Lan Lu

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Southern University of Science and Technology
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Education

Sep.2018 – Present

Bachelor in Computer Science and Engineering (CSE), Southern University of Science and Technology
GPA: 3.91/4.00 Rank: 1/156, expected June 2022

Work Experience

Jun.2021 – Present

Summer Intern, University of Illinois at Urbana-Champaign
Worked as a summer intern, supervised by **Prof. Lingming Zhang**

Sep.2020 – Present

Research Assistant, Southern University of Science and Technology
Worked on **SUSTech DBGroup** supervised by **Prof. Bo Tang** and **Prof. Xiao Yan**

Jan.2021 – Present

Teaching Assistant, Southern University of Science and Technology
Assisted in teaching the courses **Java Programming**, **Object-Oriented Analysis and Design** and **Embedded Systems and Microprocessor Systems**

Research Project

Nov.2020 – Mar.2021

Efficient Maximum Inner Product Similarity Search, supervised by **Prof. Bo Tang** and **Prof. Xiao Yan**
To speed up the large-scale maximum inner product similarity search, we propose a CPU-GPU hybrid system which achieves both short query processing time and high result quality.Compared with FAISS, this system has significantly shorter query processing time at the same recall.

- Provide **norm-based** pruning according to Cauchy-Schwarz inequality
- Implement **residue-based** pruning from RQ technique
- Realize and prove **hash-based** pruning

Research Output: Long Xiang, Xiao Yan, **Lan Lu**, and Bo Tang. 2021. GAIPS: Accelerating Maximum Inner Product Search with GPU. In Proceedings of the 44th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '21).

Mar.2021 – May.2021

Accurate Entity Resolution based on E-commercial Data, supervised by **Prof. Bo Tang** and **Prof. Xiao Yan**
Given large-scale e-commercial records extracted from various real-world websites, we aim to solve the entity resolution problem, namely whether two records points to the same real world object. Compared with other teams participating in 2021 Sigmod Programming Contest, the architecture of our work achieved the highest accuracy.

- **Data Cleaning:** Preprocess all data, extract key attributes and do attribute correction
- **Entity Matching:** Conduct complete matching, recycle mechanism and recycle matching

Research Output: ACM Special Interest Group on Management of Data SIGMOD 2021 Programming Contest **Winner**

Jun.2021 – Present

Multi-armed Bandit with Software Engineering, supervised by **Prof. Lingming Zhang**
To accelerate the Automatic Program Repair(APR) Process, we make use of various multi-armed bandit algorithms. The research is currently ongoing.

Course Project

Mar.2021 – Apr.2021 | **Pintos - Enhance A Simple Operating System Framework**
Pintos is a simple operating system framework for the 80x86 architecture. I practiced on it by strengthening its support in thread-level.

- Implement some fundamental system calls and an efficient alarm clock
- Implement the priority scheduling with priority donation and multilevel feedback queue scheduling
- Test Pintos with GDB

Sep.2020 – Dec.2020 | **Influence Maximization** and **Reversi for AI**
Influence Maximization is the problem of finding a small subset of nodes in a social network that could maximize the spread of influence.
Reversi is a classical game with two players online for competing. Player with more pieces on the board will be the winner.

Sep.2020 – Dec.2020 | **Canteen Defense for OOAD - A Tower Defense Game**
Canteen Defense is a unity-based tower defense game. Scripts for it realized design patterns including prototype pattern, observer pattern and singleton pattern.

Honors

2021 | **Chinese National Scholarship(0.1%)**
Overall Winner, ACM Special Interest Group on Management of Data SIGMOD 2021 Programming Contest
Academic Star, Southern University of Science and Technology, Shuli College

2020 | 1^{st} **Prize**, Scholarship for Outstanding Student**(5%)**

2019 | 1^{st} **Prize**, Scholarship for Outstanding Student**(5%)**
Bronze Medal, China Collegiate Programming Contest, Xiamen Site

Extra Activities

2019 – 2020 | **Minister** of College Student Union
Student supervisor for college freshmen

2016 – 2018 | Participating in **Model United Nations** Conferences:

- NHSMUN, FDUIMUN, CSCMUN

2008 – Present | Practicing the **saxophone** and **Chinese Guzhe**