WEI SONG

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EDUCATION

University of Science and Technology of China **Anhui, China**
Bachelor of Computer Science & Technology 2020 – 2024 (Expected)
• Overall GPA: 3.64/4.3 Rank: top30% (Among all students majoring in Computer Science & Technology at USTC)

HONORS

• **Outstanding Student Scholarship, Bronze award (top20% at USTC)** 2022
• 2021 USTC Programming Contest (Div.2), Special Award for Girls (rank 1st) 2022
• **2021 China Collegiate Programming Contest for Girls (CCPC), Bronze Medal** 2021
• **The 46th ICPC Aisa Region Contest, Honorable Mention (for three girls)** 2021
• Outstanding Student Scholarship (Grade 3) at USTC 2021
• Outstanding Freshman Scholarship (Grade 3) at USTC 2020

RESEARCH INTERESTS

AI + X(e.g. Education, health); HCI; Robotics; Visualization; Recommender Systems; XR; Data mining; Machine Learning

RESEARCH EXPERIENCE

BASE Group (at BDAA Lab) University of Science and Technology of China
Advisors: **Prof. Qi Liu** (School of Computer Sci & Tec, USTC) Sep. 2022 – now

Computerized-Adaptive-Testing Module of Codia

CAT Module is part of the CODIA, which is an online programming learning platform being developed under BASE group since 2019. The main function of the CAT Module is to establish an IRT question bank based on the Item Response Theory, and then select appropriate test questions from the question bank according to each user's different ability levels.

Engagement:

- Study relevant papers on CAT and learn the open-source code of CAT to understand the entire process.
- Using **Vue3 + Tailwind CSS** to complete the front-end interface based on UI design.
- Using **Python** to complete parts of the coding of back-end algorithm for CAT. (By inputting the user ID, question ID, and score once, we can obtain the next question ID and ability value vector.)
- Using **Graphql** to implement the integration between front-end and back-end.
- Investigate the information of ShuiShan OJ.
- link: Back-end Algorithm & Front-end Interface

Intelligent Code Module of Codia

- Study relevant papers on **Machine Learning for Big Code and Code Search.**
- According to the input, use **text-similarity** to find the most similar answer in the XLCoST dataset and output it.
- Train several models on the XLCoST dataset using **Deep Learning,** including NL2Python(Natural Language to Python), NL2Cpp, NL2Java.

ACADEMIC PROJECTS

Compiler_CMinus and GVN University of Science and Technology of China
Advisors: **Prof. Cheng Li** (School of Computer Sci & Tec, USTC)

- Using the Visitor pattern to Implement automatic generation of IR.
- Create a primary compiler (cminus-f) based on the experimental framework (**C++**).
- Implement a data-flow-analysis-based optimization pass for redundant elimination: Global Value Numbering (**GVN**).
- link

Multi-cycle Pipelined CPU
Advisors: **Prof. Jianliang Lu** (School of Computer Sci & Tec, USTC)

- Design and simulate the multi-cycle pipelined CPU with I/O devices on **Logisim**.

- Using **Verilog** to complete the coding of multi-cycle pipelined CPU with I/O devices on **Vivado**. And then test it on **FPGA**.
- Open source: https://github.com/Mercidaiha/ustc-cod-lab

Operating System Course Project
Advisors: **Prof. Yongkun Li** (School of Computer Sci & Tec, USTC)
- Add linux system call. Complete a **shell** and a top program.
- Complete a **memory allocator** (sbrk) and process memory information statistic program.
- Complete a **FAT16** file system.
- Open source: https://github.com/Mercidaiha/ustc-os-2022

Assembler&&Simulator
- Implement a tiny **LC3 assembler.**
- Implement a tiny **LC3 simulator, on which we can run an LC3 program written in machine code.**
- Open source: Assembler&&Simulator

Voice Chatbot (XiaoXin)
cooperator
- Create a voice bot using the free Baidu speech recognition and synthesis libraries.
- Complete GUI and basic functions such as music playback and **human-computer conversation**.

TEACHING ASSISTANT

Basics of Computer Applications II (Spring 2023) Feb. 2023 - now
- Instructor: **Prof. Linbo Wang** (Department of Computer Science & Technology, Anhui University)
- Credit 3; Class: 17 juniors at USTC

EXTRACURRICULAR ACTIVITIES & INTERESTS

- Member of the Student Union (School of Management, USTC) Sep. 2020 - Jun. 2021
  - Responsible for news and publicity work.
- Volunteer, Graduate School Opening Ceremony (USTC) Sep. 2022
- Volunteer, USTC Kindergarten Activities Nov. 2022

SKILLS

Programming: C/C++, Python, Verilog, LATEX, Vue3+Tailwind CSS+Graphql

Proficient in Data Structure and Algorithms

Language: English (CET-6)