

# Theo Rode

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## Projects

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|------------------------|--|
| Nov 2021 -<br>Dec 2021 | <b>The Three Body Problem Simulation</b> <ul style="list-style-type: none"><li>• Built a simulation engine in Python, using PyGame, for the infamous Three Body problem: modeling the chaotic motion of three gravitational bodies.</li><li>• Collaborated with a group to improve accuracy and dependability of the simulation.</li><li>• Analyzed starting conditions and critical points to develop an understanding of the problem.</li></ul>                            |
| Jan 2021 -<br>Apr 2021 | <b>Music Recommendation Engine</b> <ul style="list-style-type: none"><li>• Built a machine learning model using TensorFlow to predict likelihood of a user enjoying a specific song.</li><li>• Interfaced with the Spotify web API to grab song data and formatted data using Pandas for training.</li><li>• Constructed a desktop application to view currently playing Spotify song, rate it to train the model, and see the model's prediction for likeability.</li></ul> |
| May 2020 -<br>Aug 2020 | <b>COVID-19 Data Analysis</b> <ul style="list-style-type: none"><li>• Cleaned and formatted COVID-19 case and death data in Python using Pandas.</li><li>• Analyzed the data using numerous predictive models to determine patterns and create predictions.</li><li>• Crafted visual representations of data to demonstrate patterns and predictions.</li></ul>  |
| Nov 2021 -<br>present  | <b>Writing and Teaching Math Curriculum</b> <ul style="list-style-type: none"><li>• Identified major issues with traditional middle/high school math education through numerous interviews with a diverse group of teachers.</li><li>• Designed custom course curriculum with class notes typeset in LaTeX.</li><li>• Organized and taught week-long calculus bootcamp for 9th graders using my custom curriculum.</li></ul>   |

## Work Experience

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|-----------------------|--|----------------------------|
| Sep 2022 -<br>present | <b>Homework Hotline</b>  | <b>Harvey Mudd College</b> |
|                       | <ul style="list-style-type: none"><li>• Helped kids from elementary to high school with homework questions related to math and science.</li><li>• Communicated over phone or messaging, adapting my communication style to fit the platform and recipient.</li></ul> |                            |

## Education

- |           |   |                            |
|-----------|---|----------------------------|
| 2022-2026 | <b>Undergraduate Degree</b>   | <b>Harvey Mudd College</b> |
|           | Current freshman pursuing a degree in Computer Science and Math.  |                            |
| 2018-2022 | <b>High School</b>  | <b>The Nueva School</b>    |
|           | GPA: 3.91 (unweighted). Relevant coursework: Quantum Information and Computation, Algorithms, Computer Security, Computer Vision, 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 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, anything ranging from a rubik's cube to a 5000 piece floor puzzle.

## Non profit

I have helped with servicing and repairing bikes to be donated to people in need.