

# Nick Sercel

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Github: <https://github.com/Jim-Heftypants>

## Skills

JavaScript, React, Redux, HTML, CSS, Ruby, Ruby on Rails, Mongoose, MongoDB, Node.js, Express.js, SQL, SQLite3, PostgreSQL, Webpack, jQuery, Git, Heroku, Swift, C++, Jass

## Projects

### Chess-With-Friends

Live Site: <https://chess-with-friends.herokuapp.com/>

Github: <https://github.com/Jim-Heftypants/newChess.com>

HTML , JavaScript , CSS , React , Redux , Heroku , Ruby on Rails , postgresSQL , Webpack

*Chess-With-Friends is an app that allows the user to create an account to create goals, add friends, and record games of chess played. It also allows the user to play games of chess with a chess computer.*

- Harnessed the unidirectional state management of Redux to simplify React components and directly manage data for form inputs and form submissions.
- Incorporated React-Redux container and Redux selector patterns to architect highly scalable and uni-directional front-end state management.
- Employed advanced data structures to create a highly efficient and easily manipulatable chess game, allowing for things such as determining checkmate with  $O(1)$  lookup time.
- Created advanced recursive functions utilizing the minimax algorithm and alpha beta pruning along with my chess game system to construct a highly efficient chess computer able to think X moves ahead.

### CrossWords

Live Site: <https://acrosswords.herokuapp.com/#/login>

Github: <https://github.com/jacobprall/CrossWords>

HTML , CSS , JavaScript , React , Redux , Node.js , Mongoose , MongoDB , Express.js , Webpack

*CrossWords is an app where a user can create an account to play an interactive, infinite crossword puzzles game. Upon completing a game, stats are recorded and the user can view their stats and continue any saved or paused games.*

- Devised an algorithm to return time to the user upon submission of a correct word based upon the interaction of cubic and linear time curves to make the game exciting.
- Built a highly efficient game system which uses only pruned, linear searches in conjunction with interactions between a React-Redux frontend and MongoDB backend to allow for near instant queries and returns.
- Incorporated React best practices for sub-components into the frontend, eliminating extra renders for elements not explicitly modified by game actions.

### Adventures

Live Site: <https://jim-heftypants.github.io/Adventures/>

HTML , CSS , JavaScript , Webpack

Github: <https://github.com/Jim-Heftypants/Adventures>

*Adventures is a RTS/RPG in which the player controls four different, unique characters, each with their own role, and attempts to survive waves of enemies to complete levels. The game is complete with things such as threat for the computer's targeting as well as character and enemy models and animations.*

- Developed a system to dynamically update a pseudo-react-state using only vanilla JS utilizing document events and css style manipulation in order to remove any unnecessary game timers or calls, greatly improving performance and scalability.
- Integrated custom images and animations which run entirely based upon setInterval, mutationObservers, and manipulating hrefs inline, simplifying structure and increasing runtime efficiency which is compounded by the total number of characters.
- Created a class framework for character entities which runs entirely based upon their interactions with each other. An external structure sets entities based upon user level selection and allows them to begin

interacting. Doing this fully separates functional and class based code which greatly improves efficiency, scalability, and dries out code.

## Experience

**Instructor** | February 2018 - August 2019

Mathnasium

- Tailored my curriculum for groups of up to 20 students at a time as well as for one on one sessions in greater depth.
- Dissected difficult problems and methods into easily understandable ideas to better facilitate learning.

**Title** | October 2017 - June 2020

Altadena Library

- Set up events with between 5 to 40 people in attendance and assisted in running these.
- Led and organized an after school program for underprivileged middle school students where I taught and played games such as chess and dungeons and dragons with them.

## Education

**App Academy** | Summer 2020 | San Francisco, CA

Immersive software development course with focus on full stack web development

**University** | 2019-2020 | Pasadena, CA

Pasadena City College