Leo Zhang

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EDUCATION

Vanderbilt University, Nashville, TN Aug 2022-May 2026(Expected)

Bachelor of Computer Science and Mathematics with a minor in Data Science, GPA: 4.00/4.00

Coursework: Data Structure and Algorithms, Discrete Structures, Digital Systems, Intermediate Software Design, Programming Language, Error-Correcting Codes, Algorithms, Machine Learning, Database Management System

SKILLS

Languages and Tools: C++, Java, Python, SQL, NoSQL, HTML, CSS, JavaScript, Linux, Git, Prolog, Vue3, Spring Boot, Redis, Racket, Node.js, React, Firebase

EXPERIENCE

JD.com Software Engineer Intern Jun 2024 - Aug 2024

- Designed and implemented a farm management system using Vue3 and Spring Boot, streamlined product organization and sales, and enhanced operational efficiency for agricultural products.
- Led the module design and interaction design for platform and service product applications, included the internal operation support platform and cloud services.
- Analyzed and resolved complex software development issues, contributed to the maintenance of existing websites, and ensured smooth functionality by testing and fixing system bugs.

Headstarter Fellowship Intern July 2024 - current

- Created a personal profile using HTML, CSS, and JavaScript, showcasing portfolio projects and professional experiences.
- Built an inventory tracking system, managed and monitored stock levels by using Node.js and Firebase, enabled efficient product management and reporting.
- Developed a chatbot using Javascript and OpenAI API, improved customer support efficiency by automating responses to frequently asked questions.

PROJECTS

Blockchain Infrastructure Development for VandyCoin (C++) Feb 2024

- Developed the blockchain infrastructure that allows us to track the record in the database and every transaction in the record.
- Implemented customized STL-compatible iterators for the core data structures, including doubly linked lists for database records and singly-linked lists for transactions within records, enhancing data efficiency and maintainability.
- Launched the Database to serve as the container for all records and transactions, alongside implementing essential functionalities, crafted the Record class to manage the blockchain's transactions, defining its lifecycle through a destructor and transaction management method.
- Applied design patterns such as Iterator and Factory to ensure modularity and extensibility of the blockchain's infrastructure.

Database Engine Construction with Cryptographic Elements (C++) Jan 2024

- Spearheaded the development of a database application for banks utilizing C++ advanced features including virtual methods, static variables, and abstract classes.
- Engineered a secure user system by integrating cryptographic protocols, Proof of Work hashing, and Digital Signing to authenticate user actions and ensure transaction integrity.
- Utilized design patterns such as Command, Factory, and Bridge to establish a robust and scalable codebase.
- Managed intricate toolchain management, including extensive file count and complex CMake setups, while efficiently handling third-party packages management with VcPkg.

VandyHash Algorithm Implementation (C++) Jan 2024

- Implemented a content validator and built the VandyHash class in C++ by creating a hash algorithm following the UML class diagram and the starter files.
- Effectively utilized Git for version control and Github's CI platform for automated testing to streamline development workflows and ensure code quality.
- Leveraged advanced C++ features such as classes, inheritance, and keywords to enhance the robustness of the hash function.

Text Twist Recursive Solver (Java) Nov 2023

- Developed a Java-based solver for the Text Twist game that identified all permissible words from a random set of seven characters.
- Designed a recursive backtracking algorithm to generate all possible word combinations, ensuring no repeated or invalid words were considered.
- Crafted a user interface to capture player input and display solutions in lexicographical order, conforming to the game's rules.
- Applied a dead-end avoidance strategy within the recursive algorithm to reduce the number of computations.

Backmasking Sound Manipulation Tool (Java) Oct 2023

- Engineered a Java application to reverse sound clips by implementing a customized stack ADT, honing skills in stack manipulation and file I/O operations.
- Developed a stack implementation utilizing a singly linked list for efficient sound data processing, demonstrating proficiency in data structure design and algorithm implementation.
- Leveraged Java's Scanner and PrintStream classes for streamlined file parsing and output formatting, emulating industry-standard sound editing tools for seamless integration and compatibility.

Interests: Badminton, Sudoku, Photography, Cooking, Rubik's cube, Meditation