

## EDUCATION

**River Hill High School, MD** 2022 - 2026 (expected)

**GPA: 3.71 (4.57/4 weighted)**

Relevant Coursework: AP Calculus AB/BC, Multivariate Calculus, AP Biology, AP Statistics, AP Computer Science Principles, AP Computer Science A, AP Physics Mechanics, AP Chemistry, Differential Equations G/T, Music Technology, Independent Research

**SAT score:** 1600 (800 R&W, 800 Math)

**PSAT score:** 1520 (760 R&W, 760 Math)

## EXPERIENCE

### Programming

- Proficient in C, C++, JavaScript and Python, used for competitive programming and my own projects
- Proficient in HTML/CSS/JSS
- Finished projects from Harvard's cs50x and cs50p
- Proficient with LaTeX typesetting and documents
- Familiar with machine learning frameworks such as TensorFlow, Pytorch, etc.
- Worked with data science Python libraries including Pandas, Matplotlib, NumPy, Scikit-Learn
- Experience with Machine Learning, LLMs, Natural language processing and other AI technologies

### Internship

**John Hopkins Medicine**

**4/24 - Present**

- Shadowed patient monitoring sessions at JH main campus.
- Attended research and status meetings with post-grad students.

### Projects

**Algorithmic Arias**

**8/23 - Present**

- Researched the effects of algorithmic music composition on the brain.
- Working on a program to gauge musical preferences of users via facial expression recognition AI in order to generate tailored music through affective algorithmic composition.
- Created React web application to automatically gauge working web app prototype of the facial expression recognition component.

**AI for Autism**

**10/21 - 6/22**

- Created Xcode-designed mobile application which determines the emotion of a voice from the surroundings, helping autistic people learn to make decisions based on the feelings of those around them. Utilizes web-based service which uses a Python machine learning model (specifically a Convolutional Neural Network).
- Broadcom MASTERS MSU Science-Mathematics-Engineering Fair – First Place Award - Math & Comp. Sc. (April 2022).

**The Ethics of Artificial Intelligence - Machine Learning for Moral Discerning**

**11/20 - 6/21**

- Designed an ethical framework for AI by collecting responses from hundreds of people to moral questions, like those presented by the famous Trolley Problem deals.
- ML model using Python (packages including sklearn, pandas, etc.) which could make fast decisions to such problems, in cases where a human making the same decision would be faced with bias and emotion as obstacles.
- Won the Commissioned Officer's Association of the US Public Health Service Award.
- Distinguished Achievement – First Place Award at Broadcom MASTERS Morgan CEMSE (April 2021).

**Founder, Introduction to Coding**

**6/20 - Present**

- Led a 5-week course teaching the essentials of programming using MIT-developed Scratch to 20+ students who had no prior coding experience
- Designed course layout, lessons, graded homework assignments, and posted reviews of sessions to Youtube:
- Fundraised over \$450 directed to Khan Academy and Teach for America.  
[https://www.youtube.com/channel/UCX0-167GgU\\_tx1NriJX4AvQ](https://www.youtube.com/channel/UCX0-167GgU_tx1NriJX4AvQ)

## ACCOMPLISHMENTS

### Science

- BROADCOM MASTERS top 5% in Nation (2020-2022)
- #1 Statewide Science Olympiad winner in events Disease Detectives, Bio Process Lab (2021-2022)
- Leader and active member of multiple events (CodeBusters, Fermi Questions, Crave the Wave, Optics, It's About Time, Disease Detectives, Solar System, Reach for the Stars, Heredity, Meteorology, Wind Power, Entomology) of the MS team that won SciOly State Championship (2021-2022)
- Commissioned Officers Association of the US Public Health Service Award (2021-2022)
- 12 gold medals, 67 total medals in SciOly career to date (2021-2024)
- CTY Scholar (2019)

### Math

- Top 10 team ranked nationally at American Regions Math League (ARML) (2024)
- Top scorer in Howard County Mathematics League (HCML) (2023-2025)
- Wrote solutions to HCML and UMD Math Competition problems for public usage (2023-present)
- Editor, River Hill HS Math Journal (2023-present)
- Globally ranked #1 on AoPS All-Time Alcumus Leaderboard out of 1 million+ users (2022-2024)
- MAA AIME Qualifier (2022-present)
- AMC12 score 127.5 (2024)
- Excelled in challenging Art of Problem Solving® mathematics – Combinatorics, Intermediate Algebra, Precalculus, Calculus (2018-2023)
- Top 3 AMC10 scorer schoolwide– First rank in 9th grade (2019-2023)
- AwesomeMath Summer Program (2023)
- Purple Comet State Champion Team (2024)

### Music

- First Prize Winner– Vivaldi International Music Competition (2024)
- #1 in Howard County, MD – Reflections Musical Composition Contest (yearly) (2019-2024)
- #2 in Maryland State – Reflections Musical Composition Contest (2022-2024)
- GLMTA 1st place – GLMTA Orchestra Concerto – piano performances with orchestra (2021-2022)
- Youtube channel <https://www.youtube.com/@musicisforlife5872/videos>

## Volunteering

### Co-founder, UTSAV

**2020 - Present**

- Co-founded a community organization of 60+ people dedicated to spreading Indian culture through plays (script, narration, audio and video editing), dance, and music.
- Online video production (YouTube): produced, filmed, edited, published and marketed Utsav YouTube content for over 350 subscribers. Videos achieved over 115,000 views to date.
- Raised over \$2,000 for Ekal, an educational organization that teaches children around the world.
- Fundraised for COVID relief and natural disaster relief such as cyclone Amphan to international organizations.

### Volunteer, Indian Cultural Association of Howard County

**2022 - 23**

- Regular volunteer in the food distribution program.

### Tutor, [schoolhouse.world](https://www.schoolhouse.world) of Khan Academy

**2024 - Present**

### Languages

- English, Bengali, Hindi.