

# Ayush Nayak

I am a High School Junior an astronomer at heart, but one who also loves coding, chemistry, math and biology.

## Experience and Projects

### Researcher – UCSD Supercomputer Center

One of two sophomores selected out of 50+, I worked on discovering new correlations between HCV and HBV, and it's effect on inducing cancer, by leveraging big data and using Machine Learning models.

### Researcher – Exoplanets

I work with a small team, collecting data from various telescope runs, and attempting to update the ephemeris and discover a new Transit Timing Variable Exoplanet orbiting a star system. In addition, I'm working on python exoplanet software and auditing current software as well as improving it.

### B4KTR4CE

I developed an disease agnostic AI system which emulates network biology for disease datasets by algorithmically dissecting binary classifiers on that disease and searching for motifs to help understand how disease are caused.

### OPTIX

I developed an ML algorithm to describe the world to the blind, through innovative use of surround sound.

### UNIVERS

I am working to categorize the entire GAIA database into a 3D searchable model of the galaxy, to attempt to find issues in current astronomical representations.

### LUNA

I am developing a Laser based communication system to alleviate network difficulties and broadcast low latency internet across long distances.

## Education

**4.45 GPA** <sup>Rank</sup> (5/570)

**1550 SAT** 2021

**1470 PSAT** 2019

**5/5** *AP Chemistry*  
*AP Biology*

*AP Calculus*  
*AP European History*

*AP Human Geography*

## Honors

**ISEF Finalist** 2022

**MIT Think Scholars Semifinalist** 2022

**1<sup>st</sup> award worldwide NASA Space Settlement Contest, of 14,000 applicants** 2020

**Top 30 Nationwide placement United States Astronomy Olympiad First Exam** 2021

**AIME Qualifier** 2022

**R.E.D. Award Best Computer Science Project of the San Diego Science Fair** 2021

**Top 30 Computer Science Project California Statewide Science Fair** 2021

**Commended by Congressman, Congressional App Challenge Winner District 52** 2022

**Northrup Grumman HIP Selected, Top 8 countywide.** 2022

**California Statewide Science Olympiad 2<sup>nd</sup> place x2, 3<sup>rd</sup> place x1** 2021