

# Kaiyuan Xu

Shanghai Jiaotong University  
<http://kaiyuan-xu.me>  
E-mail: kyxu95@gmail.com Phone: +86 13917639330

## EDUCATION

Shanghai Jiao Tong University (SJTU), Shanghai  
B.S. of Information Engineering  
GPA : 3.63/4.0 (Major)

Sep. 2013 - Jun. 2017(expected)

## RESEARCH EXPERIENCES

### Wireless communication

Research Assistant Supervised by Professor Meixia Tao

Sep. 2015 - present  
Institute of Wireless Comm. Tech.

- Did academic survey by reading approximately 50 papers about interference alignment, DOF analysis and coded cache
- Analysed DOF and channel capacity of interference channel, broadcast channel and X channel
- Formulated a model combined coded cache with interference channel aiming at minimize the delay in transmission
- Applied index coding with side information to K-user interference channel to reduce the delivery load
- Deriving the storage-latency tradeoff by decentralized caching under partially connected interference channel

### Digital Image Processing

Research Assistant Supervised by Professor Bin Sheng

Sep. 2014 - Aug. 2015  
Lab for Digital Media and Data Reconstruction

- Did academic survey by reading about 20 papers on image evaluation and deblurring
- Wrote program to extract the intensity, gradient, saturation and other properties of blurred images
- Provided reference data of images for the work on deblurring of video sequence
- Evaluated the digital images using machine learning combining BIQI, BRISQUE and NIQE algorithms
- Preprocessed the blurred image of unpaid bills and did character recognition to facilitate the bill service

## PROJECTS

### Single-master multi-slave controlling system

Mar. 2016 - Jul. 2016

- Designed and welded circuits for communication between master and slave machines in physical layer
- Designed a communicating protocol for a system with a master machine and 3 remote slave machines in network layer
- Built user interface and implemented the local master program by MFC subassembly based on VS
- Implemented the remote master program using socket communication to send commands to slave machines remotely

### Music player based on embedded system

Sep. 2015 - Jan. 2016

- Adjusted the PWM to produce tune of songs and showed musical scale via LED
- Applied Watchdog to avoid infinite loops and interrupt to control the volume and frequency of output audio by button
- Set the parameters of the circuit to ensure the deviation of voltage gain below 0.3%

### Parallel power supply system with current/voltage regulators

Sep. 2015 - Jan. 2016

- Designed and welding circuits for both current and voltage regulators
- Wrote program on singlechip of MSP430 to switch between current and voltage controlling modules
- Debugged the parameters of the program and the value of components on the circuits to control the deviation at 0.5%

### The reliability of a master-slave system

Feb. 2015 - Jun. 2015

- Wrote program to simulate the operation of electron device considering 4 kinds of breakdown
- Improved the execution efficiency of the program by using Monte Carlo method
- Enhanced the system's reliability by applying watchdog, anti block bus and hot-standby technology

## SKILLS

Programming:	C/C++, Java, MATLAB, Python, Verilog, JavaScript, HTML, $\text{\LaTeX}$
Platform:	Windows, Linux, Embedded System
Foreign Language:	English, French
Others:	Piano, Literature, Football