Chi Xing

Email: sgcxing@liverpool.ac.uk   Github: https://github.com/MartinRepo

EDUCATION BACKGROUND

University of Liverpool   **Liverpool, England**
BSc Computer Science   *Sep. 2022 – May 2024(Expected)*

Xi'an Jiaotong-Liverpool University   **Suzhou, China**
BSc Information and Computing Science   *Sep. 2020 – Aug. 2022*

- **Main courses:** Adv Obj Oriented C Languages (90%), Java Programming (91%), Adv Artificial Intelligence (90%), Complexity of Algorithm (84%), Efficient Sequential Algorithms (81%), Optimization (83%), Intro to Theory of Computation (81%), Algorithmic Foundations and Problem Solving (81%)

COMPETITION EXPERIENCES

2023 BMW Hackathon   **Shenyang, China**
2nd place in Channel: Energy-Saving Method in Production with HVB Reuse   *Aug 20th, 2023.*
Design and implementation of power scheduling algorithm.

- Designed a special algorithm to try to find the optimal solution for power scheduling with the idea of dynamic programming; found patterns in the peak and valley price of electricity, the amount of electricity generated during the period of the PV, and the intensity of solar radiation; listed the dynamic transfer equation and discovered the optimal solution finally.

Design and implementation of battery scheduling algorithm.

- Energy storage cabinets form an integral component of electric power dispatch systems, incorporating a multitude of retired automotive batteries. The judicious scheduling of batteries within these cabinets can mitigate the rate of battery lifespan degradation. Centered around the greedy algorithm, we have devised a battery dispatch strategy. Furthermore, we have validated the correctness of this greedy algorithm, demonstrating that it satisfies the properties of greedy choice and recursion.

Docker engineering packaging

- Used Docker to engineering package and submitted the final scheduling solution, get familiar with Docker.

OPEN-SOURCE & INTERNSHIP EXPERIENCES

Casibase   **Casbin Open-source Community**
Contributor, Mentor of 2024 OSPP (Open-Source Promotion Plan)   *Jan. 2024 –*

- Expanded Casibase's capabilities by integrating support for a variety of large models, including chat and embedding models.
- Enhanced Casibase with multimodal support, optimized output format, and addressed related bugs.
- Improved the user interface to elevate the user experience.
- Optimize the logic of the text splitter to facilitate better vectorized embedding of the AI knowledge base.
- Utilized Go for backend development and React framework for frontend development. Gained proficiency in applying the MVC design pattern in practical scenarios, deepening understanding of frontend-backend interactions. Recognized the importance of maintaining loose coupling to facilitate future code maintenance.
- Addressed a lot of issues, details of which can be found at https://martinspace.top/en/about/.

SenseTime Technology   **Shanghai, China**
Intelligent Healthcare Group, Medical Image Analysis Intern   *Jun. 2023 – Aug. 2023*

- Engaged in medical image analysis projects for core healthcare clients, collecting multimodal data including CT, MRI, and PET; carried out data preprocessing, normalization, overlapping, and stitching to achieve precise image fusion across different modalities and sequences.
- Assisted the team in training segmentation models with small-sample annotated data, adapted the RPN layer structure of the MASK-RCNN network for scenarios such as chemotherapy and radiotherapy target areas, achieving pixel-level lesion boundary segmentation through masking.
- Regularly communicated with the medical client team to gather professional feedback, participated in technical sharing sessions, and studied and summarized the company's top-tier conference papers over the years.

IFLYTEK (China Leading Artificial Intelligence Company)   **Suzhou, China**
R&D Department, Software Engineer   *Jun. 2022 – Sep. 2022*

- Assisted the department, worked mainly on natural language processing (NLP) in annotating and checking the address data to ensure the quality of the data.

"IFLYTEK Foresight" Police Super Brain System

- Checked and re-labelled indistinguishable address labels (Point of Interest), which were labelled by computer mechanically with an unexpected accuracy and a low efficiency.
- Tried to find regularity in the data structure and learned to write Python scripts to process the remaining 6,000 data, which greatly improved the labelling efficiency, thus receiving praise from my leader.
- Understood how to handle JSON data and improve my ability to write code in practice, unlike the paper-based approach taken in previous studies.

A Quiz Algorithm Competition in the Field of Heritage Culture

- Worked with the operations department to prepare the data for the algorithm competition.
- Learned about entity relationship extraction in natural language processing, such as SPO (Subject, Predicate, Object) extraction.
- Understood the methods of building knowledge graphs such as building knowledge graphs from structured data.

ACADEMIC & PROJECT EXPERIENCES

Scheduling for Smart Grid   **Liverpool, England**
Developer   *Oct. 2023 - May. 2024*
Study some scheduling problems arising in demand response management, including FPT, Greedy, Genetic and Feasible Graph. Design a website to visualize performance indicator of these scheduling solutions. The Github link is here: https://github.com/MartinRepo/SmartGrid

- Studied principals of 4 algorithms, including dynamic programming, graph theory, etc.
- Implemented 4 algorithms using C++, use CPPREST to interact with front-end and use CMake to build the project.
- Developed visualization website using React.js and use AntDesign/g2 to visualize performance metric data.
- Deploy the system on the cloud server (ubuntu os), which enhanced my cloud development skill.

Personal Website   **Liverpool, England**
Developer   *Dec. 2022*
This is a personal website which documents my life and some technical articles. This site implements features such as archiving, tagging, and searching for articles, a comment section under each blog, and automatic website currency statistics. I used the HUGO framework for development and deployed it to the server. Here is the website link https://martinspace.top.

- Configured the fundamental functionalities of a blog by modifying the .yaml file, customized the blog interface, and implemented various APIs and small plugins to implement features such as a comment section.
- Acquired knowledge on server configuration to enable service provision and learned how to configure Nginx. Mastered the process of applying for SSL certificates to offer https services for enhanced security and became proficient in setting up firewalls (allowing ports to function normally) as well as packaging locally and deploying to servers. These experiences have deepened my familiarity with Linux commands.
- In later stages, I also explored migrating my blog to Github Pages and substituting the default github.io domain with my own, personalized domain.

AI Adversarial Training   **Liverpool, England**
Developer   *Nov. 2022 – Dec.2022*
This is an AI adversarial training based on FashionMinst dataset. The development uses the Pytorch framework and uses a few algorithms for training.

- During the training process, studied many algorithms (e.g. Fast Gradient Descent FGSM, Projected Gradient Descent PGD and Carlini and Wagner Attacks C&W, etc.) to generate adversarial samples; delved into algorithm principles and did a bit of optimization specific to the task.
- After comparing the results of many training results, the group finally chose two algorithms (FGSM and PGD) for integration and optimization to achieve higher attack ability.
- Familiarize with the Pytorch framework and gain some understanding of many adversarial algorithms. In addition, realized that it is especially important to check the robustness of deep learning models after learning a variety of attack algorithms.

Real-time and Distributed Temperature Monitoring Network Based on AIoT   **Suzhou, China**
Research Assistant, Supervising Professor: Dr Xiaohui Zhu   *Dec. 2021 – Aug. 2022*
This is a large-scale distributed temperature monitoring system based on the ZigBee communication protocol and AIoT (the combination of Artificial intelligence technologies with the Internet of things (IoT) infrastructure). In the network, end devices can collect and transfer environmental temperature to a coordinator via ZigBee communication. The coordinator can send temperature data to a cloud server via 4G/5G network. An APP and website are developed for users to manage end devices, coordinators in the network, and temperature data in cloud server.

- Participated in the back-office management system development, including receiving temperature data in real time and providing alarms for abnormal temperatures.
- Assisted in the back-end development, mainly writing API to grab the temperature data sent by the coordinator, and other data used on the APP side and encapsulating them into APIs for the front-end to call.

SKILLS & HOBBIES

Language: English (Fluent)
Certificate:

- The 2023 UK & Ireland Programming Contest Honorable Mention (2nd place in University of Liverpool)
- Asian-Pacific Mathematic Modelling Competition Third Prize (Top 25%)

Skills:

- Data: Python, R, SQL, SPSS, MATLAB
- Development: C/C++/C#, Java, Go, JavaScript, Python
- Front-end Development: HTML, CSS, React.js, Vue.js
- Back-end Development: Express.js, Beggo, Spring Boot
- AI Framework: TensorFlow, Sklearn, PyTorch
- Tool: Git, Linux, Nginx, Node.js