Ruizhe Zheng

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EDUCATION & SKILLS

- **Carnegie Mellon University: Pittsburgh, PA**   Undergraduate: May, 2022
  BS in Electrical & Computer Engineering, Minor in Computer Science   Senior
  - **Cumulative GPA**: 3.7;
  - **Major Coursework**:
    15-213: Introduction to Computer Systems;
    17-214: Principles of Software Construction;
    15-440: Distributed Systems;
    15-441: Computer Networks;
    15-410: Operating Systems Design and Implementation;
    15-411 (Ongoing): Compiler Design and Implementation;

- **Languages**: Java (Primary), C (Primary), C++, Ruby, Python, SystemVerilog;

- **Technologies**: Unix, Git, OOP Design, GDB, Latex, AWS, Elasticsearch;

EXPERIENCE

- **[Internship] Job Metadata Search Project at Amazon AWS Elemental**   2021
  - Designed and implemented an internal tool that integrates into our team's codebase to allow extensive querying of available session information for our AWS service;
  - Used multiple core AWS services to achieve high scalability, robust fault tolerance & handing, operating visibility, and straightforward continuous integration & development;
  - Implemented high coverage unit testing and load testing based on existing framework; Wrote extensive design and operational documentation; Tool already in use in beta and ready for production environment by internship end date;

- **[Project] Operating System Kernel Design & Implementation**   2020-2021
  - Designed and implemented POSIX-like operating system kernel capable of dynamic memory management, concurrency, synchronization, hardware interrupts, preemptive round-robin scheduling, context switching, paging, and exception handling; Designed for single-processor CPUs but can be easily ported to multi-processor CPUs;
  - Written in x86_64 Assembly & C and tested with Wind River Simics simulation; Capable of running concurrent multi-threading tasks with reasonable scheduling efficiency, robustness, and preemptibility, including (provided) text editors, interactive console games, and memory stress tests;
  - Course project for 15-410; **Request access on Github;**

- **[Project] Java Regional File Synchronization Application (Ongoing)**   2020-Current
  - Long-term Java Project for Interactive TextSync & FileSync application using diff-trees, file system watchers, sockets, local caching and consistency measures, and file server implementation;
  - Completed File & Directory Sync and TextPanels Sharing between multiple computers within local network;
  - Working on improving directory synchronization over local network to help developers work together more seamlessly;
  - Planned implementation for encryption, web support, gui, optimizing file system watchers; Considering adapting to AWS services later on for scaling;

- **[Course] 15-440: Distributed Systems**   2019-2020
  - Learned in depth principles of Distributed Systems, including Protocols (TCP/UDP), End to End Logic, Caching and Prefetching, and Coordination & Communication;
  - Gained experience with Serialization, Remote Procedure Call (RPC), Remote Method Invocation (RMI);
  - **Link to Projects**: RPC Stub Implementation, Proxy Caching and Prefetching Implementation, Dynamic Scaling in Tiered Systems, Two-phase Commit Implementation; (all code can be shared privately by request)