

# John Zhu

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## Work History

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**Research Assistant** | UNC | Chapel Hill, NC 2021 - 2023

- Developed a fridge inventory application. Features of the application included user authentication, CRUD operations to a MS SQL server database involving reagents, boxes and fridges. Through a user friendly UI, lab members organized all lab reagents accumulated over 6 years in one app.
- Led/presented weekly discussion/analysis on lab experiments and related scientific literature.
- Led collaborative experiments in groups of 2-4 researchers related to gene editing and fluorescent imaging, including CRISPR lines generation.

## Education and Certifications

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University of Minnesota Fall 2023 - current

*Master of Science in Computer Science* GPA: N/A

University of North Carolina at Chapel Hill | Chapel Hill, NC | *cum laude* 2022

*Bachelors of Science | Major: Biology | Minor: Computer Science and Chemistry* GPA: 3.51

AWS Certified Developer - Associate (DVA-C01) Feb. 2023

AWS Certified Cloud Practitioner (CLF-C01) Nov. 2022

Global Clinical Research - The Process Start to Finish | University of Chicago Apr. 2023

## Projects

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**Fridge** | Laboratory Inventory Application | Full Stack

- Fridge web application built to store and organize laboratory fridge data for over 3000 reagents.
- Account creation and user credential editing functionality created using JS and MS SQL server.
- User authentication functionality built using bcrypt library for encryption.
- Search functionality based on reagent name and sequence built with SQL and javascript.
- CRUD operations for fridge, box, and reagent objects stored using SQL and javascript.
- Researcher centric and friendly UI built using HTML, CSS and JS.

**Bioalgorithms** | Bioinformatics using Python | UNC Chapel Hill

- Used Python to implement Burrows Wheeler transformations on DNA sequences for use in sequence alignment and genomic database compression functions.
- Resolved practical and theoretical peptide sequencing from mass spec data using Python.
- Used hidden Markov models to determine potential gene locations based on CG island presence.
- Executed a graphical approach to achieve multiple and pairwise sequence alignment and implemented divide and conquer strategies to align large genomic datasets in realistic time/memory.

**Portfolio** | Personal Portfolio Website

- Dynamic updating UI built using Angular.
- Contact email directly from the website interface.

**Cookie Clicker** | Web Application | Group Project

- Lead the backend construction in a 4 person group in 4 weeks time
- Developed a single page Cookie clicker web game including UI and memory persistence.

## Skills

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Python | Java | Javascript | Typescript | HTML | CSS | Angular | SQL | MS SQL Server | MySQL | Git | Node |

NPM | Express | MongoDB | BASH | AWS | Object Oriented Programming | 5 years experience

Languages (fluent): English | Chinese