

# BRIDGE TO COLLEGE

*Satellite Surveillance of a  
Changing Earth*

2022-23 PROGRAM REPORT



PREPARED BY  
Dr. Shakila Merchant



# Program Overview



At the City College Academy of the Arts (CCAA), the Middle School College Awareness Institute aims to gradually **expose students to college awareness and readiness programs as they progress from 6th to 8th grade.** The final program, the **Bridge-to-College-Satellite Surveillance of a Changing Earth, will be the culmination of their preparation for higher education.**



The 8th grade Bridge-to-College program offers CCAA students the **opportunity to study with CCNY instructors and professors on campus,** giving them a **sense of what college courses will be like and a taste of college culture.** The adjuncts and organizations involved in the program play a critical role in preparing the eighth graders for the **challenges they will face as they begin taking college courses in the 9th grade.**



The collaboration with the CUNY CREST Institute began in the Fall of 2016, as students **advocated for more paths in STEM** and the institute was introduced with the opportunity for students to **partake in remote sensing analysis and workshops.**

**The Bridge-to-College (B2C) is an innovative program that provides hands-on training in Earth System Science and Engineering modules, to New York City high schoolers to help them make a successful transition to college.**

# FROM THE DESK OF CUNY HIRES Director



*Dr. Merchant interacting with 2022-2023 B2C students*

Bridge to college initiative began in 2015-2016 to engage, inspire, and motivate a cohort of middle school (8th graders) students in NOAA mission driven STEM focused hands-on activities. Each year, 10-15 students along with their teacher(s) participate in this 7-week long seminar style learning that focuses on "Earth Observation and Surveillance." The seminars and modules are carefully designed to ensure that the students are engaged and fully immersed during the once-a-week session that runs for 7-weeks in the fall semester each year.

The modules are presented to the B2C learners by CUNY CREST faculty, scientists and staff members. Early engagement and inspiration help students to be better prepared in choosing the right STEM careers as they enter into high school. B2C also serves as a recruitment pipeline for the CUNY HIRES program for the City College Academy of Arts students. HIRES is a out-of-school college readiness program for 9-12 graders. B2C adds value and knowledge for many traditionally underserved minority students who are curious to learn and gain STEM training and knowledge.

**"Early engagement of students in the STEM fields is pivotal to help them become college ready. B2C is an example that inspires a cohort of middle school students, particularly from underserved communities in STEM fields and thus empower them to be ready for STEM education at high school and college."**



# OUR TEAM



**Shakila Merchant**

CUNY HIRES Director



**Sophia Bogues**

Director, Early College  
Program- CCNY



**Lesly Munoz**

College Assistant  
Early College Program



**Carolina Perez**

NOAA CESSRST II  
Graduate Scholar



**Cesar Ortiz**

Student Affairs  
Manager



**Srishti Tyagi**

Communication  
Manager



**Claudia Solano  
Rodriguez**

Budget Analyst



# Impact of the Training



*Fifteen (15) students were trained* during the 2022-2023 Bridge to College Program.





# PROGRAM ACTIVITIES

The B2C program orientation was held on December 2, 2022. Students participated in a ***guided tour of the Grove School of Engineering*** including the City University of New York Remote Sensing Earth System Institute (CUNY CREST) Institute. *They were also introduced to the CUNY CREST B2C program schedule.*



Further, students ***learned about the history, mission, vision, and nine focal areas of National Oceanic and Atmospheric Administration (NOAA)***. They were intrigued by NOAA's commitment towards the development of its science and commercial infrastructure that serves the public interest. Lastly, ***students introduced themselves and talked about their interests in Environmental Science/Remote Sensing as well as elaborated on their expectations from the B2C program.***

During the course of the program, students also ***engaged in academic and professional development workshops*** led by accomplished scientists, faculty, and management from NOAA Center for Earth System Sciences and Remote Sensing Technologies (CESSRST) and CUNY CREST Institute.

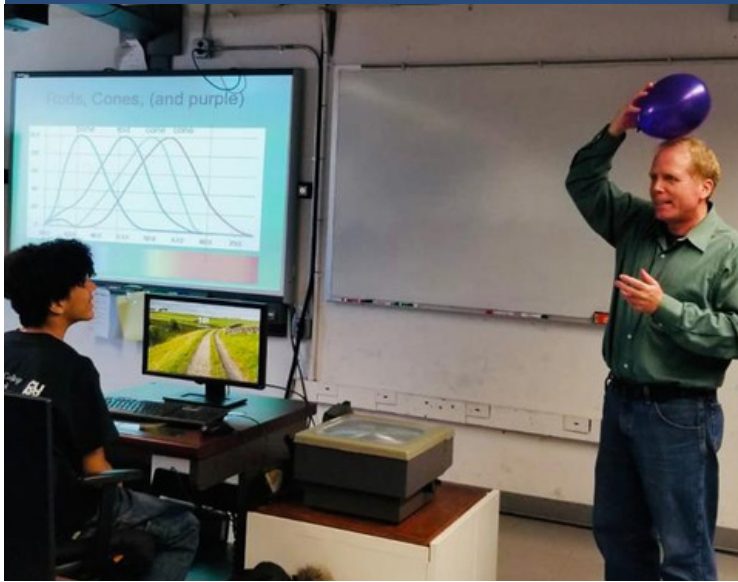




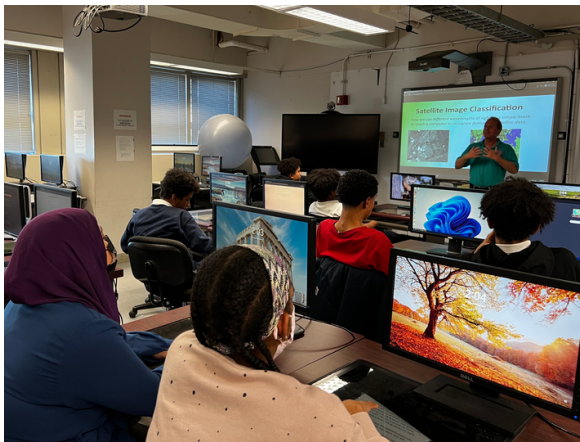
# Workshop Series

## Satellite Image Classification By Dr. Brian Vant-Hull

The *first workshop* of the series titled *Satellite Image Classification* was held on December 9, 2022. The workshop was *conducted by Dr. Brian Vant-Hull, Research Scientist at CUNY CREST & NOAA CESSRST II.*



During the workshop, students *learned about the basics of remote sensing* and *explored how satellite data is used to monitor deforestation and growth of urban areas.* After learning about the parts of the spectrum, they *examined actual landsat data* that they could relate to images of vegetation, buildings, and water.



Further, students *devised mathematical rules to classify regions by their spectral signature,* and the *rules were tested on a mystery image.* From participating in the hands-on activities during this workshop, students learnt that satellite data is not merely pictures, but a trove of data that can be mined to answer questions about our changing world.





# Workshop Series

## Visiting the Weather Station Site By Dr. Tarendra Lakhankar

The **second workshop** of the series titled *visiting the weather station site* was held on January 6, 2023. The workshop was **conducted by Dr. Tarendra Lakhankar, Senior Research Scientist, CCNY.**



During the workshop, students took their **first nature walk** around the CCNY campus through **St. Nicholas Park towards Eagle Academy for Young Men of Harlem.** At the school, they **explored an installed weather station** that measures rainfall, temperature, humidity and soil moisture and is part of the weather station network within New York City (NYC).



Further, students **learned about the difference in weather and climate** and **understood the impact that extreme weather and climate change can have on their day-to-day lives.**





# Workshop Series

## Astronomy Day By Brian Levine

The *third workshop* of the series titled Astronomy Day was held on January 13, 2023. The workshop was *conducted by Brian Levine, NOAA CESSRST II Administrative Coordinator.*



The workshop focussed on *models and scale models, maps, and the major objects of the Solar System*, with both a take-home model that each student constructed, and a *tour in the CCNY planetarium* with Professor James Hedberg.

Students learned about the concept of remote sensing through *observing and analyzing street atlas style map of NYC alongside a subway map*. Comparing/contrasting to the subway map, students identified what features the subway map was showing, how that differed from the street map, and determined that the subway map is not to scale. Further, students *learned about object distance and scale distortion through hands-on modeling of the solar system.*

Lastly, at the planetarium located at CCNY, students *participated in an interactive tour around the solar system that included keynotes about different satellites in space.* They also *learned about the process of creating this 3D model using remote sensing data.*





# Workshop Series

## Hands-on with Weather Station Data By Dr. Tarendra Lakhankar

The **forth workshop** of the series titled *Hands-on with the Weather Station* was held on January 20, 2023. The workshop was **conducted by Dr. Tarendra Lakhankar, Senior Research Scientist, CCNY.**



During the workshop, students used the precipitation & temperature data from the Weather Station. With that, they were able to **graph the average precipitation in Harlem, NY.** They also **learned about surface temperature and thermal energy.** Further, they **understood how heat varies from surface ground to atmosphere by using an infrared thermometer.**



Students were able to **explore the surrounding objects and places to measure their emitting heat and use the data collected to create bar graphs.** At the end of the workshop, students presented their graphs and developed curiosity about the objects they would like to measure in the future.

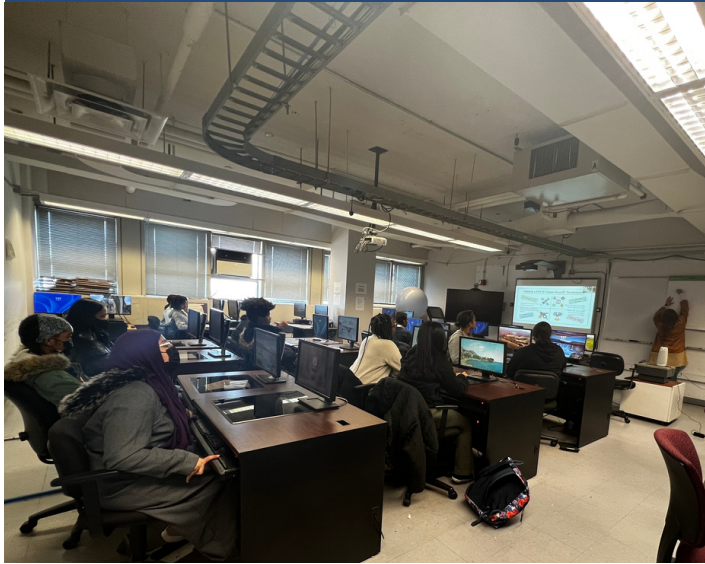




# Workshop Series

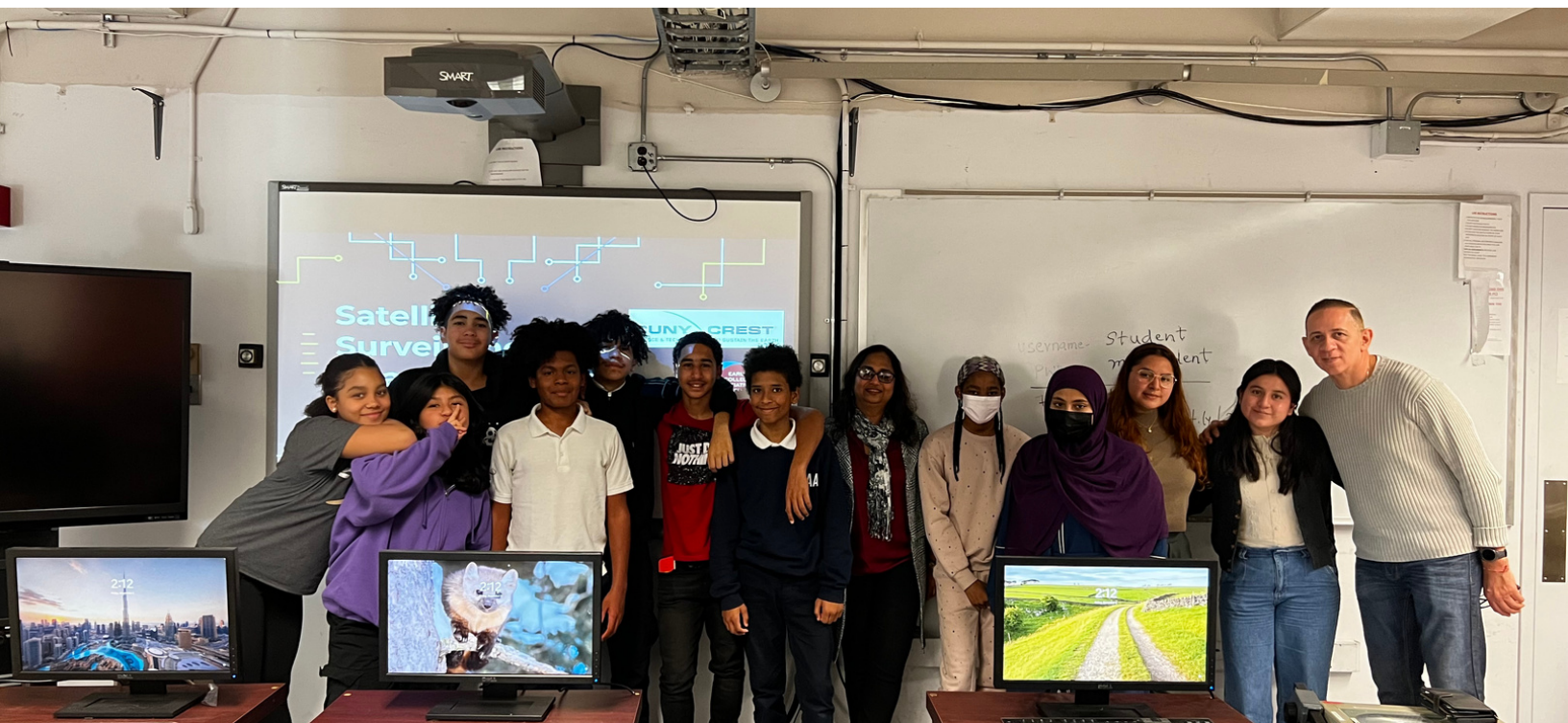
## Creating a STEM Vision Board By Carolina Perez

The *fifth workshop* of the series titled *Creating a Science, Technology, Engineering, and Math (STEM) Vision Board* was held on February 2, 2023. The workshop was *conducted by Carolina Perez, NOAA CESSRST II Graduate Scholar*.



This workshop was part of the *Satellite Surveillance of a Changing Earth* course, hosted by the non-profit organization, STEM Hive. Students *learned about how Vision Boards can help create a physical representation of their future goals and aspirations in STEM*. They also explored what a vision board looks like through an example presented by Carolina Perez.

Further, students *created a draft of their vision boards* based on their chosen topic which was related to previous sessions covered in the B2C program such as Satellite image classification, astronomy, and weather stations. Using Google Jamboard, they worked on their vision boards digitally.





# Sneak Peek into Vision Boards

**Topic: Satellite Image classification**

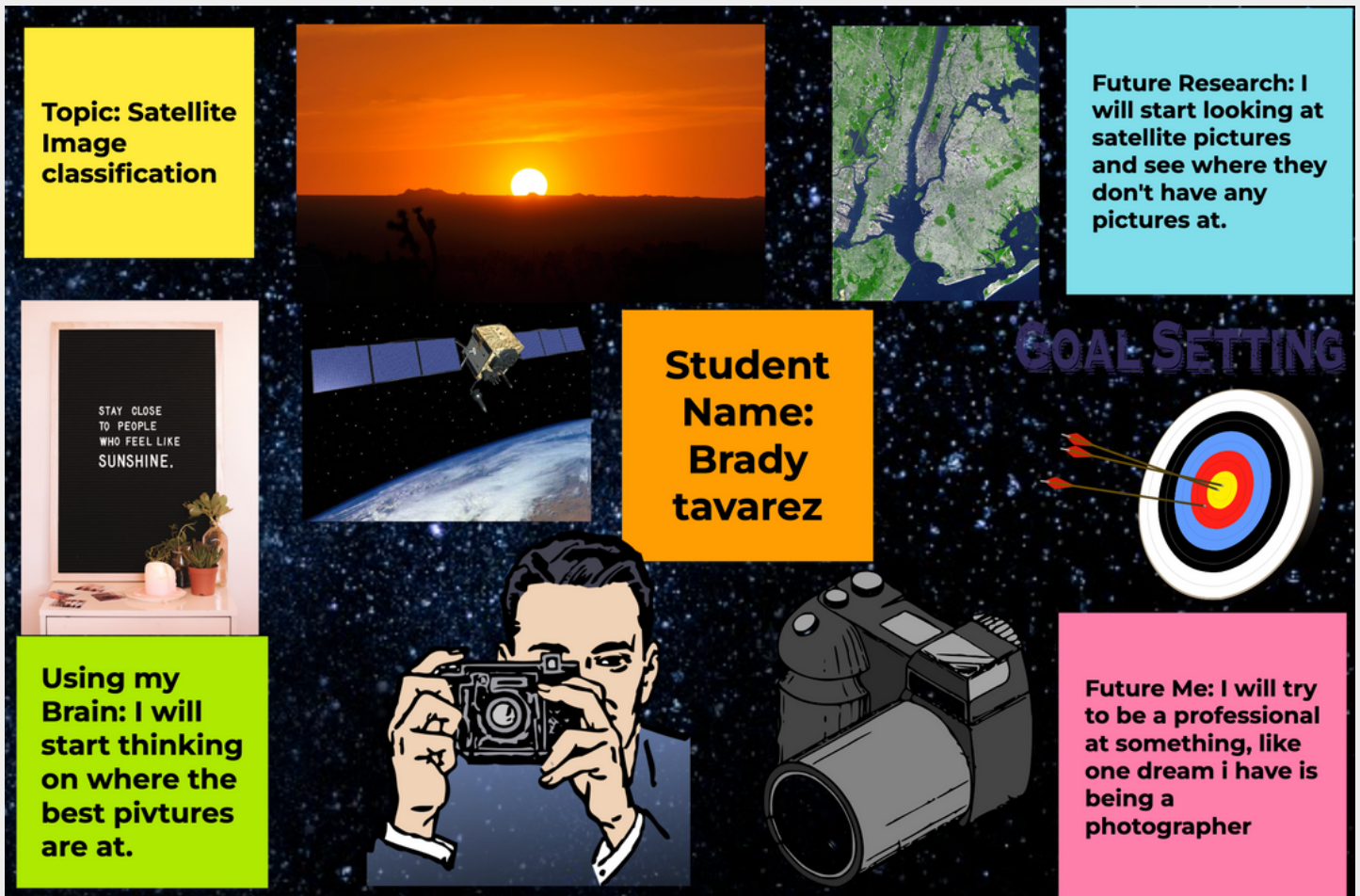
**Future Research: I will start looking at satellite pictures and see where they don't have any pictures at.**

**Student Name: Brady tvarez**

**GOAL SETTING**

**Using my Brain: I will start thinking on where the best pictures are at.**

**Future Me: I will try to be a professional at something, like one dream i have is being a photographer**



**Topic- Remote sensing**

**When was Remote sensing most needed in our planet or a place?**

**Edward Jerez 🤔**

**Remote sensing is the process of how we gather information in an area without needing to be there .An example of this could be a satellite.**

**Future me will hopefully Be in England in Manchester City seeing Haaland and touring the place.**





# Sneak Peek into Vision Boards

**Future Me: real estate agent**

Anything else you would like to add! The have cool technology

Future Research: we would be able to maybe discover new planets. We will be able to discover what is in many other more milky ways

**Using my Brain:** We leaved how big the sun is, how many planets there are, and how far apart the planets are to each other.

**Student Name: valery leyva**

IF IT MAKES YOU HAPPY, NO ONE ELSE'S OPINION SHOULD MATTER.  
LIVELIFEHAPPY.COM

**Topic: Astronomy day**

THE EAZONS

**Future Me: The future me would like to go to a good college and focus on my studies and hopefully become a interior designer**

**Topic: Space**

**Future Research:** In the future I would like to try creating better models for measure outer space.

**Using my Brain:** One thing I learned was, measuring distance of space on paper is way different than in actually space because the distances when measuring in space is way longer.

**Student Name: Hayam Zaid**

GPS enables our modern way of life



# Sneak Peek into Vision Boards

**Topic**  
Weather station

**Using my Brain:**  
Shows us what the weather is next week/using rain to produce more information.

**Future Research:**  
being able to change the weather/ knowing weather for the whole month/ learning more on weather.

Anything else you would like to add!/ Very cool and advance technology.

Future Me: President/COE of pokemon company

**Student Name:**  
Ryan Delarosa

City	Temperature
Medford	106
Boise	94
Sacramento	110
Carson City	99
Salt Lake City	97
Denver	94
Fresno	108
Paradise Valley	124
Bakersfield	109
Las Vegas	112
Burbank	111
Palm Springs	121
Phoenix	111
Tucson	106
Albuquerque	97

**Leany Cabreja**

**Birds**

**SLEEP LESS AND DREAM MORE.**

~Go to a Fashion Industry College  
~Travel

**Future Research:**  
~Natural selection  
~Evolution on beaks and what they consume.

**Get paid very well!!**

**THE ONES WHO SAY "YOU CAN'T" AND "YOU WON'T" ARE PROBABLY THE ONES SCARED THAT "YOU WILL."**

**Using my Brain:**  
~Different beak size  
~ Different colors, types  
~Diet

~Sketching  
~Journaling  
~Reading

**Future me: Fashion designer**



# PRESENTATION DAY

The B2C program ended with *presentations from students and closing remarks from Dr. Shakila Merchant*, on February 10, 2023.

Students *presented their experience* of the B2C program including *learnings from the workshops and activities* that they participated in and *shared insights into what they enjoyed the most during the program*.

Students also got the opportunity to *share their digital vision board and talk about their future goals and interests in STEM*. Thus, the program ended on a hopeful and positive note.

