

# Kaiwen Sheng

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Peking University, Haidian District, Beijing



## EDUCATION

### Peking University

Electronic Engineering and Computer Science

- GPA: 3.7 / 4.0

Sep 2016 - Jun 2020  
Beijing

## RESEARCH EXPERIENCE

### Automatic Scheduler for Tensor Operations on Heterogeneous System

Apr 2019 - Aug 2019  
Peking University

- Constructed and scheduled operations under TVM framework with unified primitives.
- Hand-crafted tensor operators on GPUs and CPUs to promote performance.
- Performed experiments on heterogeneous systems and analyzed the results.
- The work is submitted to ASPLOS 2020: "FlexTensor: An Automatic Schedule Exploration and Optimization Framework for Tensor Computation on Heterogeneous System".

### Real-Time Embedded Object Detection System for H.264 Videos

Oct 2018 - Feb 2019  
Peking University

- Designed the algorithm to utilize the motion vectors extracted from a H.264 coded video to faster the object detection procedure on Xavier embedded system ~13 times with little accuracy loss.
- Optimized the procedure to extract the motion vectors from raw video streams.
- Designed the asynchronous system framework to parallel the overhead on neural network computation and motion vector process.
- The work is submitted to IEEE Design & Test: "Real-Time Embedded Object Detection System for H.264 Videos".

### A General-Purpose Tracker for Animal Behavior Analysis

May 2019 - Present  
Peking University

- Designed a deep learning based tracker for animal behavior analysis to ease labeling efforts of biological experimentalists.
- Performed experiments and analyzed performance.
- Wrote the paper and drew all the figures of the paper.

### Parameters Tuning and Dynamic Analysis of Detailed Neural Models

Aug 2019 - Present  
Peking University

- Designed deep learning based algorithm to estimate dynamical parameters for neural models.
- Analyzed accuracy performance and generalization ability of the algorithms.

### Blind Image Denoising Filter Inspired by Gap Junctions from Biology

Apr 2019 -  
Peking University

- Analyzed accuracy and performance of the model
- Performed experiments of the model

## TEACHING EXPERIENCE

### Teaching Assistant on Algorithm Design and Analysis Seminar

Feb 2019 - Jun 2019  
Peking University

Teaching Assistant

- Led discussions in class and corrected exercises for students.
- Assisted students on reviewing lessons and reading papers.
- Set exam papers for the whole class.

## LEADERSHIP EXPERIENCE

### Badminton Association in Peking University

Sep 2019 - Present  
Peking University

Head of the Association

- Helped organize badminton competitions in Peking University.
- Scheduled friendly matches among colleges.
- Attends competitions on behalf of Peking University.

## AWARDS

- Yanhong Li Scholarship of Peking University 2019.9
- Excellent Research of Peking University 2019.9
- 3rd place in Badminton men's singles in 2018 Capital College Badminton Cup 2018.11
- Ke Chuanglong Scholarship of Peking University 2018.9
- 2nd place in Badminton men's team in 2018 Capital College Badminton Cup 2018.5
- Merited Student of Peking University 2017.9 & 2018.9

