

# Shike(Emma) ZHANG

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## EDUCATION

**Shanghai Jiao Tong University**, China  
B.S. in Computer Science, Scholar of ChuntSung Program

**SEP 2015 - JUN 2019** (Expected)

**Overall GPA:** 90.13/100

### Core Curriculum:

Major: • Operating Systems (99) • Compiler Principles (99) • Mathematical Foundations of Computer Science (94) • Database System Technology (93) • Computing Theory (91) • Computer Graphics (91) • Cloud Computing (90) • Computer Network (90) • Professional Practice (90) • Computer System Architecture (90)

Mathematics: • Probability and Statistics (96) • Linear Algebra (95) • Discrete Mathematics (90) • Calculus I (88, 8%) • Calculus II (93, 4%)

**University of Illinois Urbana-Champaign**, United State

**JUL 2018 - OCT 2018**

**Advisor:** Kevin Chen-Chuan Chang  
Summer Research Intern, DataSpread.

## PUBLICATIONS

- **Shike Zhang**, Yuxiang Liu, Xiaofeng Gao, Jiaqi Zheng and Guihai Chen. “Provably Efficient Algorithms for VNF Routing Optimization”. The 24th International Conference on Parallel and Distributed Systems (ICPADS), Sentosa, Singapore, December 11th-13th, 2018, Oral Presentation. (Accepted)
- (Working Paper) **Shike Zhang**, Mangesh, Yu Lu, and Kevin Chen-Chuan Chang. “Content Aware Storage Model”. Very Large Data Base (VLDB). (Prepared to).

## SCHOLARSHIPS AND AWARDS

- National Scholarship (Top 2% in SJTU) 2016
- Weichuang Scholarship (Top 2% in SJTU) 2016
- ChuntSung Scholarship (50 / 2400) 2017
- B-class Scholarship for Excellent Academic Performance, SJTU (Top 10% in SJTU) 2018
- C-class Scholarship for Excellent Academic Performance, SJTU (Top 20% in SJTU) 2017
- Mathematical Contest in Modeling, Meritorious Winner Prize (Top 10% out of 10670) 2018
- National College Student Physics Competition, 2nd Prize (Top 10%) 2016

## RESEARCH EXPERIENCE

**DataSpread - Enabling Interactive Big Data Management.**

**JUL 2018 - OCT 2018**

**Advisor:** Prof. Kevin Chen-Chuan Chang

*University of Illinois Urbana-Champaign*

**Program:** Independent Work on Content Aware Storage Model. Summer Intern.

**Objective:** To speed up spreadsheet computation for selective formulas such as Vlookup and Match.

- Proposed a content aware storage model, using the idea of clustered index to help speed up computation
- Dynamically adjusted the model in terms of query input using the idea of database (spreadsheet) cracking, instead of pre-building the structure
- Implemented the storage structure based on existing code using Java

**VNFs Placement and Routing in Datacenters.**

**SEP 2017 - SEP 2018**

**Advisor:** Prof. Xiaofeng Gao

*Shanghai Jiao Tong University*

**Program:** ChuntSung Program (Sponsored by Tsung-Dao Lee). Research scholar

**Objective:** To find the minimal costs for Virtual Network Functions (VNFs) routing

- Formulated the problem as a combinatorial chaining set cover problem, proved its NP-hardness and reduced it to the Group Steiner Tree
- Used a two phase approach to address the overall problem
- Simulated a network with 400 nodes and 4 VNFs using Python. Our solution had significant performance improvement in terms of total cost, CPU and memory utility comparing to three heuristic algorithms

## SELECTED PROJECT EXPERIENCE

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### Realtime Face Recognition, *Shanghai Jiao Tong University*

Spring Semester (2018)

- Implement frontend with **PHP** to handle user requests of (a) Querying photos in terms of a time period (b) Querying photos in terms of user's certificate photo (c) Deleting and inserting user profiles.

### Large Pose Facial Expression Recognition

*Shanghai Jiao Tong University*

Autumn Semester (2017)

- Perform large-pose facial expression tests using **Python (TensorFlow)**, based on paper in CVPR2016 regarding 3D face alignment, achieving a 87% accuracy.

### Anomaly Network Intrusion Detection Using the Method of Machine Learning,

*Shanghai Jiao Tong University*

Spring Semester (2017)

- Perform an offline network intrusion detection based on KDD dataset and the 41 characteristics in it.
- Use the method of **Decision Tree**, **SVM** and **KNN**. We at first do **PCA** and choose a subset of the 41 characteristics. Next we perform training and achieve a 94% overall accuracy.

## ACADEMIC SERVICE AND ACTIVITIES

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### Reviewer [J]

- Theoretical Computer Science (TCS) 2018.10
- Journal on Selected Areas in Communications (J-SAC) 2018.1

### Volunteer

- Yiyou: Department of Publicity in SJTU, member 2016-2017
- Qi Yin elementary school, Volunteered Teacher 2017
- Shanghai International Marathon, Volunteer 2016

## SKILLS

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**Programming Languages:** C++(Good-at), Java, Python, PHP, SQL, Matlab, HTML/CSS, Scala

**Operating Systems and Tools :** Linux, LLDB,  $\text{\LaTeX}$ , Docker, Unity

**Database Engine:** Postgres, Mysql, MongoDB

**Frameworks :** Tensorflow, OpenGL

**TOEFL :** 108 (R28 L26 S26 W28)      **GRE :** V:152 Q:170 AW:4.0