

# Theo Rode

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## Projects

- Aug 2022 - present **Rust Spotify API Wrapper**
- Developed an intuitive library structure as a wrapper for the Spotify Web API in Rust.
  - Implemented the more advanced PKCE extension for OAuth2 authorization with the API.
  - Constructed custom formatting algorithms to improve usability of API.
- Nov 2021 - Dec 2021 **The Three Body Problem Simulation**
- Built a simulation engine in Python, using PyGame, for the infamous Three Body problem: modeling the chaotic motion of three gravitational bodies.
  - Collaborated with a group to improve accuracy and dependability of the simulation.
  - Analyzed starting conditions and critical points to develop an understanding of the problem.
- Jan 2021 - Apr 2021 **Music Recommendation Engine**
- Built a machine learning model with TensorFlow to predict if a song will be enjoyed.
  - Interfaced with the Spotify web API to grab song data and formatted it with Pandas.
  - Constructed a desktop application to view currently playing Spotify song, rate it to train the model, and see the model's prediction for likeability.
- May 2020 - Aug 2020 **COVID-19 Data Analysis**
- Cleaned and formatted COVID-19 case and death data in Python using Pandas.
  - Analyzed data using numerous predictive models to determine patterns and create predictions.
  - Crafted visual representations of data to demonstrate patterns and predictions.
- July 2021 - present **Writing and Teaching Math Curriculum**
- Identified major issues with traditional middle/high school math education through numerous interviews with a diverse group of teachers.
  - Designed custom course curriculum with class notes typeset in LaTeX.
  - Organized and taught calculus bootcamp for 9th graders using my custom curriculum.

## Work Experience

- Sep 2022 - present **Homework Hotline Tutor** **Harvey Mudd College**
- Helped kids from elementary to high school, who can call without paying anything, with homework questions related to math and science.
  - Communicated over phone or messaging, adapting my communication style to the situation.

## Education

- 2022-2026 **Undergraduate Degree** **Harvey Mudd College**  
Current freshman pursuing a degree in Computer Science and Math. Current coursework: CS42 (Principles and Practice of CS), MATH019 (Single & Multivariable Calculus), CHEM42, WRIT1, PHYS23
- 2018-2022 **High School** **The Nueva School**  
GPA: 3.91 (unweighted). Relevant coursework: Quantum Information and Computation, Algorithms, Computer Security, Computer Vision, Multivariable Calculus, Linear Algebra, Intro and Advanced Machine Learning, Graph Theory, Game Design, Mobile App Design, Cryptocurrency

## Skills

- Programming languages: Julia, Python, Rust, JavaScript, MATLAB, HTML, CSS
- Tools: git, TensorFlow, Pandas, React Native, Unreal Engine
- Strong leadership, teaching, and teamwork skills

## Hobbies

I love playing tennis and skiing. I also enjoy sleight of hand magic and have organized a group of fellow magicians to perform at birthday parties. And I can frequently be found solving puzzles.

## Non profit

Volunteered for the Service League of Boys for a year. Serviced bikes for people who needed them and packed food.