Alex Straight

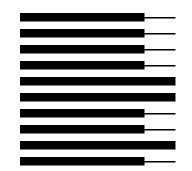
Profile

Engineer with a passion for blending creativity and technical skills to develop efficient, scalable applications. Skilled in React and Next.js, with handson experience on projects such as a multiplayer Pictionary game leveraging Go for real-time WebSocket communication. Currently building a 2D game engine in Zig, dedicated to tackling challenging problems and staying current with industry trends.

SKILLS

(i) TECHNICAL SKILLS

TypeScript
Go
Zig
Next.js/React
Tailwind CSS
HTML
UX/UI
WebSocket
Problem Solving
Git



Work Experience

尚03/2024 - 05/2024

Front-end web developer Academic Assist

- Developed and implemented SEO strategies using Next.js, which resulted in improved search rankings and increased visibility for the website.
- Completely revamped the home page according to Figma design specifications, enhancing the overall user experience and engagement.
- Utilized Tailwind CSS to create a modern, responsive design, which helped the website load faster and look great on all devices.

PROJECTS

Ħ PRESENT

2D Physics Engine

- Engineered a custom 2D physics engine in Zig implementing the Separating Axis Theorem (SAT) for precise collision detection, rigid body dynamics, and numerical stability systems with minimal computational overhead.
- Implemented comprehensive debugging visualization for physical properties including velocity vectors, collision points, and sleep

PROJECTS

- **states**, enabling efficient troubleshooting and **simulation analysis**.
- Designed a modular architecture with specialized components for stability management, sleep detection, and a clean API that supports procedural simulation creation and runtime manipulation.

Pictionary with Friends

- Developed multiplayer Pictionary game (Go/TypeScript) with WebSocket-based realtime drawing capabilities and game-state synchronization.
- Implemented interactive canvas with a toolbar using Fabric.js for drawing and Framer Motion for UI animations.
- Created turn-based gameplay mechanics.
- **Game URL**: https://pictionary-tan.vercel.app

Discord Bot

- Built a Discord bot in Go with AI chat, news updates, and real-time sports data using the SportRadar API.
- Implemented **concurrent song queue management**, allowing seamless background music downloads and playback.
- Integrated **cron jobs** for automated tasks and scheduled updates.
- OpenAI API integration.

EDUCATION

☐ 08/2021 - 05/2025 SAN DIEGO, CALIFORNIA Computer Science | Bachelor of Science San Diego State University

- **Dean's List** (3x) Recognized for academic excellence with a **3.8 Major GPA**.
- **Pathfinding Visualizer** Developed an interactive visualization tool for pathfinding algorithms, currently used in a course.
- **Research Assistant** Optimized NOMA systems with IRSs using the BFGS algorithm to enhance signal data rates.
- **Teaching Assistant** Data Structures & Algorithms.