Song Jianhao's Resume

Personal Information

- Name: Jianhao Song
- Gender: Male Age: 19
- Tel: 15710565260 Email: songjh22@mails.tsinghua.edu.cn
- Major: Computer Science and Technology

Education Background

Tsinghua University Beijing, China

GPA 3.72 *Sept. 2022 –Expected Jun. 2026*

Project Experience

Human Resource Machine Sept. 2022–Nov. 2022

Project Leader *Beijing, China*

- I led the team to use C++ to reimplement the programming puzzle game Human Resource Machine developed by Tomorrow Corporation. In this game, players need to input code to control a robot to complete specified tasks, which effectively trains programming thinking without requiring knowledge of any specific programming language, as the game uses its own easy-to-understand code format. Additionally, our game emphasizes code optimization, encouraging players to use the simplest and most efficient code to achieve functionality.

MiniGPT Jul. 2023–Sept. 2023

Project Leader *Beijing, China*

- In this project, we built a MiniGPT model based on a transformer architecture. We used Jin Yong's wuxia novels and our own constructed Q/A pairs for pretraining and fine-tuning, enabling it to answer questions related to Jin Yong's novels correctly.

The New SJHork Times Jul. 2023–Sept. 2023

Project Leader *Beijing, China*

- In this project, we used web scraping to collect thousands of technology news articles from various news websites. We stored the data using database technology and developed both front-end and back-end systems to display the scraped news entries, along with implementing a search functionality. We also conducted data analysis on the collected news information, including heat analysis based on the TF-IDF statistical mechanism and sentiment analysis of the news text using existing libraries.

Kobe Chat Apr. 2024–Jul. 2024

Team Member *Beijing, China*

- Our team used the Django and React frameworks to build both the front-end and back-end parts, and completed testing. We developed an instant messaging software similar to WeChat or QQ, which supports private chats, group chats, and various other common functions.

Pinyin Input Apr. 2024–May. 2024

Project Leader *Beijing, China*

- I extracted word and phrase frequencies from a large number of responses on various online platforms. Then, based on a Markov model, I used the Viterbi algorithm to perform dynamic programming on the user's Pinyin input to obtain the most likely Chinese sentence corresponding to the Pinyin. The accuracy of the implemented Pinyin input method can reach about 60 percent.

Gravity Connect Four Jun. 2024–Jul. 2024

Project Leader *Beijing, China*

- I used the Upper Confidence Bound (UCB) algorithm combined with Monte Carlo Tree Search (MCTS) to implement the Upper Confidence Trees (UCT) algorithm for simulating the game of Gravity Connect Four. The AI developed using this approach achieved a 99.9 percent win rate in human vs. AI matches and won 97 out of 100 test games against different chess algorithms.

Sentiment Classification May. 2024–Jun. 2024

Project Leader *Beijing, China*

- I used the PyTorch framework to build various neural networks, including MLP, CNN, and RNN (both LSTM and GRU), for emotion classification. These models were trained and validated on a large dataset of labeled Weibo user comments. The final models achieved an accuracy of over 80 percent on the test set.

Awards

First prize at province level in the CNMO (China National Mathematics Olympiad) Nov. 2019

- Ranked among the top 50 high school students in the province

Freshmen Scholarship for Outstanding Students Oct. 2022/2023

- Award presented to freshmen admitted to Tsinghua University with outstanding achievements

Classes

Completed Courses: Calculus A(1), Calculus A(2), Linear Algebra (A) , Advanced Topics in Linear Algebra (A), Elementary Number Theory, Discrete Mathematics(1), Discrete Mathematics(2) (A), Fundamentals of Programming, Introduction to Complex Analysis (A+) , Introduction to Artificial Intelligence, Probability and Statistics (A) , Data Structures, Introduction to Computer Systems, Fundamentals of Object-Oriented Programming (A+) , Physics for Scientists and Engineers B(1), Physics for Scientists and Engineers B(2), Software Engineering, Digital Logic Circuit, Digital Logic Experimentation.

Skills & Interests

Skills

- Have a good command of C/C++/Python/Markdown/HTML/CSS.
- Possess a foundation in artificial intelligence theory, master PyTorch framework.
- Proficient in data structures and algorithms, familiar with frameworks such as Qt/Django/React/Sanic, and knowledgeable in both front-end and back-end technologies.
- Extensive leadership experience, strong emphasis on team collaboration, and excellent communication skills.

Interests

- Deep Learning/Reinforcement Learning
- Embodied AI
- HCI

Extracurricular Activities

Basketball Team of THU CST Department Mar. 2023 – Present

Point Guard *Beijing, China*

- Led the team to the qualifying group in the 2022 Freshman Cup with tenacious defense and teamwork.
- Mentored junior team members, providing guidance on proper techniques and sportsmanship.
- Advanced to the top eight in the school's class basketball tournament, which included around 400 classes from freshmen to seniors.

Football Team of THU CST Department Oct. 2022 – Present

Outside Defender *Beijing, China*

- Three years of professional football training.
- Achieved multiple championships with the team in departmental football competitions and consistently achieved perfect results in school-wide tournaments.

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