

教育经历

- **北京大学** 北京, 中国
硕士 信息工程学院 计算机应用技术 Aug. 2017 – Present
- **北京航空航天大学** 北京, 中国
本科 软件学院 软件工程 Aug. 2013 – July. 2017

曾获奖励

- 学习优秀奖、光华奖学金、三好学生、国家励志奖学金等 2014 ~ 2017
- 北京航空航天大学 2017 届优秀毕业生 2017.06
- 谷歌 AI 机器学习应用冬令营最佳项目奖 2019.01

实习经历

- **Google Brain • TensorFlow 自动化模型压缩** 北京, 中国
机器学习软件工程实习生 导师: 王铁震 wangtz@google.com May 2019 - Present
 - **通道剪枝** 我在 Google 的工作主要是在 TensorFlow 2.0 框架下复现 “AMC: AutoML for Model Compression and Acceleration on Mobile Devices” 的论文, 并且在 MobileNetV1 上做剪枝压缩。首先, 使用 DDPG 来获得每个层的压缩率。其次, 根据压缩率按权值大小剪去每个卷积层的通道, 并对权重进行回归以得到较小的模型。最后, 对剪枝后的模型进行微调。
- **Google AI/ML 机器学习冬令营 I Love Fashion** 北京, 中国
<https://github.com/BurnMyTPU/Google-AI-Winter-Camp> 张潮鹏, 李夏, 胡杨 Jan. 2019
 - **数据分析** 对谷歌给的服装数据集进行量化分析, 得出数据集中的不平衡情况以及非服装的 badcase.
 - **Pipeline** 给李夏提供在给出的数据集上做评价的方法以及帮助李夏训练 ResNet50, 并且因为在优图做过人脸检索系统, 所以给我们的服装检索系统提供了 pipeline.
 - **服装检测** 一开始使用 FaceBook 提供的 Mask-RCNN 来对给出的服装数据集做检测分割, 看是否能完好分割。但是效果不理想。所以改用了 MMLab 提供的数据集重新制作成 VOC 格式, 并且重新训练了 YOLOV3 来做服装检测。
 - **服务器后端** 为服装检索设计并且用 Django 实现了后端检索逻辑, 给前端提供 API 方便其调用与交互。最后赢得了最佳项目奖。
- **腾讯 优图实验室 人脸识别** 深圳, 中国
视觉研究实习生 导师: 曹琼 qiong@robots.ox.ac.uk Mar 2018 - April 2019
 - **颜值打分** 分析, 处理, 平衡数据, 然后通过 Caffe 训练一个基于 Resnet50 的颜值分类器, 实现对输入一张人脸, 系统给出该人脸的颜值分数。将测试网络结果的输出做了一些修改, 原来是挑选出预测概率最大的作为 predict 分数, 修改为把预测概率与颜值分数 (60-99) 做一个加权平均, 最终 MAE 为 2.3。
 - **线上标注工具** 利用一个周末, 使用 Django 作为 web 后台, MySQL 为数据库, 从零开发一套线上标注系统。
 - **明星人脸识别** 负责写爬虫数据, 利用 MTCNN 检测人脸, 利用 Caffe 和 Pytorch 训练模型 (1W+id, 120W+images), 尝试不同的 Loss Function 在识别中的效果。封装 C++ SDK 供微信看一看, QQ 看点, 腾讯云等调用。提出二步检索用以解决黑白照片识别问题以及用并查集算法解决了 id 重复的问题。使用 Pytorch 复现了 ArcFace。精度从一开始 83% 上升到 98%
 - **视频人脸识别** 复现 “Neural Aggregation Network for Video Face Recognition” 并且改进 Activation 获得更好效果。

论文

- **Non-local Recurrent Neural Memory for Supervised Sequence Modeling** ICCV'2019 Oral(4.3%)
Canmiao Fu, Qiong Cao, Wenjie Pei, Chaopeng Zhang, Xiaoyong Shen, Yong Zhao, Yu-Wing Tai

专业技能

- **语言:** PYTHON > C++ > C > JAVA > HTML+CSS > MATLAB > JSP > JavaScript
- **技能:** Git,Pytorch,Tensorflow,Caffe,Keras,OSG,Qt

EDUCATION

- **Peking University** Beijing, China
Master of Science in Computer Science; Aug. 2017 – Present
- **Beihang University** Beijing, China
Bachelor of Software Engineering; Aug. 2013 – July. 2017

HONORS

- **Study Excellence Award, Guanghua Scholarship, Merit Student Award, Inspirational Scholarship of Beihang University, etc** 2014 ~ 2017
- **Outstanding graduates of Beihang University** 2017.06
- **Best Project Team Award of Google AI ML Winter Camp** 2019.01

EXPERIENCE

- **Google Brain • TensorFlow AutoML for Model Compression** Beijing, China
Software Engineering Intern in Machine Learning Host: wangtz@google.com May 2019 - Present
 - **Channel Pruning** My work in Google is mainly reproducing the paper called “AMC: AutoML for Model Compression and Acceleration on Mobile Devices” in TensorFlow 2.0 framework and prune channels of MobileNetV1. Firstly, use DDPG to get each layer’s compression ratio. Secondly prune the channels of each convolution layers by weights magnitude according to the ratios and do regression to get a smaller model. Lastly, finetune on the reduced model.
- **Google AI/ML Winter Camp 2019 I Love Fashion** Beijing, China
<https://github.com/BurnMyTPU/Google-AI-Winter-Camp> Chaopeng Zhang, Xia Li, Yang Hu Jan. 2019
 - **Data Insight** Analyze the dataset given by Google and find some bad case of the dataset.
 - **Pipeline** Help XiaLi to train the resnet on Fashion dataset from providing the eval idea and the propose the whole pipeline for our system because I have some experiences on face search at Tencent Youtu XLab.
 - **Detection** Run Mask-rcnn on fashion validation to see whether it can detect and mask the fashion well. Make the Fashion Detection Dataset provided by MMLab to VOC Format and Train YOLOV3 for the fashion Detection.
 - **Back End** Build and develop the back end for our fashion search system demo and interact with front end, help YangHu to deploy her front end on GCP machine. Finally we won the **Best Project Award**.
- **Tencent Youtu X-Lab Face Recognition** Shenzhen, China
Research Intern Leader: Qiong Cao, ex member of VGG group, qiong@robots.ox.ac.uk May 2018 - April 2019
 - **Beauty Estimation** Preprocess the data, and then train a model base on Resnet50 using Caffe to give a beauty score of a face. The output of the test network results was modified from maximum probability score to a weighted average score, the final MAE was 2.3.
 - **Online annotation tool** Develop an annotation tool using Django as the web backend and MySQL as the database at a weekend.
 - **Celeb Face Recognition** Responsible for writing crawler to crawl images, using MTCNN to detect faces, and using Caffe and Pytorch training sphereface models (1W+id, 120W+images) , and I try different Loss Function effects in recognition. Develop an c++ SDK for WeChat , QQ Kandian, Tencent cloud and so on. A two-step search is proposed by me to solve the problem of black and white photo of same person recognition. Reproduce arcface in pytorch. And use union-and-find to search duplicate ids. Accuracy increased from 83% at the beginning to 98%.
 - **Video Face Recognition** Reproduce the paper called “Neural Aggregation Network for Video Face Recognition” in Pytorch Framework and change the activation from softmax to sigmoid for better performance.

PUBLICATIONS

- **Non-local Recurrent Neural Memory for Supervised Sequence Modeling** ICCV’2019 Oral(4.3%)
Canmiao Fu, Qiong Cao, Wenjie Pei, Chaopeng Zhang, Xiaoyong Shen, Yong Zhao, Yu-Wing Tai

PROFESSIONAL SKILL

- **Coding Language:** *PYTHON > C++ > C > JAVA > HTML + CSS > JavaScript*
- **Software and Framework:** Git, Pytorch, Tensorflow2, Caffe, Keras, OSG, Qt