

# YIXIN “ELLA” GUO

Medford, MA

☎ [781-475-6456](tel:781-475-6456) ✉ [yixin.guo@tufts.edu](mailto:yixin.guo@tufts.edu)  [Linkedin](#)  [GitHub](#)

## EDUCATION

### Tufts University

May 2025

*Bachelor of Science in Applied Physics and Computer Science with Minor in Studio Art*

Medford, MA

GPA: 3.91/4.00, Dean's List

Academic Awards: Howard Sample Prize Scholarship in Physics

**Relevant Courses:** Programming Languages, Quantum Theory, Network Security, Algorithms, Data Structures, Machine Structure and Assembly-Language Programming, Linear Algebra, Bridge to Higher Mathematics (Discrete Mathematics), Computational Physics, Intermediate Mechanics, Computation Theory, Advanced Experimental Physics

## EXPERIENCE

### Tufts University, Department of Computer Science

Medford, MA

*Teaching Assistant for Data Structures and Intro CS*

Jan 2023 – Present

- Lead weekly lab for over 20 students to explain concepts and implementations of data structures (AVL Trees, Huffman Coding, Hash Table, Dijkstra's algorithm, etc) from lectures
- Added the “swap” command to the infrastructure database in Python to improve grading for 300 students
- Host two weekly office hours to help students debug errors and develop implementation plans for projects

### Tufts University, Department of Physics and Astronomy

Medford, MA

*Learning Assistant for Intro Physics*

Jan 2023 – May 2023

- Led discussion sessions in a 90 students class, encourage active participation and critical thinking
- Held after-class recitations and office hours, review the lectures, and answer students' questions
- Developed pedagogy, communication, problem-solving, and time-management skills

## PROJECTS

### Theatre@First | React, Typescript, Next.js, MongoDB, Tailwind CSS

September 2023 - present

- Collaborating with a team of 12 other members to develop an inventory website for an all-volunteer community theatre based in Somerville, MA
- Developing functionalities such as resizable image view component, item input form, grid view component, and authentication login page

### Music Streaming App | Swift, Xcode, Firebase, Firestore

March 2024 - present

- Designing and implementing a music streaming app program that is album based and the user interface supports player controls, including pausing, skipping, and going back
- Integrating Firebase and Firestore into the streaming music app backend to manage user authentication, database storage, and real-time updates

### Personal Website | HTML, CSS, JavaScript

December 2023

- Designed and developed a responsive multi-page website that functions across multiple devices, including laptops, phones, and tablets
- Implemented interactive features such as draggable image slider, navigation menu, and hover effects

### P2P Encrypted Instant Messenger | Python socket, PyCryptodome

March 2024

- Implemented an instant messenger/online chat that uses the Transmission Control Protocol (TCP) to send messages between different hosts across the networks
- Encrypted the messages using AES-256 in Cipher Block Chaining (CBC) mode and used HMAC with the SHA256 algorithm for message authentication

## SKILLS

**Programming Languages:** C/C++, Python, Swift, JavaScript, Typescript, Standard ML, Scheme

**Developer Tools:** Xcode, Next.js, Tailwind CSS, HTML, CSS, React, MongoDB, VS Code, LaTeX, Git, GitHub, Firebase, Firestore, PyCryptodome

**Languages:** Mandarin, English