Yuchen Liang

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Education

Carnegie Mellon University
Bachelor of Science
Computer Science, May 2024

QPA: 3.6

Additional Minors:
SCS Systems Concentration

Relevant Coursework:
- Algorithm Design and Analysis *
- Computer Graphics *
- Distributed Systems
- Database Systems
- Intro to Computer Systems
- Parallel and Sequential Data Structures and Algorithms
- Principles of Functional Programming
- Principles of Imperative Computation

* Courses in Fall 2022

Shady Side Academy, PA
High School Diploma
May 2020

Skills

Programming Languages (Proficient):
C · C++ · Java · Python · Standard ML

Programming Languages (Familiar):
Rust · Swift · Go · SQL · JavaScript · HTML/CSS

Operating Systems:
Linux · MacOS · Windows

Tools:
Shell · Git · Bazel · Makefile · GDB · Vim · LaTeX

Other Technical Skills:
Database Design · RPC · Distributed System Design

Languages:
Mandarin · English

Experience

Carnegie Mellon University · Teaching Assistant for 15-445 Database Systems — Fall 2022
- Help develop course materials; host office hours for projects and homeworks

Argo AI · Software Engineering Intern — Summer 2022
- Develop and integrate new frontend and backend features into Argo's simulation pipelines for autonomous vehicles
- Investigate ways to utilize public traffic data set for sim scenario generation

Carnegie Mellon University · Independent Study with CMU DB-Group — Spring 2022
- Examine how filter structures (bloom filters, cuckoo filters, zone maps, SuRF) can be leveraged to accelerate selection in open-source column storage formats (Apache Arrow)

Selected Projects

chain-rs · Rust — Summer 2022 - Present
- A simple blockchain p2p system implemented in Rust

2pc-collage · Java — Spring 2022
- A distributed group collage publishing service using two-phase commit

Distributed File Cache Proxy · Java — Spring 2022
- A whole-file caching system that support RPC syscalls from client. Utilized "check-on-use" update propagation policy to preserve one-copy semantics at an open-close granularity

lib-rpc · C — Spring 2022
- A RPC file services library built from scratch with the ability to perform syscalls (e.g. open, close, read, write, lseek, unlink)

BusTub - Buffer Pool Manager · C++ — Fall 2021
- A thread-safe buffer pool manager that supports fetching, flushing, unpinning, deleting, and creating new disk pages. Provide an alternative parallel configuration to reduce contention.

BusTub - Hash Index · C++ — Fall 2021
- A disk-backed thread-safe hash table for Bustub DBMS using the extendible hashing hashing scheme
- Support bucket splitting/merging and directory expansion/contraction while keeping track of global and local depth

BusTub - Query Executors · C++ — Fall 2021
- Implemented volcano style query executors for DBMS that support operations like sequential scan, insert, update, delete, hash-join, aggregation, limit, and distinct

BusTub - Concurrency Control · C++ — Fall 2021
- Implemented a lock manager responsible for managing shared or exclusive tuple-level locks. Support read-uncommited, read-commited, and repeatable-read isolation levels

Publications

FitNibble: A Field Study to Evaluate the Utility and Usability of Automatic Diet Monitoring in Food Journaling using an Eyeglasses-based Wearable
Abdelkareem Bedri, Yuchen Liang, Sudershan Boovaraghavan, Geoff Kaufman, Mayank Goel, To appear in Proceedings of the Annual Conference on Intelligent User Interfaces (IUI 2022)

Awards and Honors

- *Dean's List, High Honors,* CMU School of Computer Science, Fall 2021.