

Cunji Song

Looking for Backend Position

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EDUCATION

University of California San Diego (UC San Diego)

Sep 2019-May. 2021

M.S. in Engineering Science

Tianjin University

Sep 2015- Jul 2019

B.Eng. in Mechanical Engineering

Relevant Coursework in UC San Diego (Average GPA: 3.9): Distributed System, Algorithm Design and Analysis, Programng Lang:Princpl &Paradigm, Database System Applications, Princ/Computer Operating Systm, Computer Networks, etc.

TECHNICAL SKILLS

Languages: Java 8, Go, Python, JavaScript, C, C++, HTML/CSS, SQL, Haskell

Frameworks/Tools: Redis, MySQL, PostgreSQL, GQLGen (GraphQL), Spring Boot, React, Bootstrap, MyBatis, JPA

Others: Strong background in **database mechanism, linux** and **distributed system**.

EXPERIENCE

Key Laboratory of Mechanism Theory and Equipment Design of Ministry of Education

Tianjin, China

Research Assistant

Dec. 2018 – Jun. 2019

- Designed and implemented the control algorithm for a teleoperated rod-driven continuum robot.
- Optimized the user interface (UI) for traditional continuum robots and achieved good master-slave following performance.

SELECTED PROJECTS ([many others are shown in my website](#))

A Fault-Tolerant Storage System with Raft

San Diego, CA

MIT 6.824 Course Lab

Oct. 2020 – Now

- Built a fault-tolerant key/value **distributed** storage system using **Go**, with the replicated state machine protocol **Raft** to keep consistency.
- Persisted the system state when servers exit. And adopted log compaction to reduce the size of log stored in each servers, maintained a strong consistency by sending snapshot to followers.
- Partitioned the storage system to improve the system throughput. The system is able to shift shards among replica groups for load balancing.
- Evaluated different distributed system like **GFS, MapReduce, Zookeeper, Aurora, Spark, Spanner**.



Amazon EC2 benchmark

San Diego, CA

Course Project

Dec. 2020

- Explored the evolution of different types of operating system from early pre-mature ones to nowadays distributed systems.
- Created, justified, and applied a set of experiments to a system to characterize and understand Amazon EC2's performance, including File System, CPU, Memory and Network efficiency.

Team Tracker (A team collaboration app embedded in Wechat)  

San Diego, CA

Tencent Hackathon: Group Leader/

Aug. 2020

- Led the design and implementation of a full-stack app that helps users to create and manage their projects; significantly changed interaction mode among teammate and increased efficiency of teamwork.
- Designed and implemented RESTful API with **Spring Boot** secure it with **Spring Security**.
- Designed and developed the main page of frontend using **React, HTML, CSS**.
- Deployed the whole project in server using **Docker**.

Simplified Network protocol

San Diego, CA

Course Project

Apr. 2020

- Implemented a simplified TCP protocol which includes functions of Framing, Addressing, Sliding Window, and Error Detection.
- Implemented partial functions of HTTP protocol using Go's socket.