Di Wu

dw58@rice.edu | (346)660-0053 | Houston, TX | github.com/DiWu9

EDUCATION

Rice University, Houston, TX **Aug. 2021 - Dec. 2022 (Expected)**
Master of Computer Science
- Core Courses: DBMS Implementation, Computer Networks, Big Data Management, Statistical Machine Learning

Union College, Schenectady, NY (GPA: 3.63/4.00) **Sep. 2017 - Jun. 2021**
Double BS Majors in Computer Science & Mathematics
- Core Courses: Object-oriented Programming, Large-scale Software Development, Parallel Computing, Computer Graphics
- Honors/Clubs: Dean's List (3 times), Union Ignite (Teenager's Programming Teaching Volunteer)

SKILLS

Languages & Frameworks: Java, C, C++, Python, Javascript, Spring Boot, React, HTML5, CSS, SQL, Shell Script, MATLAB
Tools: Linux/Unix, Vim, PostgreSQL, MongoDB, Hadoop, Spark, Docker, Kubernetes, GCP, AWS, VS Code, JetBrains, LaTeX, Git

PROFESSIONAL EXPERIENCE

Backend Developer Intern | ByteDance (Ads System Department) **Jun. 2020 - Sep. 2020**
- Developed Wilson Score ranking **REST** API in **Java** for advertiser evaluation webpage that allows advertisers ranked by multiple attributes, which increased the usage rate of the ranking feature by 41%
- Built a weekly mailing cron job using **Python** and RPC to collect 1000+ active A/B Tests and notify the ads dept. faculties of their running tasks through email using simple mail transfer protocol (SMTP)
- Provided statistics such as Ads click rate by performing **Hadoop** MapReduce daily on the new data in the Ads database
- Researched and tested the compression methods for the meanless integer sequence stored in the Ads database and finally reached a 64.2% max compression efficiency using binary interpolative encoding

PROJECTS

Selected Class Projects | Rice University, TX & Union College, NY **Sep. 2019 - May 2022**
- Built a database management system consisting of buffer manager, file/record manager, query checker, optimizers, and SQL parser that accepts queries including selection, projection, joins, and aggregation in **C++**
- Developed a bicycle route planner application that visualizes bike routes in CSV files to editable graphs, which assist the users to select their favorite path using **Java** JFrame and Model-View-Controller framework
- Implemented an N-body solver that finds the positions and the velocities of a collection of particles over a period of time by Newton's laws and the law of universal gravitation in **C** and optimized the performance using **MPI** and **OpenMP**

Backend Developer | URL Shortener Service **Aug. 2021 - Dec. 2021**
- Worked in an agile team of 6 that built a scalable cloud application on **GCP** that provides URL shortening service with user login and supervised the progress in the Kanban framework
- Developed multiple **Java Spring** APIs for URL service including shortening URL, resolving URL, and removing URL
- Applied **protocol buffer** to serialize and deserialize structured requests to reduce the backend's response time
- Defined schemas for storing URL maps to **Cloud Bigtable** and integrated the database into the shortening service

Front End Developer | HackRice 11 **Sep. 2021**
- Developed a facetime application that allows students and instructors to facetime with one click using **Node.js** and WebRTC
- Built the chrome extension UI for video calls using **HTML/CSS/Javascript** and Chrome API
- Published the project and filmed an introductory video for the judging committee within 36 hours

Real-time Chat App **Aug. 2021**
- Developed a real-time chat app using **React** and **Node.js** that contains features including sign-up, authentication, channel creation, channel search, and direct messages
- Accelerated the app development by **stream** chat API and sent live SMS messages using Twilio
- Implemented app security by randomizing user id using crypto and hashing user password using bcrypt

Undergraduate Thesis | Union College CS Department **Mar. 2020 - Mar. 2021**
- Researched on 3D reconstruction algorithm that incrementally builds a 3D model using truncated signed distance function based on the input of image flows and camera positions
- Implemented a hash table in **Python** that stores the 3D space as coordinate-voxel pairs for fast voxel retrievals and updates
- Optimized the hash table by implementing and profiling various hash functions and collision handling methods
- Showcased research outcomes to the department by virtual presentation with poster and a 31-page thesis report