



## 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

LaTeX • photoshop

os

linux • mac • windows

## experience

### aifi inc. | senior research engineer (computer vision)

february 2020 - present

- 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-tracking and product-tracking).

june 2018 - january 2020, research engineer

- Developed the customer-detection algorithm based on MASK-RCNN and Openpose in the customer-tracking system.
- Developed the product-detection algorithm based on CenterNet in the product-tracking system.

### 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.