Kaiwen Sun

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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

Beijing Hengneng Tech. Inc.   **June.2016 – Sept. 2016**
Software Engineer Intern
Implement a program on Raspberry Pi processing images and controlling a Sony camera and a Webcam.
Skills: Java, OpenCV, Json, Python, Raspberry Pi and some libraries controlling hardware.

Programming Languages & Technical Skills

Expert Languages: Java, C, C++, Python, MATLAB   (**have C teaching experience**)
Programming Tools: Vim, Git, GCC, GDB, Visual Studip, Eclipse, Py2exe, Linux, Windows
Others Skills: Multithreading 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.
- Coded in Python. Related Python skills include socket, threading and synchronization, downloading, email, grabbing webpage text, Windows registry, self-updating, cryptography. Can access to computers hidden behind NAT

Virtual Machine Management Cloud   (funded by 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, plus some Python, SQL and JS.

Some Neural Network Projects
- A multi-layer neural network trained by back-propagation, using MATLAB, to learn and test on the MNIST handwritten digit database. (Skills include momentum, weight decay, sigmoid, ReLU, tanh, softmax, validation)
- A convolutional neural network, using Berkeley Caffe (prototxt) and Amazon Web Services, to train and test on the CIFAR-100 Dataset. (Skills include various preprocessing, various optimization gradient methods, fine-tuning, feature visualization)
- 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. Can do projection on any quadrangle in a photo in order to get its front view.
- A program detecting optical flow
- Two human face classifier 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 program with MFC

Boolean SAT Problem Solution Based on DPLL and Probability
- Achieved full marks in this course, due to this fastest solution 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.