DAVID TAN

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SKILLS: React, Redux, JavaScript, Ruby, Rails, PostgreSQL, SQL, SQLite3, Mongoose, MongoDB, Express.js, Node.js, AWS, WebSocket, Google Maps API, jQuery, HTML, CSS, Webpack, Git, Render

PROJECTS:

Davescord *React, Redux, Ruby on Rails, JavaScript, PostgreSQL, AWS, WebSocket*   live | github
A chat application inspired by Discord
- Built a custom RESTful API using a Rails backend communicating with a PostgreSQL database via ActiveRecord queries
- Implemented a responsive and intuitive user experience which closely mimics the behavior of Discord's web application
- Incorporated WebSocket for real-time messaging between users subscribed to the same server as well as AWS so users and servers can have their own custom appearances

Itinerate *MongoDB, Express, React, Node.js, JavaScript (ES6), HTML5, CSS3*   live | github
A single page web application where users can build an itinerary of activities within close proximity of each other
- Securely stored hashed user information in the MongoDB database using the BCrypt library
- Employed Redux to manage front end state changes in conjunction with React components to keep code DRY and to prevent unnecessary rerenders while users navigate the app
- Integrated Google Maps API to allow users to explore activity options on an interactive map
- Collaborated in a team of 3 using Git version control to work on a single shared codebase

Relentless Clash *JavaScript, Canvas API, Keyboard API, and GamePad API*   live | github
A 2-player fighting game written in vanilla JavaScript
- Created a custom physics engine with collision detection between players, gravity, friction on the ground, and knockback when players are hit or when their swords collide
- Ensured minimal DOM manipulation between renders so users have responsive controls and an optimized user experience
- Leveraged Duck Typing to create a computer controller that simulates human player key presses, allowing the 2-player fighting game to run as a single player game against an AI

EDUCATION:

Georgia Institute of Technology, Atlanta, GA   *Dec 2019*
Ph.D. in Mechanical Engineering (all but dissertation), 4.00 GPA
Presidential Fellowship, GWW End of Ph.D. Studies Fellowship

The Cooper Union for the Advancement of Science and Art, New York, NY   *May 2014*
B.E. in Mechanical Engineering, 3.64 GPA
Full Tuition Scholarship

EXPERIENCE:

Graduate Research Assistant   *Aug 2014 - Dec 2019*
- Conducted novel research in nonlinear electromechanical systems resulting in 9 published journal articles and 12 conference proceedings
- Mentored 5 undergraduate students through piezoelectric actuation, structural vibration, and vibrational energy harvesting experiments