

Vivaan Singhvi

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EDUCATION

Farragut High School

Knoxville, Tennessee

May 2024

GPA: 4.72/4.0

RELEVANT INFORMATION

Courses: AP Comparative Government (5), AP Human Geography (5), AP World History (4), AP Government (5), AP Biology (5), AP Seminar (4), AP Language (4), AP United States History (4), AP Statistics (5), AP Calculus AB/BC (5), AP Research (4), AP Physics 1 (5), AP Chemistry (5), AP Computer Science A (Self-Studied - 5), AP German, AP Macroeconomics, AP Physics C: Mechanics, DE English 1020, DE Intro to Computer Science, DE Intro to Music

Awards / Honors: NMSQT Semifinalist, AP Capstone Diploma, 2x AP Scholar with Distinction, AP Scholar

EXPERIENCE

Oak Ridge National Laboratory Internship | *Database Administration*

June 2023 - July 2023

- Worked 40 hours a week developing experience in database administration and operation using PostgreSQL.
- Developed crucial workplace skills for the first time.
- Attended dozens of talks and workshops to expose myself to all kinds of professions.

National Youth Leadership Forum | *Medicine and Healthcare Camp*

June 2021

- Spent 9 days at an intensive medical camp, in which I participated in activities all day long, such as learning how to suture, how to draw blood, and how to use a tourniquet.
- Watched many presentations on innovations in healthcare (like a surgical robot), careers in healthcare, and various other topics pertaining to medicine.

COMMUNITY SERVICE — ABOUT 140 HOURS

Second Harvest Food Bank | *Product Recovery Volunteer*

2021 – Present

Worked about 80 hours packaging foods that would be delivered to pantries all over East Tennessee. Examples include bagging cereal and coffee, preparing boxes of assorted foods, and more.

National Honors Society | *Member, Volunteer*

2021 – 2023

Worked for about 40 hours total in on-campus projects like school beautification and trash cleanup, and in out-of-campus projects like Halloween parades and Christmas festivals.

EXTRACURRICULARS

Programming Personal Projects

2022 – Present

Spent about 2 hours a day, every day, making more than 50 projects, ranging from web & game development to machine learning to database operations.

Knoxville Youth Symphony Orchestra | *Percussionist*

2021 – 2023

Played as a percussionist in 6 concerts, attending weekly 2-hour rehearsals.

Drumming Student

2015 – Present

Spent nine years performing at concerts, developing skills in jazz, orchestral, funk, pop, and rock drumming at various institutions.

CLUBS

Anatomy Club <i>Vice President</i>	2023 – 2024
Assisted with the preparation of activities for the club and with presentations at club meetings.	
Mu Alpha Theta <i>Member, Volunteer, Competitor</i>	2021 – 2024
Competed in several math competitions such as Rocket City Math League, TMTA, and MAO, volunteered for Mini Mu, a math competition at my school for 6 th and 7 th graders, and tutored about 15 hours.	
Science Club <i>Member, Competitor</i>	2020 – 2024
Attended weekly meetings featuring presentations about science and competed in events such as Science Olympiad.	
Computer Science Club <i>Member, Volunteer</i>	2022 – 2024
Participated in various activities like solving CodeForces problems, listening to talks about computer science, and more.	
Health Occupations Students of America <i>Member, Volunteer, Competitor</i>	2021 – 2023
Competed in fast-paced tests, twice state-level and once internationally. Attended various immersive workshops and volunteered for the club..	

SELECT AWARDS / HONORS

SMC Data Challenge Best Paper Award	12 th grade
Won the award for best solution paper at the Smoky Mountains Computational Sciences and Engineering Conference Data Challenge. The paper is also published.	
HOSA International Leadership Conference: General Chemistry 1 st place	12 th grade
Won first place in the National Geographic Learning Academic Testing Center General Chemistry test, competing against students from all over the world.	
HOSA State Leadership Conference: Medical Math 2 nd place	11 th grade
Won second place in the Medical Math event, competing against students from all over Tennessee.	
TMTA: Statistics Test 1 st place	11 th grade
Achieved a perfect score on the Tennessee Math Teachers Association Statistics exam.	
TN Regional Science Olympiad: Flight 1 st place	11 th grade
Won first place in the Flight event for the East Tennessee Regional Science Olympiad.	
TN Regional Science Olympiad: Chemistry Lab 2 nd place	11 th grade
Won second place in the Chemistry Lab event for the East Tennessee Regional Science Olympiad.	
TN Regional Science Olympiad: Detector Build 3 rd place	11 th grade
Won third place in the Detector Build event for the East Tennessee Regional Science Olympiad.	
HOSA Upper East Tennessee Regionals: Medical Math 1 st place	11 th grade
Won first place in the Medical Math event in my region.	
HOSA State Leadership Conference: Dental Science 5 th place	10 th grade
Won fifth place in the Dental Science event, competing against students from all over Tennessee.	
Trinty College of Music Certification	10 th grade
Passed the Grade 7 exam for Drumset, equivalent to 8 US Undergraduate college credits.	
HOSA Upper East Tennessee Regionals: Dental Science 1 st place	10 th grade
Won first place in the Dental Science event in my region.	
USA Biology Olympiad Certificate of Merit	10 th grade
Awarded after taking the 50-question test online.	

PROGRAMMING SKILLS

Languages: Python, JavaScript/TypeScript, HTML/CSS, PostgreSQL, Java, Shell, C/C++

Libraries: OpenCV, Scikit-Learn, React, NumPy, Pandas

Tools: Git/GitHub, Unix, Windows Subsystem for Linux, VS Code, Vim

MAJOR PROGRAMMING PROJECTS / ACTIVITIES

SMC Data Challenge | *Python, OpenCV, Scikit-Learn, Shell*

July 2023 – August 2023

- Worked for dozens of hours on an extensive solution for problem 1 of the Smoky Mountains Computing Sciences Data Challenge 2023: Machine Learning Approaches to High-Throughput Phenotyping.
- Developed expertise in computer vision processes using the OpenCV library and in simple machine learning programs with Scikit-Learn, and strengthened expertise in Python.
- Used machine learning, optical character recognition, and image segmentation models to complete tasks such as label reading, leaf morphology classification, and data analyses.
- Wrote a solution paper published as conference proceedings, which also won the *Best Paper Award*, and a research poster presented at the conference.
- Gave a 5-minute lightning talk about the research.

vivaansinghvi.github.io | *TypeScript, HTML/CSS, React*

August 2023

- Created my personal website, leaning on an interactive user interface to allow the important information about me to be presented in the best way.
- Learned how to use React, a powerful and convenient JavaScript/TypeScript framework, which I plan on using in future web development projects.
- Improved upon feedback from friends and family to even further improve the user experience.
- **Dozens of other projects that are not reflected here are shown on the website.**

MandelPlot | *JavaScript, HTML/CSS*

April 2023

- Created a beautiful visualizer for the Mandelbrot Set, a fascinating set of points generated from repeating a simple function, supporting zooms quickly up to 100,000,000,000 times.
- Developed skills using asynchronous and synchronous operations to optimize performance.
- Got significant familiarity with JavaScript and how to code websites, such as manipulating event listeners and optimizing the user experience.

CodeForces Problems | *Python, Java, C/C++*

January 2023 – Present

- Solved hundreds of problems on the online competitive programming website CodeForces.
- Achieved a personal highest problem rating of 2200, from an 800-3500 scale.

Soccer Database | *Python, PostgreSQL*

February 2023 – April 2023

- Developed the structure for a simple database storing information about most aspects of soccer (leagues, teams, players, awards, matches, etc.)
- Learned how to effectively use PostgreSQL to manipulate a database to add, modify, or interpret data.
- Learned how to use Python in conjunction with a PostgreSQL database in order to use both simultaneously.

AI Text Detector | *Python, Scikit-Learn*

March 2023

- Created a machine learning model to detect if essays were written by a human or an AI.
- Developed important fundamental skills in programming with machine learning algorithms, such as model selection, accuracy testing, data pre-processing, and more.
- Created a dataset containing thousands of AI-generated essays for other people to use in their own projects.