Zhaorui Ding

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Education

Huazhong University of Science and Technology **9/2020 – 5/2024**
Bachelor of Science in Computer Science(Exemplary) *Wuhan, Hubei, China*

Overall GPA: 3.81/4.00, 87.3/100.0; **Major GPA**: 3.87/4.00, 88.8/100.0
TOEFL: 107 (Speaking: 26), **GRE**: 325

Relevant Coursework

- Data Structures
- Operating Systems
- Algorithms Analysis (97)
- Database Systems (93)
- Machine Learning(97)
- Compiler Principles(91)
- Computer Network(94)
- Computer Architecture(91)

Research Interests

My research interest lies in computer systems and databases, including storage systems, anomaly detection, scheduling, database indexing and partitioning, query and data processing, and their interaction with AI. Besides, I also hold interest in AI and its application.

Research Experiences

Database Partitioning and Indexing Selection Recommendation System **4/2023 – 10/2023**
*Research Assistant, Advisor: Professor **Hua Wang, Ke Zhou*** *IDSM Lab, WNLO, HUST*

- Conceived and implemented a brand new end-to-end database partitioning and indexing algorithm in Python, seeking the approximate optimal partitioning and indexing under a storage budget.
- Conducted experiments on Linux server, tested the performance of the model on TPC-H dataset, Greenplum database.
- Reproduced codes of state-of-the-art models of database partitioning and indexing, tested their performance under the same environment as comparison.
- Results: our model reduced data retrieval latency by 15% - 30%, compared with other models.

De Novo Peptide Sequencing based on Multi-modal Deep Learning **3/2023 – 8/2023**
*Research Intern, Advisor: Dr. **Zhiqiang Gao, Siqi Sun*** *Shanghai AI Lab (Pujiang Lab)*

- Examined state-of-the-art de novo deep learning models and multi-modal models, conducted experiments to train these models and test their performance
- Contributed to constructing deep learning pre-training model for de novo peptide sequencing using PyTorch framework
- Conducted experiments to pre-train the model and tested the performance.
- Results: the model increased overall accuracy on 9 species by 6% compared with CasaNovo.

AI for Storage Joint Research Program by HUST and Tencent **10/2022 – 3/2023**
Research Intern *WNLO*

- Surveyed papers about AI for disk and web storage anomaly detection, e.g. GANomoly, AutoMap, TLDFP, etc.
- Reproduced some of the models and conducted experiments to test their performance.

Projects

ACM SIGMOD Programming Contest | High Dimensional KNNG Construction **3/2023 – 4/2023**

- Implemented Locality Sensitive Hashing and KD-Tree algorithms using C++ for graph building and compared their performance.
- Examined NN-Descent algorithms for KNNG optimization and tested the performance of the model on 10M-points data.
- Results: recall rate over 0.96, ranking 7th on the final leaderboard.

Web App Development | Online Learning Platform based on Learning Route **9/2022 – 11/2022**

- Conceived and designed the prototype of a platform for online study that manage the study materials in a recommended sequence.
- Developed the front end of this platform using JavaScript and Vue framework, including layout, event processing and request.
- Developed part of the back end of this platform using Java and SpringBoot framework.
- Tested its performance and robustness, deployed it on public network.

Technical Skills

- **Programming Languages**: C, C++, Java, Python, JavaScript
- **Developer Tools**: Visual Studio, VS Code, Eclipse, IntelliJ IDEA, PyCharm, Origin, MatLab
- **Technologies/Frameworks**: Linux, Git, PyTorch, Tensorflow, Gym, Vue, Springboot
- **Other**: HTML/CSS, SQL(MySQL/PostgreSQL), Latex, Bash

Extracurricular

Visiting CECloud.Inc **1/2023**
Visiting Student *Beijing, China*

- Learned knowledge about cloud storage and computing, such as docker.
- Learned protocols and principles of web application development.

Students' Union Propaganda Department **since 10/2020**
Vice Chairman *CS Dept, HUST*

- Wrote WeChat public articles and designed posters for college events.
- Led members in promoting college events.

College Table Tennis Team **10/2020**
Member *CS Dept, HUST*

- Participated in college competition, winning 2/3 of them.
- Created best winning record of our department.

Hobbies

- Sports: Jogging, Swimming, Basketball, Soccer, Table Tennis, Badminton.
- Others: Photography, Go, Chess, French Horn, etc.