

# Kaiyuan Xu

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## EDUCATION

Shanghai Jiao Tong University (SJTU), Shanghai  
Bachelor of Information Engineering  
GPA : 3.5/4.3 (Core Curriculum), 3.3/4.3 (Overall)

2013 - 2017

## RESEARCH EXPERIENCES

### Wireless communication

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

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.

### 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.

### picketage of A/D converter

Sep. 2014 - Jan. 2015

- Analysed the relationship of 2 quotas in a electron device using statistical inference.
- Wrote program to do curve fitting using polynomial interpolation and cubic spline interpolation.
- Verified the conclusion by simulating using both genetic algorithm and annealing algorithm.

## SKILLS

Programming: | (Proficient) C/C++, MATLAB, LaTeX  
                  | (Familiar) Java, Python, Verilog, JavaScript, HTML  
Platform: | Windows, Linux, Embedded System  
Language: | Mandarin (Native), English (Fluent, TOEFL:99; GRE:319+3), French (Beginner)  
Others: | Piano, Literature, Football