

HONGZHI LIU

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SUMMARY STATEMENT

Electrical and Computer Engineering graduate student with a particular interest and solid foundation to pursue a software developer position, also with interest on machine learning, image processing and data mining.

EDUCATION

University of Massachusetts, Amherst, MA

Feb 2018

Master of Electrical and Computer Engineering

Beijing Technology and Business University, China

Sep 2012

Bachelor of Electrical Engineering

RELEVANT COURSES

System Software Design (C++), Algorithms, Data Structure (C++), Programming Abstractions (self-learning from Stanford CS106B and CS106X), Standard C++ Programming (self-learning from Stanford CS106L), Digital Image Processing, Mining of Massive Datasets, Probability and Random Process.

Personal Website: <https://github.com/lhz90529/>

SKILLS

Programming & Scripting Language: C++, C, JAVA, Python, MATLAB

Environment and Tools: Linux, Vim, GDB, GitHub, Docker, Markdown, Latex(basic)

PROJECTS

Fun with Data Structure (C++)

Self-Project

- Implementing *various of data structures*: Stack, Queue, Linked List, Hash Table, Binary Search Tree, Binary Heap and Graph, and also relevant algorithms, like DFS, BFS, Dijkstra and so on...

Thread library and Disk Scheduler (C++)

Spring 2017

- Write a user-level library to support **multiple threads** within a single Linux process.
- *Ensure Atomicity, Scheduling order and Error handling. Grading by auto-grader: 100/100*
- Handle address space creation, read and write faults, address space destruction, and simple arguments passing between spaces.

Stack Smashing (C++, GDB)

Spring 2017

- Find the stack vulnerabilities and implement attacks with the aid of **GNU Debugger(GDB)** to compromise several vulnerable processes running inside a VM.

Pager – Virtual Memory Management (C++)

Spring 2017

- Implement an external pager that handles virtual memory requests for application process. *Grading by auto-grader: 100/100*

Secure Instant Messaging (Java)

Fall 2016

- Design an online chat room with strong focus on the perspective of security
- Multithread socket-programming to provide communication between multiple clients with server.
- Design a multi-layer structure to provide sophisticated **secure communication service**, including the application of SSL, AES, and RSA.

Hyperspectral Image Segmentation(MATLAB)

Fall 2017

- Hyperspectral Image (more than 4 gigabytes) Segmentation *using a combination of PCA (Principle Component Analysis) and K-means approach.*
- A **test accuracy of 95%** was obtained from the ground truth image

CAREER EXPERIENCE

Beijing Ether Peony Elec. Eng. Co. Ltd.

Electrical Engineer

Feb 2013 – Jan 2015

Mainly responsible for design and implementation of electronic security system: video security system, access control system and alarm system for modern building and large data center.