

Haoyuan Chen

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EDUCATION

Rensselaer Polytechnic Institute

Troy, NY

Bachelor of Science in Computer Science; Dual major in Mathematics

Aug 2022 – December 2025

Minor in Artificial Intelligence

GPA: 3.92

Awards: Dean's Honors List, Archimedean Society, Rensselaer Leadership Award

Relevant Coursework: Data Structures, Algorithms, Principles of Software, Operating Systems, Computational Optimization

EXPERIENCE

UNDERGRAD CS TEACHING ASSISTANT

Jan 2025 - current

Rensselaer Polytechnic Institute

Troy, NY

- Utilized **communication skills** to assist students in understanding course material for Principles of Software course and applied **problem solving skills** to help debug issues.
- Held weekly lab and office hours and graded assignments and exams.

ROBOHELP518 - Backend Technical Co-Lead

Jan 2024 - May 2024

Rensselaer Center For Open Source (RCOS)

Troy, NY

- Co-led a group of aspiring programmers to support local robotics teams who lack coding experience.
- Utilized **Python libraries** such as **OpenCV** to help the robot recognize its precise location through on-field **Apriltags**.
- Constructed "build-world" functions that update location data to all existing tags when one tag is detected, **boosting navigation accuracy and speed by 25%**.
- Developed a website using HTML/CSS to promote Team 250, a local robotics team.

PROJECTS

SoraAi - Language Tutor ChatApp | React, Tailwind CSS, Typescript, ExpressJS, MongoDB

soraai.onrender.com

- Architected/implemented a **full-stack** language learning chat application with **React/TypeScript** frontend and **Node.js/Express** backend, achieving **99.9% uptime** and **<200ms response times**
- Developed an **AI-powered tutoring system** using **OpenAI's GPT-4o model** that dynamically adapts content difficulty across 10 proficiency levels, resulting in **40% faster user progression**
- Engineered a robust **user progress tracking system** with granular metrics for vocabulary and grammar skills, enabling **data-driven personalization** of learning paths
- Implemented **real-time quiz generation** using GPT-4o that prevents question repetition and automatically adjusts difficulty based on user performance

Flappy Bird with NEAT Genetic Algorithms | Python, Pygames, Neat-Python

- Implemented two versions of the classic Flappy Bird game using **Pygame**, one playable by the user and one played by the **NEAT genetic algorithm**.
- Applied the **artificial neural networks** produced by the NEAT-python algorithm to run simulations aimed to produce an ideal bird that would complete the game.

TECHNICAL SKILLS

Languages: Python, C/C++, Java, JavaScript/Typescript, HTML, CSS, LaTeX, MATLAB

Frameworks and Tools: React.js, Tailwind CSS, Redux, ExpressJS, NodeJS, NextJS, MongoDB

Developer Tools: Git/GitHub, VS Code, Microsoft Office, G-Suite

Proficient in Mandarin Chinese and Japanese