Sophie Zhang

916-582-0750 | sophie_zhang@brown.edu

sophiezhang.dev | linkedin.com/in/sophie-zhang-237428235 | github.com/smallwhale1

EDUCATION

Brown University   Providence, RI

Bachelor's Degree in Computer Science, GPA 4.0   *Sep. 2021 - May 2025*

EXPERIENCE

Undergraduate Research Assistant | *Brown University*   Jan 2023 – Present
- Contribute to the development of Dash, a browser-based, collaborative hypermedia system built with MongoDB, React.js, Node.js, and Express.js
- Developed a feature for selectively editing images using prompt-guided generative AI, complemented by a pan-and-zoom tree view for visualizing the edit version history
- Streamlined the process of reporting issues by developing a view for monitoring and submitting bug reports

Software Development Intern | *ZYD Energy, Inc.*   May 2022 – September 2023
- Developed a web console with Next.js and a mobile app with React Native to provide clients with time-series visualizations of performance data and IoT messaging capabilities for low-carbon water heating solutions
- Implemented and authenticated a REST API to effectively manage serverless function invocations and database interactions with the Amazon Web Services (AWS) platform
- Enabled publish/subscribe messaging between clients and Raspberry Pi devices via MQTT protocol

Teaching Assistant | *Brown University*   Aug. 2022 – Present
- Mentored a class of 440 students through object-oriented programming and data structure assignments in Java
- Conducted 6 hours of labs and office hours per week and addressed student questions on an educational forum
- Fostered a supportive and enriching environment for students through the course mentorship program

Full-stack Developer | *Featr.*   March 2023 – July 2023
- Developed Featr.'s website, a platform for musicians to connect and collaborate, featuring a community page for posting upcoming shows and editable profiles, and an admin console for matching potential collaborators
- Implemented a client-side caching and cache-eviction system, reducing database reads by up to 70%
- Reduced bandwidth consumption and loading time for end-users through leveraging Canvas image resizing and Next.js image optimization

PROJECTS

Inspofolio | *Next.js, React.js, Typescript, Firebase, Material UI, Spotify API*   May 2023 – Present
- Developed a full-stack web app for artists to organize the multimedia assets that inspire their creative process
- Created an intuitive frontend interface for managing uploaded images, embedded links, palettes, and music, integrating Firebase Storage, Authentication, and Firestore to handle backend operations
- Implemented a personalized recommender system to suggest tracks from Spotify based on a project's inferred ambience and individual user preferences

3D Glass Terrarium | *Three.js, 3D Graphics, GLSL*   November 2023 - December 2023
- Created an interactive scene in Three.js with custom 3D models and shaders
- Developed a parametric Lindenmayer system for drawing natural plant branching structures in 3D and a vertex shader in GLSL to apply the billboarding effect to foliage
- Implemented texture mapping and glass refraction to emulate realistic physical properties

Yoga Bot | *Python, TensorFlow, NumPy, Pandas*   March 2023 - May 2023
- Developed a real-time classification app using CNNs to classify 9 distinct yoga poses with over 90% accuracy
- Engineered custom embeddings from the MoveNet model and overlaid the data onto the video feed, boosting accuracy and providing an enhanced visual experience

Othello AI | *Java, JavaFX*   November 2021 - December 2021
- Developed a Java app with an interactive interface enabling users to play the game Othello against an AI bot
- Programmed an AI opponent with three increasing levels of intelligence, employing a recursive Minimax algorithm

TECHNICAL SKILLS

Python, Java, C++, Next.js, React.js, Three.js, HTML, CSS, JavaScript, TypeScript, Sass, Material UI, Node.js, Express.js, NumPy, TensorFlow, Pandas, Firebase, MongoDB, AWS, Figma, React Native, C, GLSL, x86-64, Git, VS Code