(backend) Intern — *June 2019 - October 2019*
  - **Develop the management system**: In order to better implement the reliability of DDos attacks, I completed this system well, it includes web, server etc.
- **The LIFX Bulb** — Shenzhen Doit Co.,Ltd
  Embedded Development Intern — *June 2018 - October 2018*
  - **Develop the LIFX Blub products**: To completed this product, I completed entire hardware program control system by the ESP8266 and lifx protocal. For example, web's portal configuration, driving multiple bulbs, OTA, etc.

Projects

- **PyCR (Pytorch for Classification and Retrieval)**: I created the pipeline called PyCR, which can complete the end-to-end processing of image classification and retrieval task.
- **Design and Implementation of a low-complexity wearable system for football sports monitoring**: Its goal is to create a low-complexity, low cost and high-efficientcy(QPS) product which serves group sports monitoring. It's mainly to monitor some pyhsical information of athletes, such as speed, heart rate, real-time position, number of jumps and height, etc.

Competitions

- **Huawei Global Campus AI Competition 2020 (Top16)**: This is an image retrieval task about electronic products, and we need to find 10 electronic products that are most similar to each query dataset from gallery dataset.
- **Kaggle The Wheat detection (Top 2%)**: This is an object detection task about Wheat Detection, and we need to mark all the wheat heads in echo images.

Skills

- **Computer Languages**: C / Python / Golang
- **Electronic Engineering**: Embedded System(STM/TI/ESP) / Altium Designer / Cadence
- **Computer Vision**: Image Processing / Model Compression

Honors and Awards

- The First Prize Scholarship, Huazhong University of Science and Technology - Nov. 2018/2019
- The National Scholarship, Hunan Agricultural University - Nov. 2017
- The National Third Prize, the MCU Development of the Blue Bridge Cup - May. 2016
- The First Prize Scholarship, Hunan Agricultural University - Nov. 2016/2015
- The Head of the Student Union Work-Study Department and Outstanding Student Leader - Dec. 2015