James Li

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EDUCATION

University of Southern California **Expected May 2026**
Bachelor of Science in Computer Engineering and Computer Science *Sophomore standing*
Presidential Scholarship recipient
GPA: 3.93

EXPERIENCE

Consumer Affairs **February 2021 – January 2023**
Data Analysis and Visualization Engineer
- Analyzed, cleaned, and processed government data sources with Pandas and Numpy into comprehensive and digestible datasets that were used to write articles and content, driving a notably high amount of engagement.
- Built a specialized system of Python programs to simplify the process of calculating state or city level rankings with the US Census API, based on various qualitative attributes, like housing quality and safety.
- Created custom Javascript programs to automate the process of generating unique and eye-catching animated data visualizations to drive further traffic.

SoFlo SAT Tutoring **August 2021 – March 2022**
Software Engineer
- Developed a chat autoresponder on a Node Express server with configurable templates interfacing with the Thumbtack API to automate customer acquisition, which directly increased lead retention rates and search ranking while eliminating all manual labor from initial lead messaging.
- Automated the generation of SAT answer explanation courses on Teachable from videos uploaded to Loom using Puppeteer and Node.js, reducing excessively tedious work and creating another avenue of customer acquisition.

PROJECTS

2D Fluid Simulation | *WebGL, GLSL, JavaScript* **December 2022**
- Implements the Navier-Stokes equations for an incompressible fluid to achieve a realistic simulation.
- Optimized code for the GPU, ensuring that the complex simulation would run quickly and efficiently even on underpowered systems.
- Devised an original and efficient system to allow for arbitrary wall structures from which fluid seamlessly reflects.

Infinite Procedural Terrain Generator | *C++, OpenGL, CMake* **October 2022**
- Uses multi-threading to efficiently generate a landscape in a low-poly art style.
- Wrote a custom Poisson Distribution module, allowing for concurrent chunk generation with no loading time.
- Created a purpose-built mesh generator to seamlessly stitch together discrete Delaunay Triangulations.
- Implemented a flexible and extendable interface for the rendering of arbitrary heightmap generation methods.

WordleStat | *JavaScript, MongoDB, Node.js, Express, React, Bootstrap* **January 2022**
- Displays aggregated Wordle statistics for each day in simple, readable charts. Reaches thousands of users per month while ranking highly on search engines.
- Queried the Twitter API to gather Wordle scores shared online with an Express server and Node.js.
- Analyzed and stored scores in a MongoDB NoSQL database, with which the server implemented a RESTful API to serve collated data to the front-end site.
- Created a static front-end website with React and Bootstrap and hosted on Cloudflare, including graphs and charts animated with D3.js and differing layouts to optimize for both desktop and mobile.

SAT Practice Tools | *Front-end HTML/CSS, JavaScript, React, Bootstrap* **August 2021**
- Helps high school students practice taking SAT standardized tests online with a featureful web app written in React, with thousands of new active users reached organically every month.
- Managed a team to compile data from a comprehensive range of past tests to create a full-featured database of answers, question types, and answer explanations.
- Designed a novel interface for answer input, including a bespoke short-answer mathematical input parser.
- Automatically grades questions while calculating a curved score based on crowdsourced information, providing a clean interface to show answer explanations.

TECHNICAL SKILLS

Languages: JavaScript, TypeScript, Python, C++, Java, HTML/CSS, SQL
Frameworks: React, Node.js, Express.js, d3.js, Bootstrap, Mongoose, Puppeteer, Plotly, Swing
Technologies: MongoDB, Anaconda, Linux, Git, Cloudflare, Linode, Google Analytics, Google Search Console