

# Saurabh Totey Résumé

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## Experience

August 2021 - May 2022

### Autonomous Vehicle Systems Lab

Undergraduate Researcher

- Am writing a physics-informed neural network to classify frozen orbits in Python with Tensorflow

August 2021 - December 2021

### CU Data Structures Course (CSCI 2270)

Learning Assistant

- Held office hours and helped students work through the course
- Attended recitations and helped students with the recitation material

May 2018 - August 2021

### PhET Simulations

Software Development

- Wrote JavaScript code to develop educational scientific simulations for use on web browsers
- Participated in pair programming, code reviews, status meetings, developer meetings, and coordinating with QA for code testing
- Worked on simulation code and made changes to common code like fixing memory leaks
- Developed large portions of the Blackbody Spectrum, Curve Fitting, and Number Line Integers simulations
- Lead developer of the Number Line Distance simulation

Summer 2020 - Spring 2021

### SDSS APOGEE

Undergraduate Assistant

- Generated thousands of plots of star spectra from the Sloan Digital Sky Survey APOGEE 2 data for Dr. Guy Stringfellow

Spring 2020

### MATH Independent Study

Undergraduate Assistant

- Worked with Dr. Tianyuan Xu, a graduate student, and two other undergraduate students to write Python code for the SageMath ecosystem that determined whether a given word from a given Coxeter group is fully commutative or not

September 2016 - August 2019

### Kumon of Lafayette

Assistant

- Taught various K-12 students reading and math
- Managed center necessities with other employees, such as cleaning tables and sharpening pencils

## Leadership

### HackCU Organizer

- Plan and run the annual HackCU hackathon, host workshops, and develop the HackCU website

## Projects

### Planetary Conquest

Rust, WebGPU, Threading, Game Development

- An in-progress voxel game that I am developing in my free time
- Build scripts are used to compile shaders from GLSL to SPIR-V and to stitch individual textures into a texture atlas
- World generation is dynamic and threaded so player can explore and the world will generate around them on-the-fly
- Utilizes mouse and keyboard tracking and game loop management
- World parameters like gravity are parameterized from other factors like desired jump height or jump distance

### Code Kata Sneak

Kotlin, Spring Boot, API construction, JavaScript

- A programming game I made as Fairview High School's Code Club's President, where members were divided into teams and each team was given an API key with which to control their snek
- Teams wrote code to control their snek over the web API and beat other teams in a game similar to the popular snake game
- Utilized a model-view-controller paradigm with a JavaScript frontend for graphics (using canvas), and a Kotlin backend (using Spring Boot)

### Portfolio Website

JavaScript, React, Accessibility, HTML5, CSS3, Gatsby

- An in-progress website to showcase myself; is meant to look plain
- Website is mobile-first with reactivity to screen size using custom React components and CSS grids
- Accessibility tags are used wherever possible and accessible design was a large part of the design philosophy for the website

## Education

2019 - 2023

### University of Colorado at Boulder

Bachelor of Science in Engineering Physics and Computer Science

Minors in Math and Philosophy

GPA: 3.919

- President Joseph A. Sewall Esteemed Scholar Award
- Engineering Merit Scholarship

## Other Experience

- Experience constructing circuits on soldered circuits and solderless breadboards
- Experience with 3D modelling with Blender and Onshape

## Languages

- Natively speak English
- Proficient with Spanish
- Rudimentary ability to speak and hear French with a greater degree of proficiency with written French