

# ZANDER STRAIT

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## EDUCATION

### Stony Brook University

Bachelor of Science, Computer Science

Stony Brook, NY

Expected May 2027

## PROJECTS

### Live LaTeX Editor

[Source Code](#) | [Live Demo](#)

- Developed a high-performance single-page application using **React**, integrating the **KaTeX** rendering engine to achieve real-time, client-side compilation of complex mathematical notation.
- Architected a modular component system with unidirectional data flow, managing cross-component state to synchronize font styling, alignment, and formatting configurations between the sidebar and renderer.
- Engineered a non-blocking rendering pipeline using input debouncing, optimizing application performance to prevent main-thread blocking and ensure UI responsiveness during rapid typing.
- Integrated and customized the CodeMirror library to construct a robust code editor, implementing custom syntax highlighting themes and logic to handle dynamic text insertions from external UI controls.

### StereoFM

[Source Code](#) | [Live Demo](#)

- Engineered a full-stack social music platform using the **MERN** stack (MongoDB, Express, React, Node.js), architecting a RESTful API to manage song catalogs, playlists, and user profiles.
- Implemented secure, stateless authentication using **JWT** and **bcrypt**, enforcing granular data ownership permissions to ensure users can only modify their own contributed content.
- Designed a dynamic frontend with **Material UI**, featuring server-side filtering, sorting, and integrated YouTube IFrame API playback with automated error handling.
- Developed an auto-reset demo environment that programmatically reseeds data on login, enabling immediate user testing without registration.

### MediaScout

[Source Code](#) | [Live Demo](#)

- Developed a full-stack marketplace aggregation platform with **Next.js** and **TypeScript**, enabling users to instantly find and compare listings for vinyl, CDs, and cassettes from vendors such as Discogs and eBay.
- Built a robust backend aggregation engine that concurrently fetches data from multiple third-party RESTful APIs (Discogs, eBay), and implemented a data normalization pipeline to transform inconsistent data structures into a unified format.
- Designed and built a responsive, type-safe user interface with **Tailwind CSS**, leveraging Server-Side Rendering (SSR) in Next.js to ensure fast initial page loads and a seamless user experience.
- Implemented dynamic, multi-faceted filtering and sorting logic handled on the server to efficiently manage and display large sets of aggregated data.

## EXPERIENCE

### Operations Associate

May 2023 – Jul 2023

Kunz Greenhouses

Port Jefferson, NY

- Provided customer service including product recommendations, care guidance, and vehicle loading.
- Maintained inventory through restocking, plant care, and organizing merchandise displays.
- Handled warehouse operations including material transport and order fulfillment.

## SKILLS

**Professional Skills:** Web Development, Graphic Design, Git/GitHub, API Development, UI/UX

**Languages / Frameworks:** React, Next.js, TypeScript, JavaScript, Python, Java, Express, MongoDB, PostgreSQL, LaTeX, Tailwind, HTML/CSS

**Courses:** Data Structures & Algorithms, Fundamentals of Software Development, Analysis of Algorithms, Computational Geometry, Mathematical Logic, Programming Abstractions, Systems-Level Programming

**Interests / Hobbies:** Art, Music, Photography, Video Editing, Film, Reading