

Denny Zhou

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EDUCATION

University of Washington

Seattle, WA

Bachelor of Science in Computer Science

September 2022 - March. 2025

Relevant Coursework: Data Structure and Algorithms, Distributed Systems, Database Systems, Software Design/Implementation, Systems Programming

WORK EXPERIENCE

Supio

Seattle, WA

Software Developer Intern

March. 2024 - November. 2024

- Refactored internal JSON metadata for various stakeholders/clients and case types, streamlining access and editing processes for operations teams.
- Enhanced development efficiency and flexibility in schema management by designing and implementing a full-stack Schema Function Editor that enabled developers to create, retrieve, and edit schema functions stored in DynamoDB using GraphQL APIs.
- Lead the design and deployment of automated pipeline processes, achieving an 87.5% reduction in processing time per case. Architected a fault-tolerant, concurrent system that preserved execution states by leveraging TemporalIO, OpenAI fine-tuned models, and AWS S3 to generate, process, and integrate case overviews and reports.

PROJECTS

Sharded Transactional Key-Value Store | *Java*

- Wrote and implemented a design documentation of a fault-tolerant sharded key-value store that allowed cross-group transactions and handled reconfiguration.
- Integrated a Shard Master utilizing multi-paxos with dynamic reconfiguration and load balancing of shards among replica groups.
- Extended system's functionality by implementing two-phase commit with locking, deadlock-free behavior, and guaranteeing linearizability of all transactions, including concurrent re-configurations.

Document Search Engine | *C, C++, POSIX*

- Developed a document search engine and front-end web server built on top of POSIX that is capable of processing word inputs to match a pre-populated database.
- Implemented a doubly linked list and chaining hash table through a program capable of modifying index files in network-byte order and a directory crawler to create inverted indices stored on disk.
- Utilized multi-threaded networking to allow multiple clients to interact simultaneously with search engine and handle over 300 queries per second.

SimpleDB | *Java*

- Developed core components of a database management system, including query parsing, table operators, relational algebra operators, buffer pool, and data management.
- Implemented a buffer pool with caching mechanisms and an eviction policy to improve performance, ensuring transactional safety through a synchronized Log Manager.
- Extended the system to support concurrent transactions using Strict 2PL with a timeout-based deadlock detection mechanism for safe concurrency and recovery.

QuizMe | *TypeScript, React*

- Designed and developed a dynamic digital application utilizing React and TypeScript, enabling users to create, manage, and study customizable flashcard sets for enhanced learning experiences.
- Successfully integrated REST API communications for seamless data persistence and retrieval, while implementing error handling and input validation for improved reliability on the back-end.
- Conducted thorough Unit testing to ensure all components and functionalities (both front-end and back-end) work as intended, delivering a high-quality product.

TECHNICAL SKILLS

Languages: Python, Java, TypeScript, JavaScript, C, C++, SQL, HTML/CSS

Libraries and Frameworks: React, Node.js, Next.js, TemporalIO, GraphQL (Apollo Server), JUnit

Developer Tools: Git, GitHub, Amazon Web Services, Azure, Bash, Linux