Ziyang(Eric) Yu

Waterloo, ON, Canada

z333yu@uwaterloo.ca +1-548-577-0264 https://github.com/Ziyang-Yu

Education Background

Southern University of Science and Technology (SUSTech) **Guangdong, China**
Major: Mathematics and Applied Mathematics (Honor Class) *Aug. 2019-Jun. 2023*
Excellent Graduate

University of Waterloo **Ontario, Canada**
Major: System Design Engineering *Sep. 2023-Present*

Research Experience

Masked Language Model for RNA sequence encoding **UCLA**
Advised by Wei Wang *Oct. 2023-present*

- Implemented masked language model using BertRNA pipeline for pre-trained model.

Survey on Large Language Model Acceleration and Efficiency **Emory University**
Advised by Liang Zhao *Sept. 2023-Oct. 2023*

- Research on large language model training methods.
- Summarize the ideas & methods of low-rank methods.

Staleness-Alleviated Distributed GNN Training Framework **Emory University**
Advised by Liang Zhao *Jul. 2022-Jan. 2023*

- Conducted research on distributed training framework to solve memory consumption and performance degradation.
- Proposed a novel framework to improve the well-known existing framework of partition-based and parallel-based GNN training framework.
- Applied model named LSTM-GNN to extract the information of time-series network data.
- Used C++ and API of Pytorch_Geometric to accelerate the speed of preprocessing.

Internships

DrugGPT Backend Development **Biogeometry Inc.**
Advised by Huiyu Cai & Jian Tang *Apr. 2023-Jul. 2023*

- Designed and implemented 3-layer architecture - APIs (Flask), database operations (SQLAlchemy, Caching), database initialization (MySQL, Redis).
- Provide real-time communications between the backend and frontend using SocketIO.
- Test and Measure the performance of the backend using pytest.
- Deploy backend to remote server using cloudam service.

Publications

- **Staleness-Alleviated Distributed Graph Neural Network Training via Online Dynamic-Embedding Prediction**
  Guangji Bai*, **Ziyang Yu***, Zheng Chai, Yue Cheng, Liang Zhao.
  Arxiv.
  [PDF] [Code]

Side Projects

- Inter-Process Communication (IPC) with driver program (Python, C++) [Code]
- Polynomial SAT problem solver for Minimum Vertex Cover Problem (C++) [Code]
- Implementation of Reliable Data Transfer Protocol (Python) [Code]

Skills

- **Computer Languages:** C++, Python, Assembly Language, Java, JavaScript, Bash, Matlab.
- **Machine Learning Libraries:** NumPy, Sci-kit Learn, HanLP, Pandas, Matplotlib, Pytorch, Pytorch Geometric.
- **Backend Libraries:** Flask, Flask-Limiter, Flask-SQLAlchemy, Flask-SocketIO, Flask-APScheduler.
- **Mathematics:** Algebra, Analysis, Geometry, Topology, Numerical Analysis, Optimization, Probability, Stochastic.
- **Language:** English (fluent), Mandarin (native).

Awards & Achievements

- Freshmen Scholarship of SUSTech
- 2020 Second-class Outstanding Student Scholarship
- 2020 3rd prize in Mathematics competition (National Award)
- 2021 Third-class Outstanding Student Scholarship
- 2021 3rd prize in Mathematics competition (National Award)