JIAXIN LU

(+86) 18658279151 | lujiaxin@sjtu.edu.cn | Jiaxin-Lu | homepage
800 Dongchuan RD. Minhang District, Shanghai, China

Education

Shanghai Jiao Tong University **Shanghai, China**
Bachelor of Computer Science, ACM Honors Class *September 2018 - July 2022*

- **ACM Honors Class** is an elite CS program for students ranked in the top 5% of the school.
- Advisors: **Prof. Junchi Yan** and **Prof. Yong Yu**.

Research Experience

Department of Computer Science, University of Texas at Austin **Texas, U.S.A.**
Research Intern, Advised by **Prof. Qixing Huang** *May 2021 - Present*

- **Learning Based Conformal Parameterization**
  - Proposed an edge based conformal parameterization method for closed surface.
  - Introduce cuts on surfaces and apply the the parameterization method on surfaces with cuts.
  - Build an end-to-end learning framework for computing conformal parameterizations of surfaces.

ThinkLab, Shanghai Jiao Tong University **Shanghai, China**
Undergraduate Researcher, Advised by **Prof. Junchi Yan** *July 2020 - Present*

- **Joint Graph Matching and Clustering**
  - Proposed an efficient EM-based method that iteratively tackling graph matching and clustering problem and unifies the offline and online setting.
  - Based on the optimization algorithm, built an unsupervised learning framework to learn a better affinity score and improve the solver simultaneously.
  - Achieved state-of-the-art performance on synthetic and real-world datasets.
  - Submitted a paper to *CVPR 2022* as the first author.
- **Robust Partial Graph Matching**
  - Analyzed the partial matching problem under a multi-graph matching perspective and revealed other methods' limitations on partial matching problem.
  - Proposed an end-to-end learning pipeline, designed two novel loss functions, and improved the pair matching solver by introducing the concept of 'universe'.
  - Our method significantly outperforms state-of-the-art on several real-world datasets. It showed high robustness dealing with several complex extension cases and notably improved time and space efficiency.
  - Submitted a paper to *T-PAMI* as one of the first authors.
- **Deep Learning Graph Matching**
  - Proposed an EdgeNet to devise a better geometry of the graph in graph matching.
  - Designed a contrastive learning scheme for deep learning graph matching which obtain better pretrained feature.
  - Both methods help the solver and learning methods to achieve a better performance on several real-world datasets.

Select Projects

Adversarial Attack and Defense Based on Data Mixup *Fall 2020*

- Worked in group to explore the effectiveness of Mixup and Adversarial Training on model robustness.

- Implemented several techniques and different mixup policies to improve the robustness of the model and its accuracy on clean data.

Mx* Compiler *Spring 2020*

- A compiler implemented in Java, from Mx* (a C-and-Java-like language) to RISC-V assembly language.
- Implemented effective optimization algorithms which made its performance better than GCC O1 and passed the strongest baseline in this course.

PintOS *Spring 2020*

- Worked in group to implement PintOS, a simple operating system framework for the 80x86 architecture.
- Implemented threads, user program, virtual memory, file system and support ELF sharing on virtual memory and file system.
- Our group achieved the top grade of this project.

RISCV CPU *Fall 2019*

- Designed and implemented a FPGA-supported RISC-V CPU with standard 5-stage pipeline in Verilog HDL.
- Optimization with efficient algorithms and architectures.
- Fastest CPU ran on FPGA at 100MHz of this project.

Machine Learning System *Summer 2019*

- Implemented a subset of Tensorflow in Python and C++ which supports standard logistic regression and CNN.
- Implemented some GPU kernels for the machine learning system.

Selected Awards and Honors

- Shanghai Scholarship *2021*
- Zhiyuan Honor Scholarship (Top 2% in Shanghai Jiao Tong University) *2018, 2019, 2020*
- Academic Excellence Scholarship *2019, 2020*
- Zhiyuan Leadership Scholarship *2019*
- **Rank 3rd** in CCPC WFINAL at ACM-ICPC *May 2017*

Teaching Experience

Teaching Assistant of CS151: C++ Programming (Honor) *Fall 2020*

- Designed and prepared for the course assignments and projects on OOP.

Teaching Assistant of CS151: C++ Programming (Honor) *Fall 2019*

- Gave lectures on algorithms and programming problems for students and prepare the course exams.

Computer and Language Skills

- **Programming Language:** Proficient in C++, Python, Java, MATLAB, and Verilog HDL.
- **Deep Learning Libraries:** Proficient in popular deep learning libraries such as Pytorch and Tensorflow.
- **Language:** Mandarin (native), English (fluent).

Extra-Curricular

- Runner and editor of WeChat official account ACMClass2018.
- Member of student organizing team of ACM-Class Student Academic Festival 2021.
- Member of student group 800 Movie Theater.