

# Samuel Perales

Web Developer

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## PERSONAL STATEMENT

Planning to pursue a PhD in Mathematics, I participated in research groups all throughout college. I recently decided my enthusiasm for software is better suited to industry, so I declined my graduate offers and shifted my focus to a career in web development.

## EXPERIENCE

### TEXAS EXPERIMENTAL GEOMETRY LAB | RESEARCHER

January 2020 – Present | Austin, Texas

- Lead a team of four undergraduates throughout a long-term project.
- Developed novel algorithms for computational proofs of high level mathematical statements of interest and optimized them to run in real time.
- Designed and documented interactive web applications for the research site.

### COMPUTATIONAL ECOLOGY LAB | RESEARCHER

June 2021 – March 2022 | Arizona State University

- Lead a team of three undergraduates through multiple projects under a National Science Foundation grant.
- Designed and optimized mathematically rigorous stochastic models for predicting social insect behavior.
- Developed an interactive Python GUI for researchers to collect data.
- Analyzed high volumes of spatio-temporal data to extract meaningful conclusions in an ecological context.

### COMPUTATIONAL IMAGING LAB | RESEARCHER

June 2020 – August 2020 | Harvey Mudd College

- Worked with a partner to design, code, construct, and test a working 3D printed microscope and contributed to the UC2 optical open-standard.
- Implemented Fourier Ptychographic Microscopy algorithm in Python for combining low-resolution input images into a super-resolution output image.
- Further implemented EPRY-FPM for correcting chromatic aberrations and a multiplex FPM model for optimized image recovery.

## PROJECTS

### LAYOLAY | REACT + FIREBASE

2021 - Current

- Cofounded 3D printing ecommerce startup built with React and Firebase, styled with Tailwind and daisyUI, and deployed to Netlify.
- Collaborated with a partner over several months to develop major customer-facing features and a scalable backend for high order volumes.
- Implemented user authentication, PayPal payment processing, realtime chat, Three.js object visualizations, and full profile creation pathway.

### JSON2YAML | HTML + CSS + JS

2022

- Built a web application for converting between JSON and YAML data formats.
- Implemented CodeMirror to enable syntax highlighting and live code translation.

## SKILLS

### LANGUAGES

Python • JavaScript • HTML • CSS • Processing • Swift • R • MATLAB

### WEB DEVELOPMENT

React • Firebase • Redux • Tailwind • Netlify • REST • Google Analytics

### OTHER

Git • Jupyter • LaTeX • Adobe Illustrator • Gimp

## EDUCATION

### THE UNIVERSITY OF TEXAS AT AUSTIN

BACHELORS IN MATHEMATICS  
CERTIFICATE IN COMPUTER SCIENCE  
Aug 2018 - May 2022 | Austin, Texas  
GPA: 3.75 / 4.0

## COURSEWORK

- Software Engineering
- Web Programming
- Mobile Computing
- Graphics and Visualization
- Scientific Computing
- Functional Analysis
- Applied Statistics
- Linear Algebra

## ACTIVITIES

- Math Club (Vice President)
- Sunday Morning Math Group
- Research Training Grant
- Freshman Research Initiative
- Directed Reading Program
- Math, CS, and Physics Tutor

## ACADEMIC BLOG

CAPSNCRUNCH.GITHUB.IO

I make frequent posts about my academic work and personal projects.