

TECHNICAL SKILLS

Programming Languages: *proficient* — JavaScript, Ruby, SQL; *prior experience* — Python, R, C++

Web Development: Ruby on Rails, React, Redux, Node.js, jQuery, Express, AJAX, Axios, Webpack, HTML5, CSS3, Sass, RESTful APIs

Other Proficiencies: Git, PostgreSQL, MongoDB, RSpec, VS Code, RStudio, JMP, ImageJ, SolidWorks

PROJECTS

Portfolio website made with jQuery, HTML5, and CSS3 — *see for further project details*

[sarasampson.com](#)

RESONANCE

[Live](#) | [GitHub](#)

An ambient noise mixer for improving productivity

- Leveraged CSS media queries and grid layouts to create a fully responsive design
- Optimized site performance on mobile and desktop devices through testing with Chrome DevTools and implementing lazy loading; obtained a 100% Lighthouse score for performance, best practices, and SEO
- Utilized: vanilla JavaScript DOM manipulation (ES6), Node.js, Webpack, Sass, Chrome DevTools

CO-HABIT — Frontend Lead

[Live](#) | [GitHub](#)

An all-in-one housemates web application built using the MERN stack

- Implemented chores assignment logic that automatically assigns chores to each housemate, ensuring that workload is distributed evenly using JavaScript promises to fetch household data and store chores data asynchronously
- Ensured user privacy and autonomy using frontend (React Router) and backend (Passport.js) authentication measures, allowing only approved, logged-in users to access and make changes to their own household
- Utilized: *backend* — Node.js, MongoDB, Express, Passport.js; *frontend* — React, Redux, Axios, Sass; Heroku, Git team workflow

Scribbled

[Live](#) | [GitHub](#)

An online books and documents library inspired by Scribd, built with React/Rails

- Integrated React components with Redux's global store by dispatching actions only when sharing information across components and encapsulating data to give the user an uninterrupted experience
- Utilized: *backend* — Ruby on Rails, PostgreSQL, BCrypt; *frontend* — React, Redux, AJAX, SCSS; Heroku

Project Vitalize — Software Lead

A low-cost vital signs monitor designed to address barriers to early sepsis detection in resource-limited hospitals

- Developed a functional Arduino prototype and a 3D printed form prototype through multiple iterations of the design process
- Selected to present in the final rounds of two international design competitions (2nd place — Big Ideas in Global Health 2017)
- Utilized: Arduino, SolidWorks, 3D printing, user needs assessment, prototyping

WORK EXPERIENCE

Staff Research Associate

Jul 2017 – Jun 2019

University of California, San Francisco | Orthopedic Bioengineering Laboratories

- Improved reproducibility and efficiency of in situ hybridization analysis by writing ImageJ scripts to automate 3D image processing
- Designed and executed studies examining the role of the cartilage endplate in intervertebral disc health and back pain; published findings in peer-reviewed journals (lead author of 1 article, co-authored 2 articles and 3 abstracts)
 - Sampson SL, Sylvia M, et al. Effects of dynamic loading on solute transport through the human CEP. *J Biomech.* 2019;83. PMID: [30554819](#).
 - Wong J, Sampson SL, et al. Nutrient supply & nucleus pulposus cell function. *Osteoarthritis & Cartilage.* 2019;27(6). PMID: [30721733](#).
- Generated publication-quality data visualizations in KaleidaGraph; performed statistical analyses using JMP Pro and R
- Developed and validated new methods; wrote and maintained documentation on experimental protocols

Biodesign Fellow

May 2017 – Jul 2017

University of California, Berkeley | Department of Bioengineering

- Managed a group of 7 undergraduate interns conducting needs-finding research; previously completed training as an intern in 2016
- Ensured quality of team deliverables; compiled a database of over 1500 unmet clinical needs and 500 pages of technical reports to serve as the basis of future capstone design projects

EDUCATION

University of California, Berkeley — B.S. Bioengineering

May 2017

Graduated with Honors from the College of Engineering — GPA: [3.75](#)

Recognitions: Dean's Honor List (2 semesters), Cal Alumni Association Leadership Award Scholar, Bioengineering Honor Society

App Academy — Full-Stack Software Engineering

April 2020