Ruohui LIU

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Education Backgrounds

The University of Hong Kong   **2024.09-2025.11**
Degree: Master of Science   Major:Computer Science(Multimedia)

Northeastern University   **2020.09-2024.06**
Degree: Bachelor of Engineering   GPA:3.8989(top 10%)   Major:Computer Science and Technology

Social Experiences

Intern of Technical Sales Representative, Dell Technologies, Xiamen, Fujian   **2023.07-2023.08**
- Understood the CPU memory (DDR) disks (SAS, SATA, NVME) in 15G, 16G Servers and components such as GPUs, including industry-specific technologies and Dell-Specific technicial details, as well as storage devices (DAS, NAS, and SAN strong technologies), data project and other hardware knowledge;
- Introduced the advantages and use value of each product to customers;
- Comprehended the FABET sales method and communicated with customers to explore their demands;
- Filled the DSA (Dell sales application) declaration tool according to customers' requirements;

Reseach Experiences

Llama 3.1-8b-Instruct   **2024.10**
Utilized the Llama-3.1-8b large language model to explore complex tasks driven by natural language instructions, using the HumanEval dataset for experimentation. Based on baseline model, I reviewed multiple top-tier publications and chose to replicate the Self-Evolve and Self-Debug methods for model fine-tuning. Both methods leverage feedback mechanisms to enhance the baseline, resulting in pass@1 scores improving to 70% and 73%, respectively. After further refining the Self-Evolve method, I increased the model's coding performance on the dataset from 67% to 75%. Project GitHub link: https://github.com/LiuRuohui/Llama3.1-8b.

"Huawei Cup" China Graduate Mathematical Modeling Competition   **2024.09**
Starting with a big data-driven geographic problem, I served as the modeler for our team. I processed a dataset of 6GB provided by the project, gradually breaking it down and using Python libraries such as xarray, pandas, and rasterio to read file properties from .nc and .tif formats. I extracted and structured grid data by creating dataframes, ensuring spatial dimension consistency through spatial alignment and down-sampling methods. I employed neural networks, support vector regression, linear regression, and exponential smoothing to predict critical thresholds for heavy rainfall-induced disasters and compared the models' performance.

Research on Blockchain Consensus Algorithm Based on Time Weight and Location Verification   **2024.02-2024.07**
The Time-Weighted Location Verification (TWLV) algorithm is a blockchain consensus method based on time weight and proof of location, designed to address the limitations of existing consensus algorithms such as PoW, PoS, and PBFT. TWLV introduces time-weighted values and geographic location as criteria for selecting consensus nodes and incorporates a time-weighted ledger, a service/sync data ledger provided by nodes, and the three-phase protocol and garbage collection mechanism of PBFT. The algorithm also proposes an epoch polling mechanism, categorizing nodes into acceptor nodes, committee nodes, and regular nodes, with security ensured by verifying changes in node locations. The TWLV algorithm is cost-efficient in terms of network and storage, with experimental simulations demonstrating 89% stability and robustness.

Warehouse Management System based on Springboot+Vue   **2023.05-2023.06**
The backend technology stack was built using the Spring Boot framework and integrated with MyBatis-Plus. The frontend was developed using the Vue framework, along with the Element-UI component library and Tailwind CSS. For modal dialog functionality, I used the SweetAlert pure JavaScript plugin. MySQL was used as the data storage solution, managed through Navicat for database operations. Project GitHub link: https://github.com/LiuRuohui/lrh-web/tree/master

Mathematical Contest in Modelling   **2022.09-2023.05**
As the lead modeler in the team, I was responsible for data cleaning, analysis, model development, and writing the abstract of our paper using Python. I gained experience with various evaluation, classification, optimization, and prediction models. Before the competition, I collaborated closely with teammates to study high-quality research papers, simulate solutions, and prepare my own Python code repository for analysis. In the end, our team received a National First-Class Award (Finalist) in the competition.

"IM-FE" Web Application and Development   **2022.02-2022.05**
As a core team member, I contributed to a project developed with a front-end and back-end separation approach, utilizing a microservice backend architecture and deployed in a distributed manner to support horizontal scalability, enhancing system concurrency. The project was primarily built using a combination of Gin and Vue frameworks. During its operation, the project attracted approximately 300 registered users and was awarded a Provincial Third Prize. Project GitHub link: https://github.com/LiuRuohui/IM-FE

Extracurricular Experiences

- **Vice-minister of Life Department:** Took charge of dormitory management   **2021.09-2022.06**
- **Assistant Class Supervisor of CST2104 Class:** Guide students to register and introduce campus to them   **2021.09-2022.06**
- **Subject Assistance:** Worked as the subject assistance for EC(Engineering Communication), BRM(Business Ruirement Modelling, SFS(Software Analysis Studio), SA(Software Architecture), the lessons collaborate with UTS   **2021.09-2022.07**

Honors & Certificates

- Oustanding graduates, Northeastern University   2024.04
- Finalist, 2023 Mathematical Contest in Modeling, COMAP   2023.04
- Second Prize, The 14th Chinese Mathematics Competitions(Non-mathmetics), China Mathmatical Society 2023.03
- Merit Student (University-Level), 2021-2022 Academic Year   2022.11
- Second Prize (Hebei Area), Contemporary Undergraduate Mathematical Contest in Modeling   2022.09
- Third Prize (Hebei Province), The 15th Chinese University Students Computer Design Competition   2022.06

Publication: Paper Title: Light Pollution Impact Risk Measure Model based on AHP-CRITIC Method, the 2023 International Conference on Economy and Finance, Enterprise Reform and Marketing Research (EERMR 2023)

Professional Qualifications

Language: Proficient in Mandarin and English (IELTS 6.5);

Computer: Proficient in Windows and Linux system operation, Office, Drawio, Python, MATLAB, C++, JavaScript, etc.;