Eric Xie

Melville, NY
631-925-8782 ericcxie@gmail.com github.com/EricXie-02

Education

Boston University **May 2024**
Bachelor of Science in Computer Engineering *Boston, MA*

Experience

Boston University Biological Design Center **June 2023 – December 2024**
Software Developer - Undergraduate Research *Boston, MA*

- Improved efficiency in microfluidic design workflows by enhancing Neptune, a design automation tool, and 3duf, a visual design tool, used by researchers and engineers.
- Enhanced functionality by implementing new features, including rendering unknown components as black boxes and enabling component reflection, while integrating 10+ additional components to improve usability and design versatility.
- Streamlined compatibility across the Neptune toolchain, ensuring outputs from LFR, MINT, and JSON modules were valid inputs for subsequent tools, leading to seamless rendering in 3duf.
- Automated processes by writing **Python** scripts to generate, manipulate, and evaluate microfluidic designs.
- Established benchmarks for design algorithms by modeling real-world microfluidic systems, validating designs against experimental data to improve reliability and precision

Boston University College of Engineering **January 2022 – May 2023**
Engineering Teaching Assistant *Boston, MA*

- Led discussion sections and midterm review sessions and supported lectures by solving group problems for Engineering Mechanics I.
- Redesigned exam review packets and answer sheets, incorporating student feedback and past exam problems to improve clarity and effectiveness.
- Provided additional support through one-on-one tutoring and office hours, addressing individual student concerns and enhancing their understanding of course material.

Projects

Langolio - Senior Capstone Project | ***React, Python, MongoDB, Docker***

- Co-developed Langolio, a language exchange app connecting students for practice, while organizing regular meetings with our client to establish **business objectives** and meet **customer needs**.
- Implemented an in-house chat service for real-time communication between users, and a pairing service to match students based on their language learning goals, utilizing **REST API** for seamless data exchange.
- Integrated **Google Auth** for secure login, incorporated censorship mechanisms to filter inappropriate content, and utilized **OpenAI API** for grammar correction and scoring.
- Displayed comprehensive student statistics on the frontend to track progress and engagement, enhancing the user experience and learning outcomes.

Song Lyric Remixer | ***Python, Flask, JavaScript, HTML, CSS***

- Developed a web app that allows users to remix song lyrics into different genres using **LyricsGenius** and **OpenAI APIs**.
- Designed and implemented a user-friendly interface and robust backend logic for handling **REST API** requests, lyric transformations, and database operations.
- Utilized **MongoDB** to store remixed lyrics, ensuring efficient data management and retrieval.

Command Line Game | ***C++, Makefile***

- Developed a command-line based simulation game using C++, where players navigate through a university campus environment with various interactive elements.
- Designed and implemented key game components as C++ classes, including Students, Buildings, and Events, applying **object-oriented programming principles** including inheritance, encapsulation, and polymorphism to create a scalable and maintainable architecture.
- Created a custom command input system to handle player interactions, real-time events, and time management within the game, ensuring efficient command processing and smooth gameplay progression.
- Utilized **Makefile** for build automation, ensuring streamlined compilation and linking processes across multiple modules and dependencies.

Technical Skills

Languages: Python, C/C++, JavaScript/TypeScript, C#, Matlab, Verilog
Developer Tools: VS Code, Git, VirtualBox VM, Docker, Makefile, Microsoft Office, Arduino
Technologies/Frameworks: Linux, JSON, MongoDB, React, Flask, .NET