BREKKE GREEN

Software Engineer

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SKILLS

JavaScript, React, Redux, HTML, CSS, Ruby, Ruby on Rails, Mongoose, MongoDB, Node.js, Express.js, SQL, SQLite3, PostgreSQL, Webpack, jQuery, Git, Heroku, Python, Pandas, MATLAB, R

PROJECTS

Seire | (React, Redux, Ruby on Rails, PostgreSQL, HTML, CSS, Heroku) Live Site | Github

Seire is a clone of the popular exercise data app, Strava, built with React/Redux frontend and Ruby on Rails backend

- Implemented custom user authentication on both the frontend and backend, cleanly rendering any authentication errors to maintain a lightweight, modern user experience.
- Integrated the Mapbox API to enable user-created routes and leverage asynchronous javascript to accelerate the process.
- Produced full CRUD functionality for users' workout creation, presentation, modification, and deletion.
- Established a progression tracking user experience with data tabulation using workout results stored on the backend.
- Cultivated user competition through a workout feed that allows for comparing users' workout performances.

Disarray | (MongoDB, Express.js, React, Redux, Node.js, Socket.IO, HTML, CSS, Heroku) Live Site | Github

Multiplayer online Boggle Game built with a retro styling

- Generated real-time synchronous multiplayer games using Socket.IO to connect various players to a game server.
- Built the project as part of a small team and used Git/Github to ensure we maintained a functioning main branch and built out functionality using separate feature branches.
- Leveraged React to allow users to input words into the game with various techniques (click vs drag).

DSLR U Sure? | (Javascript, HTML Canvas, CSS, Github Pages) Live Site | Github

A learning tool aimed at teaching users how to use a DSLR camera in manual mode

- Utilized Canvas and CSS properties to illustrate the effect of altering the aperture and shutter speed settings in real-time.
- Constructed all animations using asynchronous functionality to provide smooth and efficient animation rendering.
- Incorporated object oriented programming strategies to streamline future feature implementations.
- Created interactive slider controls for an intuitive user experience.

EXPERIENCE

Biomechanical Research Engineer

Katmai Government Services (U.S. Army Aeromedical Research Lab), Mar 2019 - Dec 2020

- Planned and executed research protocols for up to 8 different studies simultaneously, ranging from characterizing helicopter vibration environments to testing the capabilities of exoskeleton devices to increase soldier performance to assessing helmet mass properties effect on dismounted soldiers injury risk.
- Acted as subject matter expert on a cross-functional team for topics such as assistive exoskeletons, 3D motion capture/biomechanical measures, and exercise physiology.
- Engineered custom devices/mechanisms to recreate real-world tasks in a controlled laboratory setting, like a device to simulate long-distance soldier litter carriage tasks.
- Developed new skills rapidly to facilitate the needs of new studies, such as writing scripts to automate the control of an instrumented treadmill.

Graduate Research/Teaching Assistant

Pennsylvania State University, Aug 2015 - May 2018

- Designed and fabricated a lower limb exoskeleton to explore effects of walking with a synthesized alteration to human leg musculoskeletal structures and presented research at the American Society of Biomechanics 2017 Annual Meeting.
- Collected data for multiple human research studies and conducted analysis with programs such as MATLAB, R, Cortex and SPSS.
- Mentored undergraduate lab interns in the use of various biomechanical measurement instruments and instructed undergraduate biomechanics lab courses consisting of 25 students.

EDUCATION

App Academy - Immersive software development course with focus on full stack web development (Spring 2021)

Pennsylvania State University @ University Park - *BS - Kinesiology* (August 2015)