# Kaiwen Sun

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## Work Experience

**Beijing Hengneng Tech. Ltd.** **June.2016 – Sept. 2016**

Software Engineer Intern (The only one software programmer)

Implemented a program on Raspberry Pi processing images and controlling a Sony camera and a Webcam which are loaded on servo motors of a drone, so that the drone can track user selected objects.

Implemented a remote desktop monitor and control system for multiple users in LAN or WAN.

Skills: Java, OpenCV, multithreading, Python, Raspberry Pi and some libraries controlling hardware.

## Education & Work Experience

**University of California, San Diego** **Sept. 2015 – Dec. 2016**

M.S. student in Computer Science

GPA: 3.888 / 4.0

**Nanjing University** **Sept. 2011 – July 2015**

B.S. in Computer Science and Technology

Ranking: 1/20 (National Elite Program Class, 20 students selected from 200)

GPA: 88.3%

**University of Waterloo** **Sept. 2014 – Apr. 2015**

Exchange student in Computer Science

Undergraduate Research Assistant, testing performance of revised Apache Spark

GPA: 3.9 / 4.0

## Programming Languages & Technical Skills

**Expert Languages:** Java, C, C++, Python, MATLAB (**have C teaching experience**)

**Programming Tools:** Vim, Git, GCC, GDB, Visual Studio, Eclipse, Py2exe, Linux, Windows

**Others Skills:** Multithread programming, Network programming, Apache Spark (PySpark), Berkeley Caffe, Verilog, \LaTex, SSH, NFS, Protégé, Wireshark, Docker, Jupyter, OpenCV(Java), Raspberry Pi

## Key Coursework and Projects

### Distributed File System

- Use self-implemented general-purpose Java RMI library for remote process communication.
- Java skills include dynamic proxy, reflection, and multithread with read/write lock.

### Remote Shell Controller

- An integration of multiprogramming remote terminals like SSH, but has features catering my personal usage.
- Can access to computers hidden behind NAT router.

### Virtual Machine Management Cloud (funding from Nanjing Univ. Undergraduate Innovation Program)

- Led a four-member team to design and implement a VM cloud, through which users can create, use, migrate and delete personalized operating system running at distant servers. Coded mainly in C.

### Some Neural Network Projects

- A multi-layer neural network trained by back-propagation, using MATLAB, to learn and test on the MNIST Dataset.
- A convolutional neural network, using Berkeley Caffe and AWS, to train and test on the CIFAR-100 Dataset.
- A face verification program using DeepID proposed by CUHK scholars. Convolutional network and Siamese network are used.

### Some Computer Vision Projects

- A sparse stereo matching program, using corner detection, SSD matching, and Epipolar Geometry.
- An image warping program using homography. Convert any quadrangle in a photo to get its front view.
- A program detecting optical flow
- Two human face classifiers using eigenfaces and Fisherfaces

### Simplified Unix-like Operating System

- Built and coded operating system with I/O, process switching, file system, memory allocation features.

### "C-- Compiler"

- Designed and built a compiler with Linux C to check errors and translate simplified C files to MIPS code
- Optimization power of the compiler ranked among top 5% in the class

### Program Recognizing Handwritten Chinese Characters

- Designed the recognition algorithm, which was simple but effective. Implemented using MFC

### Boolean SAT Problem Solution Based on DPLL and Probability

- Achieved full marks in this course, due to this fastest algorithm in my class.

### Single Cycle CPU and Multiple Cycle CPU

- Design notes included by lecturer in handouts for future terms. Coded in hardware language Verilog.

## Scholarships and Honors

- Won several prizes during undergraduate study, including a 90,000 CNY scholarship from UWaterloo.
- Won several honors during undergraduate study, including Outstanding Student of the Jiangsu Province.