Zilin Xu

Email zx112@duke.edu · Github https://github.com/Bruce-XUZILIN

EDUCATION

Duke University	Class of 2024
Master of Engineering in Electrical and Computer Engineering(Software development track)	Durham, US
University of Miami	Class of 2022
Bachelor of Science in Computer Science	Miami, US

PERSONAL SKILLS

For detailed personal technical stack notes, visit my GitHub page.

Programming Languages: Proficient in **Java** and Python, Familiar with C/C++ , SQL, HTML, JavaScript, and CSS.

JavaWeb: Well-versed in **JSP**, Servlet, JDBC, etc. Proficient in using **Tomcat** and Eclipse for Web project development.

Frameworks: Familiar with **Springboot**. Several project experience such as **login/registration** and **group chat rooms**.

Tools: Proficient in using **Git** and consistently manage personal profiles using GitHub. Familiar with the syntax of **.md** and .tex files and **maintain documentation writing**.

Professional Knowledge: Knowledgeable in Databases, Computer Networks, Operating Systems, Linux systems, etc. Familiar with **software testing** knowledge (such as JUnit).

Certification: Certificate of Completion for the 5th ByteDance Backend Youth Training Camp.

WORKING EXPERIENCE

Mevion Medical Systems	May - Aug 2023
Software Intern, R&D Department	Kunshan, China

Developed a software that displays **all 3D model files** of company machinery and implemented an **AI knowledge base Q&A system** based on company documents (**Python**).

- Implemented the loading and rendering of 3D models, displaying over **5000 STL files** in the GUI using **VTK renderer.** Provided **interactive features,** including model selection, hiding, resetting, and simulating mouse left, middle, and right-click events. Integrated **eight buttons** with corresponding functionalities in the software GUI, including **displaying PDF files** for specific models and **toggling Q&A mode**, significantly enhancing user interaction with the models.

- Integrated an open-source project from Tsinghua University for the **intelligent Q&A component** of the software. Established a **server** within the open-source project to retrieve answers, transmitting JSON files to the frontend GUI via **sockets**. Employed **multi-threading** to handle tasks related to obtaining model answers, ensuring **smooth operation** of the application.

- By incorporating a **startup progress bar** and operation instructions, the user-friendliness of the software's startup process was effectively enhanced. Additionally, the application of **multi-threading** and **network communication** not only boosted system performance but also ensured users were unimpeded when retrieving answers, resulting in a **smoother user experience**.

- This project received continuous **recognition** from the **company's CEO** and the R&D department, greatly optimizing the efficiency of training new employees. It also laid a solid foundation for the company's future knowledge graph collaboration with outsourcing companies.

PROJECT EXPERIENCE

Risc Game	**Java**	Apr - May 2023

- Designed an occupation-based game utilizing technologies such as **MVC (Model-View-Controller)** architecture, **Spring Boot**, and **Web Socket communication**. Established both **Client** and **Server** sides, enabling support for a minimum of **four players** to be online simultaneously.

- Implemented an online **chat room**, user registration, login, as well as features like **attacking and occupying territories**. In the game, players use soldiers to launch attacks on the territories of other players. It encompasses basic interactions such as soldier movement and upgrades, along with optional gameplay elements like upgrading technology, training spies, and forming alliances.

Implemented Malloc and Free	**C**	Jan - Feb 2023

- Implemented the C language library's malloc and free using two methods: **first fit** and **best fit**. The **sbrk()** function was used to allocate memory in the heap. Created a custom data structure to represent memory blocks, a **doubly linked list**, and maintained a **Freelist** representing all free blocks.

- To optimize memory allocation, a feature was implemented to **prevent memory wastage**. This involved **splitting** memory blocks from larger blocks and **merging** adjacent free memory blocks.

- To ensure **thread safety**, two methods were employed: **setting thread locks** and **defining thread-local static**

TEACHING & LEADERSHIP EXPERIENCE

University of Miami Computer Science Department	Aug - Dec 2021
Teaching Assistant	Miami, US

- Became TA for Java Basics and Python Basics courses with over **200** students. Replied to an average of 5 emails every day for answering questions for courses and homework. Corrected the final projects of **all students**(over **100** lines code) and gave grades and reasons.

- Held lab hours for these courses **8 hours** per week. Explained the assessments and course materials in detail in order to help students get started as beginners. The overall student satisfaction exceeded **95%**.

Chinese Student Association	Apr - Dec 2021
Secretary of Culture & Entertainment Department	Miami, US

- Held online game competition for **all Chinese students** in order to enrich students' quarantine time.

- Acted as the chief director of the Mid-Autumn Evening party. Interviewed **20** programs. Selected best programs and rehearsed the lighting and venue over **10 hours.** Assign all my team members for over **8 tasks**(such lighting control) while the party started. The party attracted more than **200** students and won praise from all the parents.