Lei Hu, Master of Computer Science

leh013@ucsd.edu 858.568.5770

Education

2024 – present **University of California, San Diego**
M.S.in Computer Science

2020 – 2024 **University of Electronic Science and Technology of China** High Energy Magic.
B.Eng in Computer Science and Technology | GPA: 3.98/4.00 | Ranking: Top 6%

Internship

2024.7 – 2024.9 **Hangzhou Yanqu Information Technology Co.(shiyanjia.com)**
AI engineer intern. Retrieval-augmented Generation | python, Cypher
• Build up a multi-index agentic rag system, integrating GraphRAG and VectorRAG for better information extraction.
• Designed a pipeline to enable GraphRAG to support graph storage in a **Neo4j** database and implemented local search function in **Neo4j** using Python and Cypher, **Neo4j**'s query language.
• Contributing to **nano-graphrag**, an open-source repository, which simplifies Microsoft's **GraphRAG** pipeline and provides a method for incremental updates to knowledge graphs with new data. Contributing to **GraphRAG**

Academic Experience:

2023.9-2024.7 **Laboratory of Intelligent Collaborative Computing,University of Electronic Science and Technology of China**
Multi-component Computational Task Offloading Algorithm Based on Deep Reinforcement Learning(Supervisor: Prof. Sun Guolin)
• Developed a multi-centric task offloading model based on the Meta Reinforcement Deep Learning algorithm.
• Constructed a Directed Acyclic Graph (DAG) service model to simulate various fluctuating environments.
• Experimental results show the new model outperforms traditional heuristic and fine-tuned deep reinforcement learning algorithms in both single- and multi-centered environments.

2023.4-2023.9 **Intelligent Network and System Group, University of Technology of China**
RDMA Switching Algorithm based on Traffic Scheduling for Big Data Applications(Supervisor: Prof Zhao Yangming)
• Assisted in the algorithm design for SPARK and the improvement of the existing SPARKUCX traffic-switching algorithm
• Designed experiments on Soft-RoCE based on C++ programming and conducted performance testing on TCP and RDMA
• Tested and improved SPARKUCX traffic scheduling algorithm on RDMA network interface card

Academic Experience: (continued)

2022.7-2022.10 **Business AI Lab,Nanyang Technological University**
COVID-19 Image Classification Method based on Model Fusion(Supervisor:Prof, Teoh Teik Toe)

- Processed 3,000 X-ray chest image data by image enhancement to mitigate sample imbalance
- Established seven classic network models based on Python programming including ResNet50, VGG16, VGG19, InceptionV3, InceptionResNetV2, MobileNetV1, and DenseNet169, trained and tested the models, compared and analyzed the model performance, and achieved an accuracy of 97.5 on the training set and an accuracy of 96.58% on the test set with the DenseNet169 model
- Completed model fusion, compared the results of different fusion methods including voting, averaging, sorting, boosting, and stacking, and the performance of the second-layer classifiers
- Performed stacking on these models in four folds, selected the Decision Tree as the second-layer classifier, and achieved 100% accuracy on the test set
- Proved the multi-centric algorithm model for better efficiency than the single-centric model, showing significant improvement over baseline algorithms.

Miscellaneous Experience

Awards and Achievements

2024.6 **Outstanding Graduates**, UESTC.

2023.12 **Outstanding Student Scholarship**, UESTC.

2023.08 **Third Prize** in the 16th National Student Information Security Competition for College Students , Ministry of Education of China.

2023.03 **Honorable** Mention in the 2023 Mathematical Contest In Modeling, COMAP

2022.12 **Outstanding Student Scholarship**, UESTC.

2021.12 **Outstanding Student Scholarship**, UESTC.

Skills

Languages	English, Mandarin Chinese.
Coding	Python, SQL, LaTeX
Databases	MySQL, dashvector, neo4j.

Extracurricular Activities:

2020.09-2021.07 Volunteer, Psychological Support Office, School of Management and Economics, UESTC.