



## education

**master | control engineering**  
tsinghua university | 2015-2018

- research: deep learning optimization, human pose estimation, object detection, face detection, face alignment, face recognition.
- advisor: Lei Zhang

**bachelor | instrument and measurement science**

kunming university of science and technology | 2008-2012

- concentration in control theory

## teaching

**tsinghua | student instructor**  
april 2018 - july 2018

Big Data class in Tsinghua University, covering the following topics

- Developed deep learning experiments for the class, including optimization methods, GAN models and object detection algorithms.
- Designed quizzes, exams, and homework for the class.

## skills

**programming languages**

python • c++

**machine learning algorithms**

- Object Detection
- Human Pose Estimation
- Facial Detection and Recognition
- Deep Learning Optimization

**frameworks**

pytorch • tensorflow • Caffe • keras • MXNet • ONNX • TensorRT • GluonCV  
deep learning deployment  
Docker • Cloud • Kubernetes • Jetson Xavier • Jetson Nano

**general**

**languages**

english • chinese

**software**

L<sup>A</sup>T<sub>E</sub>X • photoshop

os

linux • mac • windows

## experience

**tiktok inc. | machine learning engineer at trust & safety**  
sep 2021 - present

**facebook, inc. | computer vision engineer at facebook ai research (fair)**  
dec 2020 - august 2021

- Explainable AI, which is try to explain "black box" output by computer vision models.
- Responsible AI, which enable inclusive & fairness in Computer Vision.

**aifi inc. | senior research engineer**

june 2018 *junior* feb 2020 *senior* november 2020

- Ownership computer vision detection algorithms and services in the RGB-only auto-checkout solution (Similar to Amazon Go with only RGB cameras deployed).
- Prototype computer vision algorithms in RGB-only auto-checkout solution (includes customer-detection + tracking and product-detection + tracking).

**the hong kong polytechnic university, hongkong | research assistant**

october 2016 - april 2018

- Developed PID optimizer to accelerate the training of CNNs.
- Developed the PolyU-Face system (face detection, alignment, recognition).

**taiyuan iron and steel corporation, china | control technician**

july 2012 - september 2014

- Focused on tuning the parameters of PID controller in the steel milling machine.

## publications

published/accepted

- Wangpeng An, et al., 2018: "A PID Controller Approach for Stochastic Optimization of Deep Networks" IEEE Conference on Computer Vision and Pattern Recognition *CVPR Spotlight*
- Wangpeng An, et al., 2017: "Exponential Decay Sine Wave Learning Rate for Fast Deep Neural Network Training" *VCIP oral*
- Haoqian Wang, Wangpeng An, Lu Fang and Qionghai Dai, 2018: "Magnify-Net for Multi-Person 2D Pose Estimation" *ICME oral*
- H.Q. Wang, Yi Luo, Wangpeng An, et al., 2020: "PID Controller based Stochastic Optimization Acceleration for Deep Neural Networks" *IEEE Transactions on Neural Networks and Learning Systems (TNNLS) Impact Factor:11.368*
- Jun Xu, Wangpeng An, et al.: "Sparse, collaborative, or nonnegative representation: Which helps pattern classification?" *Pattern Recognition, 88:679-688,2019, Impact Factor:5.898*

## professional services

peer-review articles for

- Pattern Recognition
- IEEE Signal Processing Letters (SPL)
- IEEE Transactions on Image Processing (TIP)
- 2nd CEFRL workshop at European Conference on Computer Vision (ECCV) 2018

## u.s. patent

Tracking Persons In An Automated-Checkout Store- Shuang Liu, Long Chen, Wangpeng An, Zijie Zhuang, Ying He, Ying Zheng. Publication No.: US 2020-0184230 A1.