

EDUCATION

- **Tsinghua University** Beijing, China
M.Eng in Department of Microelectronics and Nanoelectronics *Sept. 2016 – Jun. 2019*
- **Huazhong University of Science and Technology(HUST)** Wuhan, China
B.Eng of Electronic Science and Technology ; GPA: 3.91/4.00 *Sept. 2012 – Jun. 2016*

RESEARCH INTERESTS

- Machine Learning, Computer Vision and their Application (2D & 3D Recognition and Detection)
- Automatic Deep Learning (AutoML, Neural Architecture Search)

PUBLICATION

- **Feng Liang**, Chen Lin, Ronghao Guo, Ming Sun, Wei Wu, Junjie Yan, Wanli Ouyang, “Computation Reallocation for Object Detection,” **accepted in ICLR2020. OpenReview. arxiv.**
- Mingzhu Shen*, **Feng Liang***, Chen Lin, Ming Sun, Junjie Yan, Wanli Ouyang, “Once Quantized for All: Progressively Searching for Quantized Compact Architectures,” **submitted to some venue.**
- Rundong Li, Yan Wang, **Feng Liang**, Hongwei Qin, Junjie Yan, Rui Fan, “Fully Quantized Network for Object Detection,” **accepted in CVPR2019. Paper.**

*indicates equal contributions.

RESEARCH EXPERIENCE

- **Efficient/Effective Neural Architecture Search** Beijing, China
SenseTime & USYD AutoML Group. Advised by Prof. Wanli Ouyang *Feb. 2019 - Present*
 - CRNAS: Efficient NAS on detector backbone. Propose computation reallocation NAS(CRNAS) to reallocate engaged computation resources in different resolution and spatial position. Develop a two-level reallocation space and hierarchical search paradigm to cope with the complex search space. Our CRNAS offers significant improvements for various types of networks, from MobileNetV2 to ResNeXt101.
 - OQA: Combine quantization with NAS. Present Once Quantized for All (OQA), a novel framework that searches for compact QNNs and deploys their quantized weights at the same time without additional post-process. While supporting a huge architecture search space, our OQA can produce a series of ultra-low bit-width(e.g. 4/3/2 bit) mobile neural networks in a single run.
- **Low-Bit Quantization in Object Detection** Beijing, China
SenseTime Research. Advised by Dr. Hongwei Qin and Dr. Junjie Yan *Jun. 2018 - Feb. 2019*
 - Explore the training schemes of fully quantized object detector when condensed to aggressively low bitwidth regimes such as 4-bit. Propose freezing BatchNorm statistics, percentile based activation clamping, channel-wise quantization three novel techniques to produce a state-of-the-art fully quantized 4-bit object detector. Work is in CVPR2019.

ENGINEERING EXPERIENCE

- **SenseTime AutoML Toolkit System** Beijing, China
SenseTime & USYD AutoML Group. Advised by Prof. Wanli Ouyang *Feb. 2019 - Present*
 - Build AutoML Toolkit System to provide AutoML capabilities for academic research and company products, e.g. face recognition & detection. Integrate academic and self-developed AutoML algorithm in an uniform framework.
 - NAS Toolkit: Implement academic Proxyless NAS , DARTS, Single-Path One-Shot, self-developed CRNAS and PCNAS in a unified framework. ATS(Auto Training Strategy) Toolkit: Handle the training process of the network. For data pre-process, ATS has online hyper-parameter learning auto-augmentation. For optimization, ATS has auto loss function search.

AI COMPETITIONS

- **National College Students AI Competition – Championship in Big Data Tech.** Guangdong, China
Tsinghua University, Team Leader Jan. 2018 – Apr. 2018
 - Lead the team to design and implement an AI product "Beauty ID: Creating the Most Beautiful ID Photo Based on Deep Learning". Beauty ID is a software to help ordinary users to 'photoshop' their ID photo based on the deep learning and image algorithm.
 - Multi image algorithm is used to synergize image processing. Geometric correction network, geometric distortion network, color enhancement network and other networks are designed and used for joint processing. Beauty ID gets the championship in Big Data Technology and silver award in all 208 competitive teams. Beauty ID is featured by Tsinghua News.
- **Junction 2018 - Challenge Winner in Intelligent Infrastructure Track** Helsinki, Finland
Tsinghua University, Vision Developer Nov. 2018
 - Develop a smart desk lamp "IVision Lamp" that can control lighting by sensing the environment and the user's mental state through several sensors in 42-hour hackathon. Responsible for the analysis of user's visual information of camera sensors.
 - Get the Challenge Winner in Intelligent Infrastructure Track, first time of Tsinghua. Featured by Tsinghua info homepage.

SELECTED HONORS & AWARDS

- **Excellent Student Leader** Tsinghua University; 2018
- **Excellent graduates** HUST; 2016
- **National Scholarship** Ministry of Education; 2014 & 2015

ADDITIONAL INFORMATION

- **Programming Skills:** Python(mainly used), C++(familiar), C(basic)
- **Deep Learning Framework:** Pytorch(mainly used), TensorFlow(familiar), Caffe(basic)
- **Extracurricular Activity:** President of Graduate Union of Department of Microelectronics and Nano.(2017-2018)