

# Yuchen Liu

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## EDUCATION

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### North Carolina State University (NCSU)

Aug 2018 - May 2023 (Expected)

Bachelor of Science in Technology, Engineering and Design Education. Minor in Computer Programming

Raleigh, NC

GPA: 3.516/4.0. Dean's List 2021 Spring, 2021 Fall and 2022 Spring.

Relevant Coursework: Introduction to Computing - Java, Software Development Fundamentals, C and Software Tools, Concepts and Facilities of Operating Systems for Computer Scientists, Data Structures and Algorithms, Discrete Mathematics for Computer Scientists, Probability and Statistics for Engineers.

## EXPERIENCE

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### Student Web Developer. Supervisor: Mitch Amiano

Jan 2022 - Present

College of Engineering, Information Technology and Engineering Computer Services, NCSU

Raleigh, NC

- Develop websites and production tools for the processing of numerical and textual data acquired from the University-level PeopleSoft system enable automated tracking, data categorization and calculations.
- Create PHP factories that generate random database contents to be used in unit tests.
- Reconstruct and redevelop outdated websites and migrate them from plain LAMP environment to a Docker-Laravel environment.
- Redesign and implement UI for outdated website with the front-end framework Vue.
- Work in a team of 4 to direct developmental processes, scaffold website features, implement test procedures and perform unit-testing.

## PROJECTS

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### Movie Watch List Manager

Feb 2021 - Mar 2021

Programming languages used: C, Python. Course Project in C and Software Tools

Github NCSU

- Created a program that selects the genres and generates corresponding lists of movies by reading .txt and .csv datasets.
- Enable user viewing of the entire list of movies through command lines or a GUI (with C or Python, respectively).
- Allowed filtering by criteria including year ranges, genres, and keywords in titles, thus making it possible for users to choose movies to add to their watch list and remove them later.
- Implemented operations including Pointers, Structs, File I/O, Dynamic Memory Allocation, and Bitwise Operator in C and used data structures such as Quicksort.

### Lossy Image Compression

Mar 2021 - Apr 2021

Programming language used: C. Course Project in C and Software Tools

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- Created a program to read in raw PGM images, and encode or decode these images using the DCT formula or the inverse DCT formula.
- This project uses pointers, structs, File I/O, Bitwise Operator, and Dynamic Memory Allocation in C.

### Danmaku

Dec 2020 - Jan 2021

Framework used: React; Personal project in collaboration with Zheng Zhou

Github

- Designed and created a React Web App where comments could be overlaid directly onto the videos.
- Stored textual data and timestamps associated with comments in a serverless Backend-As-A-Service (BaaS) database and later accessed these comments by the front-end API provided.
- Designed and implemented elements including animations and interactive components within the Web App.
- Worked with another developer in Boston College and was responsible for design, implementation, and testing.

### Other Projects

- **PackScheduler** [🔗](#): This project provided me an opportunity to practice skills including OOP and IDEs and created a simulated environment which allowed students to add, change and update their schedules during the semester in real-time.
- **Data Sorting Time** [🔗](#): Realized an algorithm that measured the time of data sorting required by different sorting algorithms (e.g.,  $O(n \log n)$ ,  $O(kn)$ , and  $O(n^2)$ ) using MATLAB.

## TECHNICAL SKILLS

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**Programming languages:** C, C++, Python, Java

**ML/AI:** Numpy, Pandas, Matplotlib, MATLAB

**Web Technologies:** HTML, CSS, JavaScript, Vue, React

**Miscellaneous:** MariaDB, Git, Bash, Docker, LaTeX

## VOLUNTEER ACTIVITIES AND MEMBERSHIPS

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### Member, Girls Engineering Change at NCSU

2022 - present

Host workshops to raise awareness about STEM majors and careers among young girls aged 8-14 years.

### Member, Technology and Engineering Education Collegiate Association (TEECA) at NCSU

2022 - present

Promote professional development for future Technology and Engineering Educators.

### Red Cross Junior Paramedics

Jul 2021 - Aug 2021

Volunteered at Red Cross Xuzhou, China and received a certification for emergency rescue.

### Small Pack Undergrad Orientation Leader (in person and online, Jul - Aug, 2019 and 2022)

2019, 2022

Supported new international undergraduate students during their transition to life at NCSU.

### Website Developer and Operation, Chinese Students and Scholars Friendship Association (CSSFA) at NCSU

2018 - 2022

Managed the official website of CSSFA, and design and refined website themes and plugins.

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