

SHAN LU

257 Thayer St, Apt 120C, Providence RI 02906

(401)339-7001 • shan_lu@brown.edu

Homepage: baizhima.github.io • GitHub Account: [baizhima](#)

Education

Brown University

Master of Science (Sc.M) in Computer Science

Courses undertaken: Database Management System, Computer Networks

Providence, Rhode Island

September 2015 – May 2017 (expected)

Renmin University of China

Bachelor of Science in Applied Mathematics

Bachelor of Management in Agricultural Economics and Management

Beijing, China

June 2015

June 2014

University of California, Davis

Exchange Student (cumulative GPA 3.97/4.0)

Davis, California

January 2012 - December 2012

Experiences

Citadel (Hong Kong) Securities, LLC

Intern quantitative researcher

Hong Kong

June 2015 – August 2015

- Parsed FIX Adapted for STreaming(FAST) encoded market data stream from Shanghai and Shenzhen Stock Exchanges
- Implemented a Python/C++ extension that wraps data stream into Python objects by message types (StockStatus, Snapshot, Index, Trade, Order), supporting cross-language function callbacks
- Applied perfect hashing on attribute names to achieve O(1) time field accessing without explicit PyObject type declaration

Latest Projects

TCP over IP over UDP

November 2015

- Built an Application-Transport-Network-Link layering network infrastructure node from scratch
- Followed RFC 791 regarding TCP State Machine, sliding-window algorithm, acknowledgement and packet retransmissions
- Encapsulated/unwrapped TCP and IP packet at transport and network layer, updating TTL and checksum fields accordingly
- Dynamic routing based on RIP protocol, including split horizon, poison reverse as well as triggered updates to avoid loops
- Utilized UDP as link layer, supporting runtime interfaces open/close transitions

Splitter (iOS App for bill splitting)

October 2015

- Hacking project during BostonHacks held at Boston University, involving basic Swift and iOS Cocoa programming
- Backed this App by Parse's cloud database, updating bill splitting data among users using its asynchronous APIs
- Full project description posted on DevPost under BostonHacks, source code available on personal GitHub account

Snowcast (Internet Radio Station)

September 2015

- Network programming using Berkeley socket API, sending messages between server and clients under TCP/UDP
- Multithreaded programming using POSIX threads on server-side to support non-blocking I/O intercommunication
- Finely tuned streaming rate with respect to each thread in order to play mp3 formatted songs smoothly

New York Times Blogs Popularity Prediction

March 2015

- MOOC course project originated from MIT Analytics Edge, competition held on Kaggle, final ranking 102nd/2923
- Trained an ensemble learning model on logistic regression and random forest in R, test set ROC metric: 0.90672

MOOC Certificates

- | | |
|--|---|
| • Analytics Edge (MIT, 90%) | • Introduction to Databases (Stanford, 90%) |
| • Bioinformatics Algorithms I (UCSD, 97.2%) | • Interactive Programming in Python (Rice, 90.9%) |
| • Coding the Matrix (Brown, 97.5%) | • Machine Learning (Stanford, 95.6%) |
| • Computing for Data Analysis (John Hopkins, 99%) | • Mining Massive Datasets (Stanford) |
| • Computational Thinking and Data Science (MIT, 93%) | • Statistical Learning (Stanford) |
| • Computational Investing (Georgia Tech, 100%) | • Functional Programming in Scala (EPFL) |

Awards & Skills

- First Place in 2015 Microsoft College Code Competition at Brown
- Languages: Native in Chinese, full-proficiency in English
- Programming Skills: C/C++, Python, Go, Java, MATLAB, R