

JIAXIN LU

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Shanghai Jiao Tong University, P.R. 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: **Professor Junchi Yan** and **Professor Yong Yu**.

PUBLICATION

1. Jiaxin Lu, Zetian Jiang, Tianzhe Wang and Junchi Yan “Joint Graph Matching and Clustering with Majorization-minimization Optimization and Edge-enhanced Unsupervised Learning”, Under Review, *CVPR 2022*
2. Zetian Jiang*, Jiaxin Lu*, Tianzhe Wang and Junchi Yan “Learning Universe Model for Partial Matching Networks over Multiple Graphs”, Under Review, *T-PAMI*

* denotes equal contribution

RESEARCH EXPERIENCE

Department of Computer Science, University of Texas at Austin

Texas, U.S.A.

Research Intern, Advised by **Professor 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.
- One paper is planned to submit to *SIGGRAPH 2022*.

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 Majorization Minimization style algorithm M3C to solve graph matching problem under mixture of graph modes.
- Based on M3C proposed, developed an unsupervised learning model UM3C with devised edge-wise affinity learning and pseudo label selection techniques.
- Surpassed the state-of-the-art methods in both accuracy and efficiency.
- Submitted a paper to *CVPR 2022* as the first author.

• Robust Partial Graph Matching

- To handle graph matching under mass outliers, analyzed the partial matching problem under a multi-graph matching perspective and revealed other methods’ limitations.
- Proposed an end-to-end learning pipeline including universe metric learning scheme and outlier-aware loss.
- Our method UPM significantly outperforms state-of-the-art on several real-world datasets. It shows high robustness dealing with several complex extension cases and notably improves time and space efficiency.
- Submitted a paper to *T-PAMI* as a joint first author.

• 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 models to achieve a better performance on several real-world datasets.

SELECT PROJECTS

- Adversarial Attack and Defense Based on Data Mixup** *Fall 2020*
- Worked in a 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*
- Created 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 (Top 0.2% in Shanghai) *2021*
- Zhiyuan Honor Scholarship (Top 2% in Shanghai Jiao Tong University) *2018, 2019, 2020*
- Academic Excellence Scholarship (Top 5% in Shanghai Jiao Tong University) *2019, 2020, 2021*
- Zhiyuan Leadership Scholarship (Awarded for leadership in public service) *2019*
- **Rank 3rd** in CCPC WFINAL (Out of 85 teams) *May 2017*

TEACHING EXPERIENCE

- Teaching Assistant of CS151: C++ Programming (Honor)** *Fall 2020*
- Designed and prepared for the course assignments and projects on OOP for undergraduate students.
- Teaching Assistant of CS151: C++ Programming (Honor)** *Fall 2019*
- Gave lectures on algorithms and programming problems for undergraduate 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 Pytorch and Tensorflow.
- **Language:** Mandarin (native), English (fluent).

EXTRA-CURRICULAR ACTIVITIES

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