**Zilin Xu**

TEL/WECHAT 15150207001**∙** [zx112@duke.edu](mailto:your_email@duke.edu) **∙** Gitlab https://gitlab.oit.duke.edu/zx112

**EDUCATION**

**Duke University** Class of 2024

*Master of Engineering in Electrical and Computer Engineering(Software development track)* Kunshan, China/Durham, US

* Courses: System Programming and Engineering, Software Engineering, *etc.*

**University of Miami** Class of 2022

*Bachelor of Science in Computer Science* Miami, US

* GPA: 3.68/4.0; Major GPA: **3.792/4.0**
* Courses: Database System, Computer Networking, Data Structure and Algorithm, *etc*.

**WORKING EXPERIENCE**

**Huahong Hongli Semiconductor Manufacturing Co.,Ltd** May - Aug 2021

*Intern*, *Information Service Department,Data & Algorithm Group* Shanghai, China

* Sorted out the data logic from more than **100** machines and analyzed their log files. Grouped all the machines into **12** groups by analyzing and summarizing their fields(over **50** fields per machine) and logic(**Excel**).
* Parsed field names and their corresponding values from log files by using XML and Conf files. For **48** special fields(such as time, dataKey), I wrote Java code to display them according to the request of user. Successfully completed more than **10** temporary user requests(**Java**).
* Created **12** Kafka and Hbase databases for each group. Created their corresponding mapping tables( for real-time checking) and historical tables. Wrote over **200** lines of SQL to debug the wrong data in tables(**SQL & Hive SQL**).
* Wrote over **400** lines of Java code to deal with special cases before Kafka step. For example, some log files from machines may generate irregular newlines that obey the logic before(**Java**).

**PROJECT EXPERIENCE**

**Battleship Game Java** Feb 2023

* Created an end-to-end text-based battleship game project, where each player has a 10 x 20 grid to place over **10** battleships. The game features include ship selection, attacking, moving, sonar detection, and **human-computer interactions**.
* The project followed the S.O.L.I.D. design principle and used **object-oriented programming** features. The implementation utilized **20** Java classes, abstract classes, and interfaces. Each class was responsible for a specific functionality, ensuring program maintainability and extensibility.
* The project progress was globally planned, dividing all tasks into 8 goals, and tracked using **git** functionality. At each small task completion, **JUnit** framework was used for testing, achieving **100%** branch test coverage.

**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 variables.**

**Tetris Game Verilog & MIPS Assembly** Nov - Dec 2022Oct 2022

* Wrote Verilog code in Quartus to implement square movement, pause and accelerate by using PS2 keyboard. Displayed the game interface on the VGA monitor.
* Wrote **200** lines **MIPS** instructions as machine recognition language to achieve the basic logic of the game: random generation of small block, block elimination, rotation, acceleration and so on.

**Hotel Management Database System Java & SQL** Apr-May 2022

* Created a database with **4** tables and over **20** variables in **150** lines of SQL code.
* Used Java to create the user interface and wrote over **500** lines of Java code to implement **10** functions such as listing all the room information. Satisfied a user’s need for the database system within **1** minute.

**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.

**ADDITIONAL INFORMATION**

**Skills:** Python, C, C++, Java, R, SQL, Bash, Linux, Teaching methods, Negotiation skills, Hosting skills, Piano highest level