Ruochen Li

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EDUCATION

University of North Carolina at Chapel Hill May 2021

B.S. in Computer Science | B.A. in Economics

Cumulative GPA: 3.98/4.0 **Major GPA**: 4.0/4.0

Related Coursework: OOP Software Development, Computer Organization, Data Structures, System Languages, Advanced WWW Programming, Internet Services and Protocol, Operating Systems, Machine Learning, Calculus, Real Analysis, Linear Algebra, Probability Theory, Game Theory

Honors: Honors Carolina Laureate, Dean's List (All Semesters)

SKILLS

Programming/Scripting languages: Java, Rust, Python, TypeScript, JavaScript, C, HTML, CSS

Operating Systems: Linux, macOS, Microsoft Windows, Android, iOS

Framework/Tools: Git, Docker, Vim, Markdown, LaTeX

PROJECTS

Music Builder | Development Project August 2019 - Present

- Design and develop a new problem set that will be assigned to over 800 students in COMP110, an Introduction to Computer Science course, in **TypeScript**
- Apply Tone.js, an open-source music library, to the problem set, and students will use the library to build their own music by implementing about 10 different classes that I provide while practicing object-oriented programming
- Write unit tests as the automated grader to provide students with detailed and instant feedback

Computer Networking & Internet Services | Research Project May 2019 - Present

- Adapt and improve tools to collect packets and TCP segments from the internet using **Python**
- Build Docker containers to simulate visitors from different environments (i.e. Browsers, OSs)
- Operate machine learning strategies to analyze data and fingerprints from different websites

Tar Heel Egrep | Course Project April 2019

- Implemented the command line pattern-matching search tool 'egrep' about 2700 lines from scratch in **Rust**
- Tokenized and parsed a regular expression pattern into an abstract syntax tree, converted the parsed AST into non-deterministic finite automata, implemented the algorithm to feed lines of files into the machine and determined if any match by simulating NFA
- Wrote comprehensive unit tests about 1000 lines for each function and integration tests for the whole project
- Wrote a comprehensive README to illustrate the structure of the project, as well as detailed explanations, comments, and updates for every single file in the project

Sushi Belt | Course Project January 2018 - April 2018

- Simulated a real-life sushi belt, applying object-oriented programming using **Java** for over 1500 lines
- Applied model-view-controller design pattern to present and update data that simulates sushi chefs, plates, foods, ingredients, prices, and scoreboard
- Visualized the project using Java Swing to create a window-based application

WORKING EXPERIENCE

UNC-CH Department of Computer Science | COMP110 Teaching Assistant | Chapel Hill NC August 2018 - Present

- Collaborate with 70 other TAs in providing reliable resources such as conducting office hours, guiding lectures, planning Hackathon workshops, for over 800 COMP110 students every semester
- Develop new problem sets for future semesters from scratch, and build an automated grader to provide instant feedback

Lakala Payment Co., Ltd | Engineer Practicum Intern | Beijing China May 2018 - July 2018

- Practiced knowledge about system architecture and internet protocols and services every day
- Assisted network architects in daily inspection and maintenance for over 100 network routers, switches, and servers