




# QIANG ZHANG

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## Education

### Johns Hopkins University

Master of Science in Engineering (M.S.E.) in Computer Science *GPA: 3.74/4.00*

Baltimore, MD

Sept. 2016 - May 2018

### Southeast University

B.E. in Measuring Control Technology & Instruments *GPA: 3.1/4.0*

Nanjing, China

Aug. 2007 - Jun. 2011

## Experience

### Nanjing Institute of Measurement And Testing Technology

*Calibrating Engineer*

2012 - 2014

Nanjing, China

- Legally binding calibration and certification for over 8000 pieces of academic or industrial instruments.
- Automated workflow for the department resulting in significant productivity gain, and won Annual Best 10 Employee (out of 200+) of year 2013, an unprecedented achievement for a second year.

### Lab of Dr. Xu Li of Southeast University

*Part-time Research Assistant*

2012 - 2013

Nanjing, China

- Participation in project: Truck & Train Motile Property Testing System.

## Project Highlights

### Survival Maps

Team: Guoye Zhang, **Qiang Zhang**, Neha Kulkarni, Channing Kimble-Brown, Jeana Yee

*Bootstrap JavaSpark TravisCI Maven Heroku iOS sql2o JUnit SQLite MVC MapQuest RESTful*

2016, Baltimore, MD

- Large-scale course project of OOSE where we, out of real-life need, built a navigation app that cares about security no less than speed, during a fully fleshed 6-iteration life-cycle: requirement analysis, design, implementation, testing and deployment.
- Innovative features: crime heatmap, routing security preference, sensitivity to crime threat of different time of a day etc.
- Solely responsible for UML design; significant participation in back-end server design and implementation; primarily responsible for backend data processing and data source updating component.
- Designed a recursive algorithm to integrate inconsistent traffic data and crime data from different sources.

### Multi Diff

*diff Algorithm HTML MinHash Maven ZIMPL*

Team: Guoye Zhang, **Qiang Zhang**

2017, Baltimore, MD

- We re-assess the legacy utility `diff` and augment it with domain-specific new feature and algorithmic enhancement.
- Developed new algorithm `BetterDiff` that intelligently retain bracket pairing while calculating edit distance.
- Enhanced the system to be able to track editing ancestry in large multi-file hierarchially structured file system, producing standard `diff` patch files as well as intuitive side-by-side visualization.

### HMM EM Tagger

*NLP Tagger Supervised-Learning Semi-Supervised-Learning HMM EM*

Myself

2017, Baltimore, MD

- Compact implementation of a Hidden Markov model based tagger that can do not only supervised learning with viterbi decoding and posterior decoding, but also semi-supervised learning with expectation-maximization algorithm.
- Innovative optimization of word-similarity based tag dictionary pruning that speeds the tagger up by 50%-80% depending on task.

### Padding Oracle Attack Demo

*Cryptography Security HMAC SHA AES-CBC*

Myself

2017, Baltimore, MD

- Down from scratch Golang implementation of a typical padding oracle attack process. Includes both an authenticated encryption component and the adversary component, all manually implemented down to the integer.

## Technical Skills (in order of nonascending proficiency)

### Languages

Java, Go, C, Python, SQL, Ocaml, Swift, JavaScript, jQuery

### Frameworks & Platforms

JavaSpark, Flask

### Tools

Git, Sublime Text, LATEX, Linux, shell, Microsoft Office, IntelliJ IDEA, MySQL

## Coursework Highlights (Graduate Level)

Algorithms

Object Oriented Software Engineering (OOSE)

Databases

Computer Networks

Principles of Programming Language

Declarative Methods

Natural Language Processing

Practical Cryptographic Systems

Operating Systems

Machine Learning