

## EDUCATION

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### University of California, Berkeley – B.S. Bioengineering

May 2017

College of Engineering Honors, GPA: **3.76**

**Recognitions:** Dean's Honor List, Cal Alumni Association Leadership Award Scholar, Bioengineering Honors Society

**Activities:** Statistics Lab Teaching Assistant, Undergraduate Research Apprentice, Artists in Resonance A Cappella

### App Academy – Full-Stack Software Engineering

April 2020

## SKILLS

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**Programming Languages:** JavaScript, Ruby, SQL, Python, R

**Web Development:** Ruby on Rails, React.js, Redux.js, HTML5, CSS3, Sass, Git, Node.js, Express.js, jQuery, AJAX, Webpack, REST API

**Other Proficiencies:** PostgreSQL, MongoDB, RSpec, TDD, JMP Pro, ImageJ, SolidWorks

## PROJECTS

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### CO-HABIT - Frontend Lead

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

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

- Ensured user privacy and autonomy using frontend (React Router) and backend (Passport.js) authentication measures, allowing logged-in users to only access and make changes to their own household once approved
- Implemented chores assignment logic that automatically assigns chores to each housemates, ensuring that the workload is distributed evenly using JavaScript promises to fetch household data and store chores data asynchronously

### Scribbled - Solo Developer

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

*An online books and documents library inspired by Scribd, built with Ruby on Rails*

- Utilized CSS media queries to create a fully responsive, device agnostic design
- 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

### Blue JS Demos - Solo Developer

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

*A series of blue JavaScript animations with tutorials*

- Used vanilla JavaScript DOM manipulation, Three.js, and Sass, to create a series of visualizations

### Project Vitalize - Software Lead

*A low-cost vital signs monitor tailored for resource-limited hospitals*

- Partnered with UCSF physicians and health care workers in East Africa to design a low-cost vital signs monitor that addresses barriers to early sepsis detection in resource-limited hospitals
- Developed a functional Arduino-based prototype and a 3D printed form prototype through multiple iterations of the design process
- Presented posters in the final rounds of two international design competitions (2<sup>nd</sup> place - Big Ideas in Global Health 2017)

## WORK EXPERIENCE

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### Research Associate - Biomechanical Engineering

Jul 2017 – Jun 2019

*UCSF Orthopedic Bioengineering Laboratories*

- Designed, troubleshooted, and executed study examining the effect of dynamic loading on nutrient transport through the cartilage endplate (CEP); performed statistical analyses and published findings in the *Journal of Biomechanics*  
[Sampson SL, Sylvia M, et al. Effects of dynamic loading on solute transport through the human CEP. \*J Biomech.\* 2019;83:273-9. PMID: \[30554819\]\(#\).](#)
- Evaluated the effect of novel enzymatic and mechanical cartilage matrix modification strategies on disc cell viability  
[Wong J, Sampson SL, et al. Nutrient supply and nucleus pulposus cell function. \*Osteoarthritis Cartilage.\* 2019;27\(6\):956-64. PMID: \[30721733\]\(#\).](#)
- Wrote scripts to automate and standardize confocal microscopy 3D image processing used to calculate levels of gene expression
- Developed and validated new lab protocols: applying constant static or dynamic pressures with automatic fluid loss adjustments, quantifying solute transport through cartilage, matching local permeability variations to FTIR maps of cartilage composition

### Biodesign Fellow

Summer 2016 & 2017

*UC Berkeley Bioengineering - Summer Biodesign Internship*

- Completed training as a protégé in 2016; returned as a fellow to lead the 2017 program and mentor a group of 7 protégés
- Compiled a database of 1500 unmet needs and co-authored over 300 pages of technical reports to serve as the basis of future capstone design projects