

ALBERT DORMAN
HONORS COLLEGE

HONORS IN ACTION 2023



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HONORS COLLEGE



DEAN'S LETTER

Dear Friends,

I am pleased to present Honors in Action 2023 highlighting some of the many wonderful stories from the past year. The 2022-23 academic year was perhaps the most transformative year in the history of Albert Dorman Honors College since its foundation nearly 30 years ago. In October of 2022, the Dorman Honors College received the single most generous gift in its history from John Martinson. The university has renamed the Honors Residence Hall in recognition of his extraordinary commitment to NJIT. The Dorman Honors College now proudly resides in John Martinson Honors Residence Hall.

The gift strengthens our ability to deliver a unique, interdisciplinary education that empowers Dorman Honors Scholars to become leading researchers and professionals who communicate complex ideas powerfully and effectively. With this generous support, the Dorman Honors College will be able to hire its first faculty, expand the Faculty Fellows program, create affiliated faculty positions, and deepen our investment in experiential learning. As a result, the college has already introduced its first short-term study abroad class, nearly doubled the size of the Honors Summer Research Institute, and brought in four affiliated faculty members to reimagine our introduction to research writing course with a field trip to the Metropolitan Museum of Art and a final research symposium.

This year, NJIT set another record for the number of prestigious fellowship recipients, including another Goldwater Scholar and two National Science Foundation - Graduate Research Fellowship recipients. The college's first cohort of Newark Mayor's Scholars were among the fellowship recipients. Samantha and Samara Augustin both received GEM Fellowships to attend graduate programs in computer science at New York University. Kiaja Jones, our third Newark Mayor's Scholar, will pursue a law degree at the University of Maryland, also with a scholarship.

At the avant-garde of the digital transformation, Matthew J. Hill '99H has endowed a new faculty fellowship in Ethics and the Digital Future to help Dorman Scholars grapple with the challenges of the new technologies transforming our lives. We also dedicated the Sarabjit Singh '02H, '04 and Maneet Kaur Urban Food Forest; their faculty fellowship engages Dorman Honors Scholars in questions of climate change, urbanization and food insecurity.

Drawn from over 3,200 applicants, the college welcomed the Class of 2027, our largest (223!), most selective and diverse class with an average high school GPA of 3.95 and an average SAT of 1501. We are especially proud to welcome our fifth cohort of Newark Mayor's Scholars, drawn from among the most well-prepared of the talented students in the great City of Newark, that is our home. The college also welcomed its first cohort of Dr. Joel Bloom Presidential Scholars Program in collaboration with the Educational Opportunity Program.

With your support, this is only the beginning of what the college can do. Mr. Martinson's gift is also a challenge to our entire community to support and strengthen the transformative education NJIT offers for future generations.

Sincerely,

Louis I. Hamilton, Ph.D.

Dean, Albert Dorman Honors College

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On the Front Cover:
Cathedral Basilica of the Sacred Heart, Newark, NJ
Photo by Andrew Santella '26H

On the Back Cover:
John Martinson Honors Residence Hall
Photo by Peter Labrozzi, NJIT Photographer

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ADHC by the Numbers	Inside Back Cover

JOHN MARTINSON MAKES TRANSFORMATIVE GIFT



Written by Yukthi Sangoi '24H

NJIT's Albert Dorman Honors College (ADHC) received its largest single gift of \$3 million from venture capitalist John Martinson, whose background lies in aeronautical engineering. His firm invests in software and technology-based businesses including many businesses whose key leaders graduated from NJIT.

He has supported STEM programs in education as early as K-12 schools all the way to higher education in an effort to emphasize its importance and be an advocate for teachers and instructors in this field. In the past three years, Martinson has also become an advocate for honors colleges in particular after seeing the dedication of honors scholars.

"I was impressed with the longevity of ADHC in particular and how much it had been recognized," he said. "Former NJIT President Dr. Joel Bloom was uniquely the first dean of the college, and he advanced his career this way and created a sustaining institution that certainly helped attract high caliber students to the university," Martinson said. He was also impressed by the diversity, high graduation rate of students and the highly motivated faculty teaching courses and providing programs within the college. "ADHC Dean Dr. Louis Hamilton and the staff are highly experienced and very forward thinking," he commented. "I was enthusiastic about the honors students because despite their very busy academics and schedules, they often became leaders and key contributors to the campus-wide excellence at NJIT."

The gift has begun to enhance the offerings of ADHC. In Fall 2023, the college revamped the honors sections of the first-year writing program. ENGL 102: Introduction to Research Writing engages scholars in a multi-stage project that leads them through the practices of university-level research that will be central to their success.

The gift has also expanded the number of scholars able to take part in the Honors Summer Research Institute. The eight-week program allows students to immerse themselves in a field while learning skills such as researching, collaborating with mentors and peers, and innovative thinking. "One of the things I've observed about honors students is they want to be learning and developing all year long. Sometimes, the academic year for them is too short, so ADHC has the ability to extend it," Martinson added. "Students having the capability and drive to do that almost 24/7 are incredibly motivating and inspiring." He finds it striking — the number of students who conducted research in the program and continued working in the same fields upon graduation.



Attending the John Martinson Honors Residence Hall naming ceremony (from left to right): Dean Louis Hamilton, John Martinson, Associate Dean Burçak Özlüdil

Even with his enthusiasm for STEM education, Martinson is impressed by the broad education that Dean Hamilton, a historian specializing in the Middle Ages, encourages. “He helps give scholars the communication, people, liberal arts-type skills at a high level, not just with the basic courses. He’s excellent at helping to network and facilitate group projects and activities among the very best and brightest students,” Martinson mentioned about Hamilton. “I think he’s able to accomplish quite a bit with very limited resources.”

Hamilton calls this gift extremely transformative for the college and for all that it can now offer in the near future. “Honors curricula are meant to accelerate our scholars along the path to becoming leaders in their professions and communities who understand and are committed to bettering society,” he said. “This gift invests in scholars and faculty alike to bring high-impact educational practices and experiential learning into honors tracks and courses.”

“I’m eager to see NJIT enhance its capabilities with its top students,” Martinson noted. “It’s a highly competitive environment that continues to attract the very best in New Jersey.” To commemorate the gift, the honors dormitory was named the John Martinson Honors Residence Hall.



From left to right: Richard Dorman, Sriramya Ganiseti, Dean Louis Hamilton, Nancy Witt, John Martinson, NJIT President Teik C. Lim, First Lady Gina Lim, and members of the ADHC Board of Visitors Richard Schatzberg (Chair) and Dr. Paulo Bandeira Pinho.



Honors Scholar Council President Sriramya Ganiseti '25H

HONORS FACULTY HIGHLIGHTS

HONORS AFFILIATED FACULTY: KIM CHEN, JOHANNA DEANE, JAKE SLOVIS

Written by Yukthi Sangoi '24H

With its recent \$3 million gift from venture capitalist John Martinson, the Albert Dorman Honors College (ADHC) has been able to reimagine some of its programs, opportunities and classes offered to scholars. One of the changes implemented in Fall 2023 was a shift in the honors curriculum of a first-year writing course, ENGL 102: Introduction to Research Writing.

The team behind this initiative includes: Dr. Louis Hamilton, Dean of ADHC; Dr. Burçak Özlüdüil, Associate Dean of ADHC; Dr. Maurie Cohen, Chair of the Department of Humanities and Social Sciences (HSS); Kim Chen, HSS Interim Director; and University Lecturers Johanna Deane and Jake Slovis. After the gift was announced, Hamilton and Özlüdüil met with Cohen and the core Honors English lecturers at the time. “We worked together to identify new learning goals, assignments and excursions that we believe will better align ENGL 102 Honors with the goals of the Honors College,” Slovis said.



Kim Chen
Interim Director of Writing,
Humanities and Social Sciences

Ultimately, they decided to take an interdisciplinary approach by incorporating a visit to The Metropolitan Museum of Art in New York City. The scholars have the opportunity to research objects ahead of the trip; they can consider what interests them in the museum and build their project around it.

“They need to find one element that they will then look at from lenses of two different disciplines,” Chen said. “The way to narrow down the topic is worked out in class, but is very much dependent on what the students are interested in.”

This excursion was suggested in order to involve more community-oriented work that widens students’ humanistic education. “We want to foster interdisciplinary awareness, so that our students work with an understanding of the complexity of the world, the epistemic limitations of each discipline, the dangers of narrow perspectives and the opportunity that comes with broader learning,” Deane commented.

Slovis also indicated that this addition to the curriculum encourages a sense of civic engagement by exploring how careers in STEM can influence both local and global communities. “In future semesters, we hope to include tours of important landmarks and spaces in Newark,” he added.

While this part of the course is new, it doesn’t change the core curriculum of the class, but supplements the principal lessons taught in the course: exploring research questions, finding and evaluating sources effectively, and synthesizing elements to create coherent wholes.



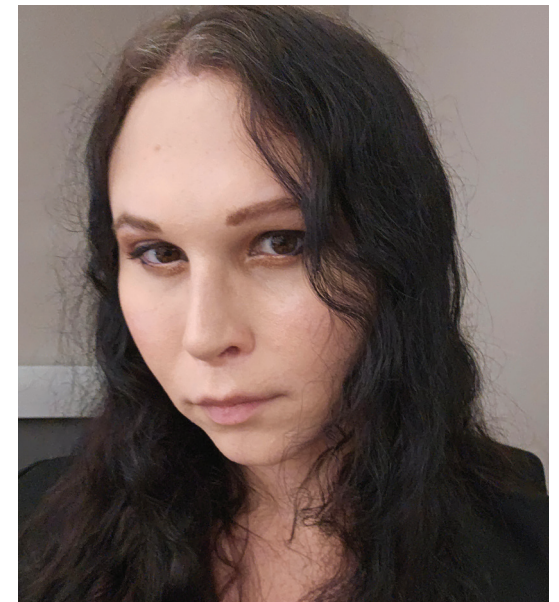
Jake Slovis
University Lecturer,
Humanities and Social Sciences

Each class section differs slightly with each professor. Some have altered previous lesson plans to better support the work with the museum visit incorporating the multidisciplinary approach. “We wanted these courses to come alive and not completely be a dry literature review and rhetorical analysis,” Chen said. “Of course, those are still taught in the classroom, but it is now more discussion-based and experiential to keep up to current pedagogy.”

The professors are enthusiastic about seeing how this change in method will play out during the semester. This is a course that more often than not stays static in most universities. The process of working through new course material often reveals wonderful opportunities for unexpected questions and class discussions,” Slovis explained. “It also serves as a great reference point for the process-based work students are doing in their independent research.”

This museum trip helps students draw connections between STEM and the arts and even see the direct impact of their interests in STEM on a community. “NJIT is already very strong in the STEM fields that most of our students will major in, but our students need more from the humanities, which teach breadth of perspective, scope of learning and interdisciplinary analysis,” Deane mentioned.

Chen is looking forward to adding an A — arts and humanities — to create the STEAM acronym that reflects this initiative. “I think the students in the Honors College are very receptive and diligent,” she said. “They will take it seriously, so it’s exciting to actually be able to work with them to do this.”



Johanna Deane
University Lecturer,
Humanities and Social Sciences

HONORS ABROAD

HONORS STUDY ABROAD 2023: ROME AND FLORENCE

Written by Emily Kryvorutsky '25H

During the 2023 spring break, my fellow classmates and I went on a study abroad trip to the enchanting cities of Florence and Rome. We had been preparing for the whole semester in our class, Early Modern Rome: Gods, Saints & Talking Statues, with our professor Dean Hamilton. For some of us, this marked our first time in Europe, let alone Italy. Yet, the meticulousness with which this trip was planned and the unique educational experience that we received in class and abroad made this venture truly unforgettable.

At NJIT, we began by studying the history of Rome from antiquity to the Middle Ages. This helped us understand the class's main research topic, which focused on the Renaissance (the 15th to 17th centuries). With this extensive foundational knowledge, my peers and I were tasked with reconstructing Rome as it was during those influential years. Using historic maps and books as sources, we mapped out long-lost streets, palaces, shrines and other devotional or political infrastructure. We added our work to an intricate database that allowed us to organize the structures based on the years they were built and to also overlay our data onto the contemporary map of Rome. We were challenged to understand how the changing streetscape of early modern Rome reflected and/or affected the concurrent political, social and religious transformations. This gave us the theoretical base for our research. However, we would never truly understand the full extent of what it was like to walk the streets of Rome until we actually did.

So we packed up our bags and left from the airport in Newark to our final destination, the Leonardo da Vinci–Fiumicino Airport in Rome. There, we met Francesco, himself a native Roman, whose friendly manner and profound insights made him one of the best aspects of our stay in Italy. As a post-doc at La Sapienza University in Rome and guide, he led us around Florence and Rome, took us into museums and churches, showed us cool spots around the cities, and gave us recommendations for the best restaurants and parks. Having Francesco's help while visiting an entirely new city made the experience that much more intimate and fulfilling.



Our days consisted of early morning tours and visits to famous buildings such as Florence's Uffizi Gallery and Duomo, Rome's Colosseum, and St. Peter's Basilica in Vatican City. Given the opportunity to learn the history of these structures and then going to see them in person was so much more rewarding than traveling as a tourist. Later in the day, we were free to explore on our own. This was when we worked on our group research project, which required us to traverse the streets of the two cities.

We searched for old Christian shrines depicting the Virgin Mary and analyzed the levels of local devotion they received. "Because of this project, we uncovered places that you would never encounter otherwise," said my groupmate Andrew Dragoslav. We found little alleyways with ornate shrines that were untouched for centuries by anyone but the local residents.



Dorman Scholars at the Duomo in Florence, in front of the Colosseum and Palazzo Barberini in Rome

Among my favorite parts of the trip was visiting the street that I researched for our major class project. It is situated in the Roman forum, where excavations are taking place to reveal the ancient city of Rome. Though only a small portion of the street remains, I caught a small glimpse of how traveling this path would have been in the 1500-1600s. Many of my peers also had eye-opening experiences while visiting the places which they learned so much about.

Soham Bhatnagar, my classmate, focused his research on Santa Maria dei Miracoli Church. “Outside of the church I had met a man who called himself Father Mario. He was the Father of the church, and I told him who I was and why I was visiting. He embraced me, thanked me for coming and even went out of his way to provide some literature to me about the history of the church,” said Soham. He emphasized how good it was to see and learn about this place in person. All of this exploring gave us a deeper understanding of our research and made the final essay we wrote for the class so much more fascinating and entertaining to write.

This trip, provided for us by Dean Hamilton, Dr. Özlüdil, the Honors College and its alumni, was truly a once in a lifetime experience. It was educational, affordable and personally enriching. If anyone wants to travel to a new place, immerse themselves in a different culture and way of life, and maybe learn a little history, this is the perfect class for you.

HONORS RESEARCH

HONORS SUMMER RESEARCH INSTITUTE 2023

The Honors Summer Research Institute (HSRI) provides participants with an eight-week interdisciplinary workshop sequence that helps them develop their research projects and communication skills.

In its sixth year, HSRI hosted a record number of scholars, more than doubling in size, and awarded over \$90,000 in grants. This summer, the Albert Dorman Honors College's HSRI, under the guidance of Drs. Paul Hoyt-O'Connor and Pedro de la Torre III, provided interdisciplinary research, scholarly communication and conference presentation training to 41 scholars. The participants' research focused on the environment, engineering, medical and social science disciplines.

The HSRI is generously funded by the donors to the Dorman College Dean's Fund for Student Development, Vatsal Shah '08, '09, '14 (Moonshot Grant for Engaged Scholarship), Langan Engineering (Civil and Environmental Engineering) ANS Geo (Civil and Environmental Engineering), and the Martinson Foundation.

Prizes and Honorable Mentions

Moonshot Grant for Engaged Scholarship

Sagnik Chowdhury '24H

Langan Engineering Fellows (Civil and Environmental Engineering)

Omar Al-Zaman '26H

Larissa Cavalcante '25H

ANS Geo Fellow (Civil and Environmental Engineering)

Joel Florim '24H

Dr. James F. Stevenson Innovation Awards

First Prize: *Stuti Mohan '24H*

Second Prize: *Melisa Bilgili '25H*

Honorable Mention in Data Science and Management

Kevin Diggs '26H (HSRI)

Honorable Mention in Environment and Sustainability

Hannah Shahinian '26H

Honorable Mention in Materials Science and Engineering

Maryom Rahman '25H

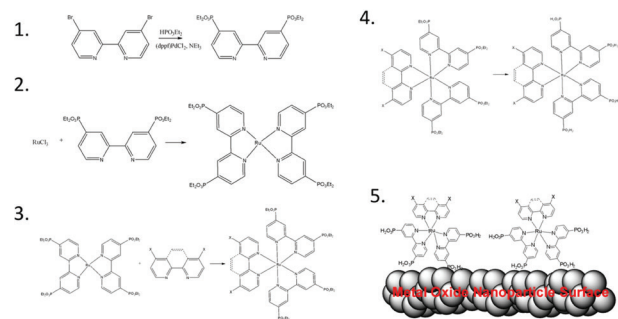
Honorable Mention in Robotics and Machine Intelligence

Vignesh Nethrapalli '25H (HSRI)



Honors Summer Research Institute Participants with Professor Paul Hoyt-O'Connor, Associate Dean Dr. Burçak Özlüdüil, Dean Dr. Louis Hamilton and Professor Pedro de la Torre III (center: left to right).

SUMMER 2023 HSRI PARTICIPANTS



Synthesis and Characterization of Ruthenium-Based Photosensitizer Compounds

Omar Al-Zaman, Class of 2026, Langan Fellow
 Advisor: Dr. Michael Eberhart, Chemistry and Environmental Science

Artificial photosynthesis chemistry seeks to use solar energy to drive chemical reactions and generate clean energy sources. I synthesized novel ruthenium-based light-absorbing compounds that can be used as photosensitizers in dye-sensitized photoelectrosynthesis cells and attached these compounds to semiconductors to obtain characterization data.

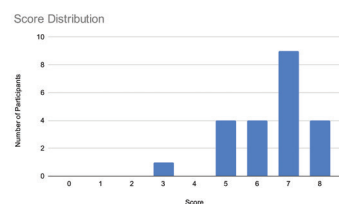


Figure 1: Score Distribution
 The number of correct identifications. Participants correctly identified an average of 6.45 videos (80% accuracy).

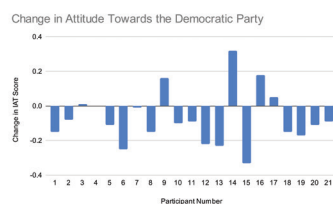


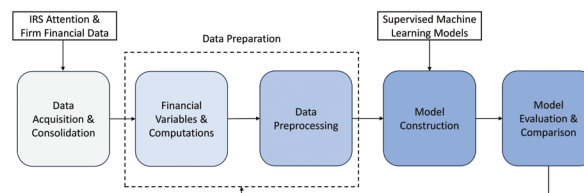
Figure 2: Change in Attitudes
 The change in attitude towards the Democratic Party after exposure to both deepfake and unmanipulated videos for each participant.



Tensile Failure in Enhanced Geothermal Systems Due to Heat Energy Extraction

Larissa Cavalcante, Class of 2025, Langan Fellow
 Advisor: Dr. Oladoyin Kolawole, Civil and Environmental Engineering

This study investigated the effects of brine-rock interaction on the tensile strength of low-temperature Enhanced Geothermal Systems using limestone and shale rocks, and we further assessed the implications for long-term geothermal extraction in low-to-medium temperature geothermal reservoirs.



Tax Fraud Detection Using a Machine Learning Approach

Don Bonifacio, Class of 2025
 Advisor: Dr. Ming F. Taylor, Accounting

Tax fraud is a global issue, leading to substantial lost tax revenue. In light of this, I researched corporate tax fraud detection methods by predicting for Internal Revenue Service (IRS) attention using firms' public financial data and machine learning techniques.

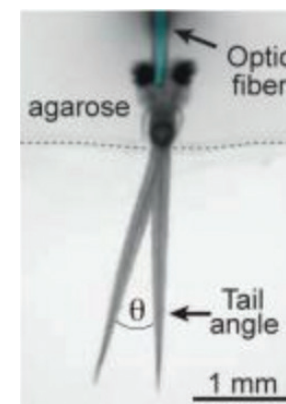
The Effect of Deepfakes on College Students' Political Opinions

Sagnik Chowdhury, Class of 2024, Moonshot Prize Winner
 Advisor: Dr. John Wolf, College of Science and Liberal Arts

Deepfakes are images, audios, or videos manipulated with machine learning techniques. I used deepfakes of politicians Donald Trump and Joe Biden to test whether college students could distinguish manipulated and unmanipulated videos. Explicit and implicit measures were used to assess any change in opinion after exposure.

Investigating the Effect of Optogenetically Activating Dmrt3a in Larval Zebrafish

Evan Correa, Class of 2026
 Advisor: Dr. Kristen Severi, Biological Sciences



This project used a neuroscience technique called optogenetics to investigate the behavioral effects of activating the Dmrt3a gene in 6-days-past-fertilization zebrafish. These experiments simultaneously determined a role for our gene of interest while also creating an experimental paradigm for the investigation of other similar genes.

HONORS RESEARCH

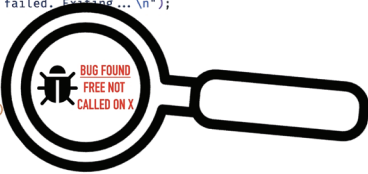
```
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>

int main() {
    char* x;
    x = (char*)malloc(15);

    if (x == NULL) {
        printf("Memory allocation failed. Exiting...\n");
        return 1;
    }

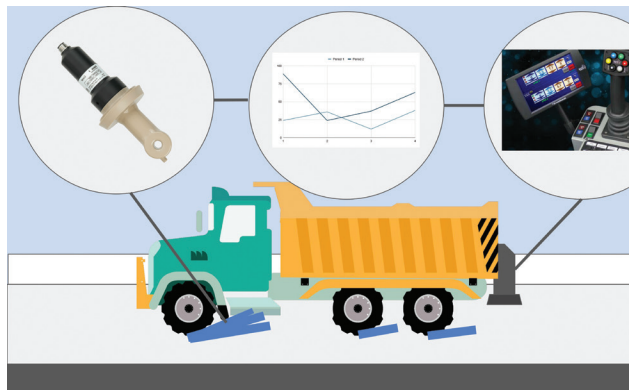
    printf("Enter a string: ");
    scanf("%s", x);
    printf("You entered: %s\n", x);

    return 0;
}
```

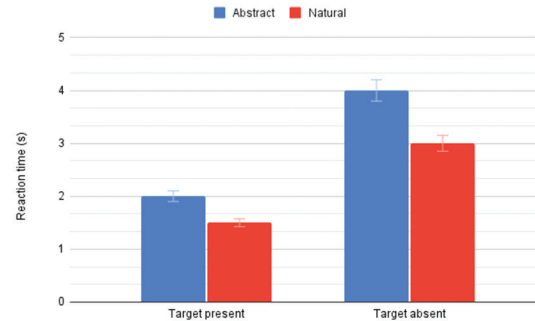


Soundly Detecting Memory Leaks in the Linux Kernel
 Kevin Diggs, Class of 2026
 Dr. James F. Steven Innovation Award
 Honorable Mention in Data Science and Management
 Advisor: Dr. Martin Kellogg, Computer Science

The Linux kernel, on close up the core of the Linux operating system, can be subject to security-critical memory leak bugs. Our research aims to develop a tool to detect every single memory leak bug using a new accumulation analysis design.



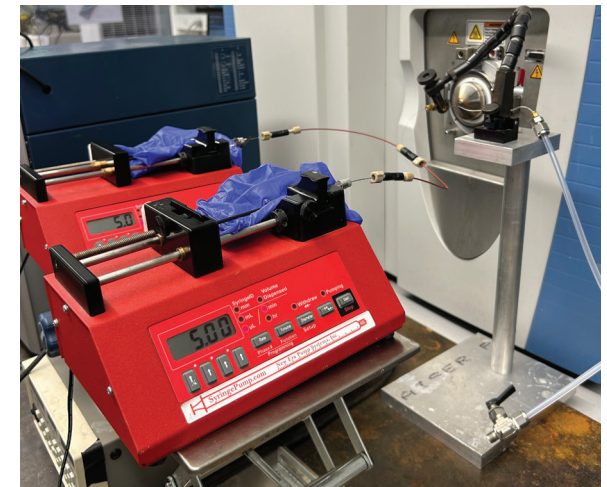
The Implications of Visual Stimuli on Conferencing Platforms
 Fatimah El-Bekasi, Class of 2024
 Advisor: Dr. Yelda Semizer,
 Humanities and Social Sciences



This study applied what is known about fundamental processes of the human visual system to more complex real-world settings, such as video conferencing tools, to investigate the usability of designs and how these interact with the video conferencing experience.

Monitoring Water Conductivity Due to Splash and Spray to Optimize Road Salt Use
 Joel Florim, Class of 2024
 ANS Geo Award - Civil and Environmental Engineering
 Advisor: Dr. William Pennock,
 Civil and Environmental Engineering

To minimize the amount of salt used on roadways, I designed and 3D-printed a collection system that can be mounted on the salt truck's mud flap to monitor salt concentrations by directing moisture from the road to a conductivity sensor.



Applying Ultrafast Protein Digestion in Microdroplets to Hydrogen-Deuterium Exchange Mass Spectrometry (HDX-MS)
 Anushka Dixit, Class of 2025
 Advisor: Dr. Hao Chen,
 Chemistry and Environmental Science

This research focused on the implementation of micro droplet protein digestion to increase efficiency in hydrogen-deuterium exchange mass spectrometry (HDX-MS). The workflow for HDX-MS is quite lengthy, and micro droplet protein digestion can accelerate a step in the process by a factor of one million or more.

• Screening of functionalized MPs for the removal of *S. acuminatus*

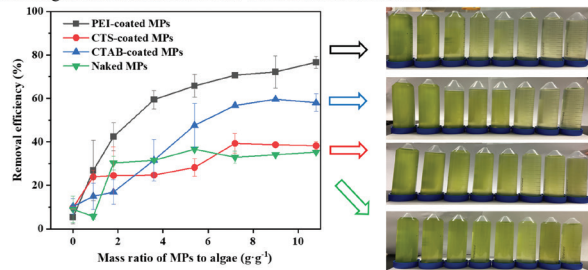


Fig 2. Removal efficiencies of *S. dimorphus* as a function of the mass ratio of MPs to algae under room light. The initial algal concentration was 0.2 g·L⁻¹. The magnetic field strength is 200 mT.

Algae Separation Using Recoverable Magnetic Particles

Oluwanifemu Fuwa, Class of 2026

Advisor: Dr. Wen Zhang,
Civil and Environmental Engineering

The outbreak of harmful algal blooms has led to detrimental health effects on aquatic creatures and poor water quality. We discovered that magnetic particles coated with PEI are more efficient for algae separation.

Image credit: Lili Li (Ph.D. student)

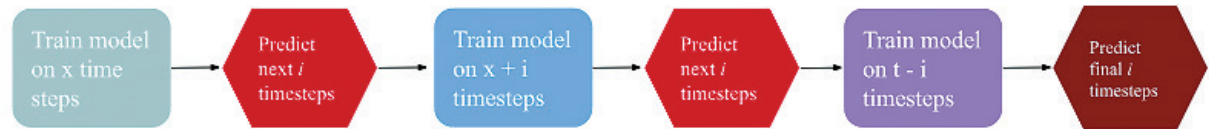


Studying the Impacts of Cholera on the Mentally Ill in the Ottoman Empire

Saketh Golla, Class of 2026
Advisor: Dr. Burçak Özlüdü, Honors College

I improved an agent-based model, a simulation of how individuals/agents interact, in the Unity game engine of Toptaşı Asylum in Istanbul to depict the impacts of cholera. I created a new agent representing a patient with cholera and modeled spatial additions to the asylum.

Image credit: Associate Dean Burcak Özlüdü, Augustus Wendell, Ulysee "Bo" Thompson and Elizabeth Finnegan

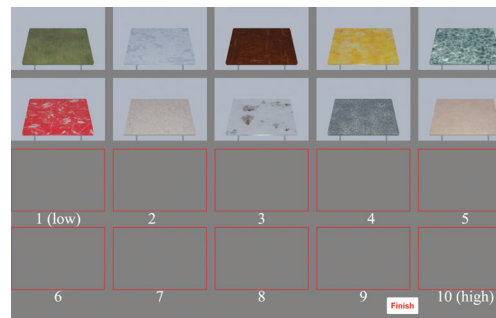


Real-Time Temperature Profile Forecasting in Metal Additive Manufacturing

Dylan Ton-That, Class of 2025, Salma Ghazi, Class of 2026

Advisor: Dr. Bo Shen, Mechanical and Industrial Engineering

In metal additive manufacturing, we created an iterative machine learning model to forecast the thermal history. This model enhances the trial and error testing phase, resulting in more accurate and optimized 3D objects through layer-by-layer printing when developing finished alloy products.



Computational Methods for Human-Centered Perceptual Analysis of Work Spaces

Sathvik Gopu, Class of 2026

Advisor: Dr. Yelda Semizer,
Humanities and Social Sciences

I conducted experiments on clutter detection by models and compared it to humans to see how accurate the models were. I analyzed different factors that were used by the models to decide if the image was cluttered; we then created a new model for clutter identification.

Epigenetic Signatures for Age-at-Death Estimation in Human Remains

Oliwia Gorska, Class of 2025

Advisor: Dr. Sara C. Zapico,
Chemistry and Environmental Science

In order to improve age-estimation techniques in partially degraded human remains, I extracted and quantified DNA from dentin and pulp, at different concentrations, by focusing on the DNA methylation levels around CpG islands of genes ELOVL2 and NPTX2.

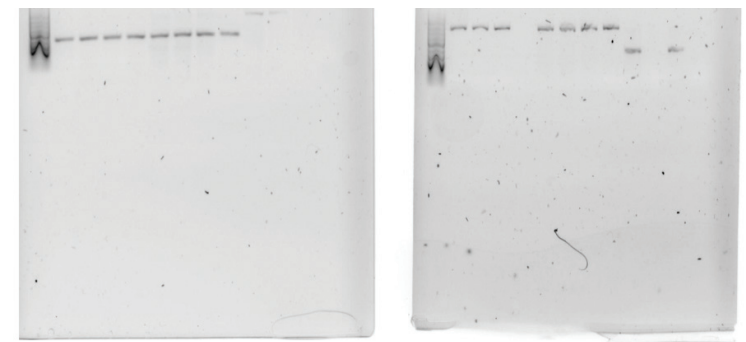


Figure 1. Sample 1: Gel 1 - ladder, Dentin 1, concentration 25, 50, 100, 200; Dentin 2, concentration 25, 50, 100, 200; Gel 2 - ladder, Dentin 3, concentration 25, 50, 100, 200; positive and negative. Based on the gel it is possible to say that the bisulfite conversion has happened, and genes were amplified even at lower concentrations

HONORS RESEARCH



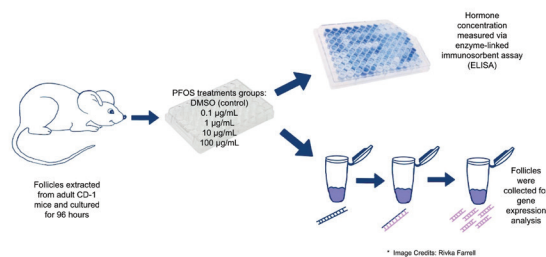
Created with BioRender.com

Effects of Nanoplastics on Gene Expression in the Placenta

Michelle Jojy, Class of 2025

Advisor: Dr. Genoa Warner, Chemistry and Environmental Science

Plastic degradation poses an imminent threat to reproductive health. I studied the effects of environmentally relevant doses of nanoplastics on the placenta, an organ critical for fetal development. I extracted RNA, synthesized complementary DNA, and conducted RT-qPCR to analyze changes in placental gene expression.



The Effect of Perfluorooctanesulfonic Acid (PFOS) on Ovarian Follicles

Steven Habeb, Class of 2025

Advisor: Dr. Genoa Warner, Chemistry and Environmental Science

This ongoing research investigates the impact of perfluorooctanesulfonic acid (PFOS) on ovarian function in adult female CD-1 mice. By analyzing hormone production, gene expression and follicle growth in vitro, it unveils the potential PFOS exposure risks in changes in ovarian health and reproductive function.

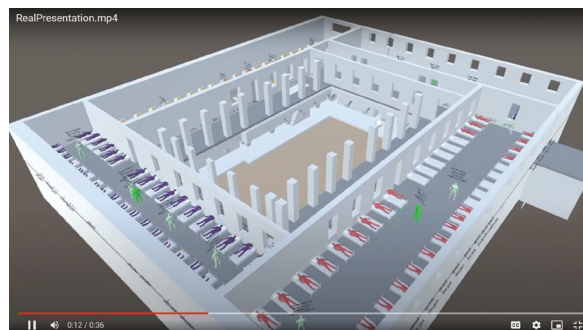


Inattention Blindness Paradigm: Can You See the Forest for the Trees?

Haripriya Kemiseti, Class of 2026

Advisor: Dr. Yelda Semizer, Humanities and Social Sciences

I studied inattention blindness, a limitation on the human periphery system that occurs when the degree of engagement in a task causes a lack of response to evident stimuli. The goal is to predict human memorability as a function of effort put into the task.



The Order of Madness: Patient Categorization in the Toptasi Asylum

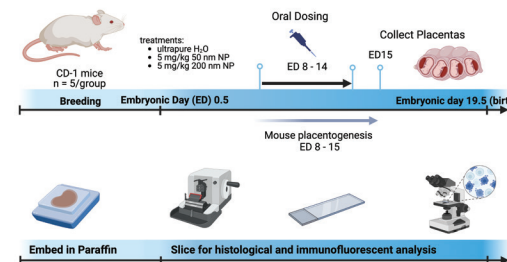
Vidhi Dholakia, Class of 2025

Sriya Jidugu, Class of 2026

Advisor: Dr. Burçak Özlüdil, Honors College

We optimized the accuracy of our agent-based modeling system of the Toptasi Asylum built on Unity by researching Ottoman and modern disease diagnosis, pathology statistics and utilizing mathematical formulas in order to assign each patient to a ward and mobility rating.

Image credit: Created in SpatioScholar®, Özlüdil, Wendell, Thompson, Finnegan

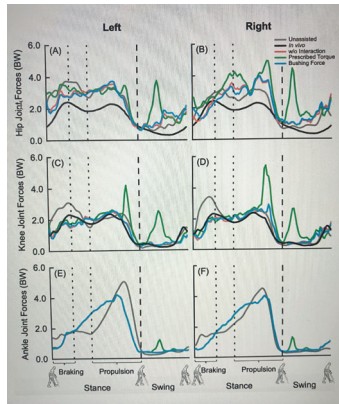


Identifying the Distribution of Nanoplastics in Mouse Placenta

Allison Harbolic, Class of 2026

Advisor: Dr. Genoa Warner, Chemistry and Environmental Science

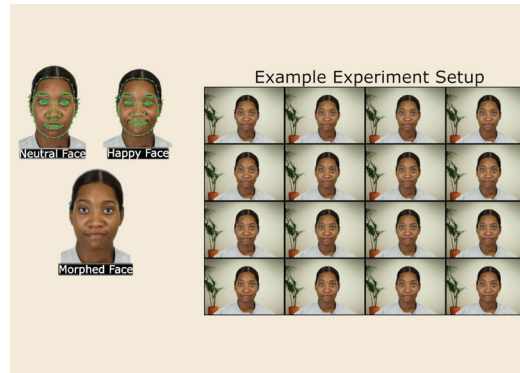
The human population is constantly exposed to plastic particles, yet little is known about their health effects. My research aims to mimic human exposure to these particles in mice and identify if they travel to the placenta following oral consumption.



Virtual Analysis of Hip, Knee and Ankle Joints During Exoskeletal-Assisted Locomotion

Mason Kovach, Class of 2026
 Advisor: Dr. Saikal Pal, Biomedical Engineering

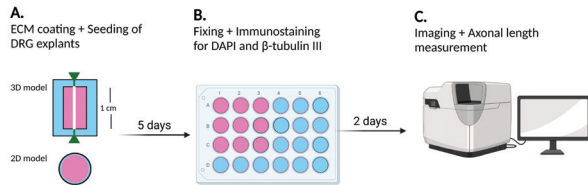
To understand the safety of using robotic exoskeletons in assisted walking, I placed a man in an exoskeleton and recorded the forces exerted on the hip, knee and ankle joints. This work was fully digitalized using motion capture and virtual simulation.



The Effect of Background Complexity on Ensemble Perception in Video Conferencing

Samuel Levshteyn, Class of 2024
 Advisor: Dr. Yelda Semizer, Humanities and Social Sciences

To learn how ensemble perception is affected by background complexity, I used backgrounds of varying complexity and morphed faces using FantaMorph to then judge how well people could perceive the average mood of a display.

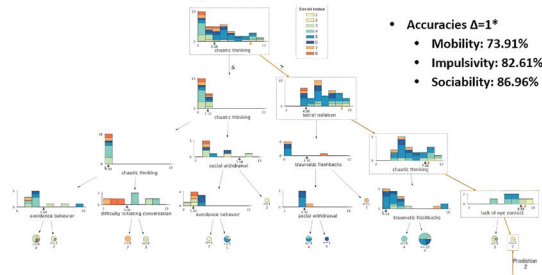


Determining the Synergistic Effects of ECM Coating and Neurotrophic Factors on Neuronal Growth in Collagen Gel 3D-Model

Peter Kutuzov, Class of 2024
 Advisor: Dr. Jonathan Grasman, Biomedical Engineering

My research investigated the influence of various combinations of ECM molecules, such as laminin and fibronectin, and growth factors in a 3D collagen model with dorsal root ganglia (DRG) in order to study peripheral regeneration. I was able to find that gels coated with a blend of laminin and fibronectin achieved statistically significant axonal growth.

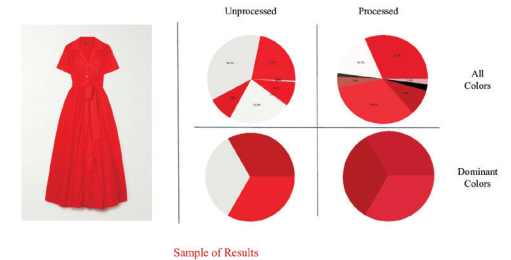
Schizophrenia - Sociability



Simulating Patient Behavior With Machine Learning: Case of an Ottoman Mental Institution

Jeremy Kurian, Class of 2026, Ari Kamat, Class of 2026
 Advisor: Dr. Burçak Özlüdil, Honors College

This research leverages generative AI and machine learning to predict patient behavior based on their symptoms. Using a Random Forest classifier, we determined relative indices for patient mobility, impulsivity and sociability. The highly accurate model will be integrated into Spatioscholar, a Unity simulation of the Toptasi Asylum worked on by Dr. Özlüdil's lab.

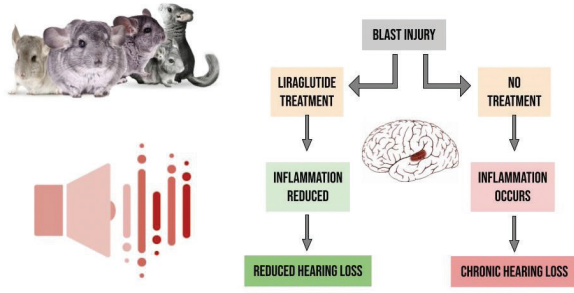


Identifying Fashion Trends Using Color Analysis

Hehjun Lim, Class of 2026
 Advisor: Adam Spryszynski, Informatics

My research was dedicated to utilizing images of clothing online to provide insight into various fashion trends. I ran color analyses on multiple datasets to recognize patterns and bridge the gap between data-driven research and the ever-evolving world of fashion.

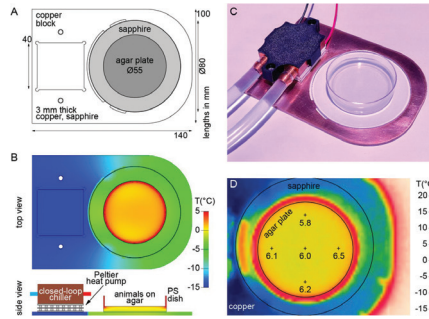
HONORS RESEARCH



Liraglutide and Neural Recovery After Repeated Blast Traumatic Brain Injury

Robert Lodge, Class of 2025
 Advisor: Dr. Yong Le, Biomedical Engineering

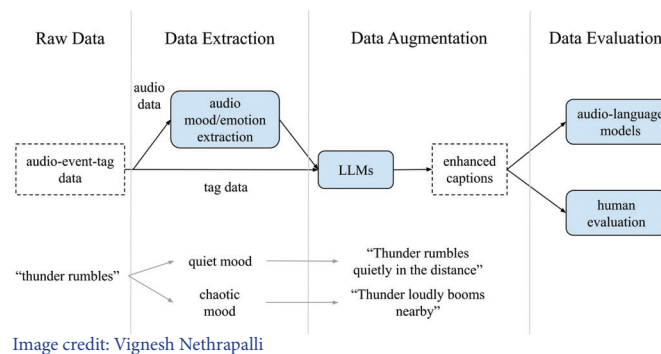
I studied the effect of the drug Liraglutide on trauma in regions of the brain responsible for auditory processing, and confirmed that the drug decreases inflammation after injury using immunohistochemical analysis. My findings indicated a possible treatment for victims of traumatic brain injury in war zones.



Neuromodulatory Contribution to Temperature Robustness of Locomotion

Ayman Mohammad, Class of 2025
 Advisor: Dr. Gal Haspel, Biological Sciences

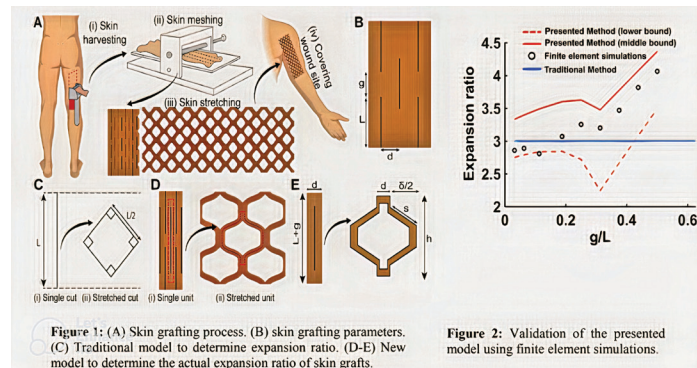
I investigated the relationship between temperature robustness and neuromodulatory conditions, specifically how serotonin has an effect on the temperature robustness of the locomotion circuit in *C. elegans*. I used a nematode tracker to record the behavior of *C. elegans* and a Peltier device to maintain the nematodes at a precise temperature.



Improving Caption Data Diversity via Mood-Amplification for Audio-Language Tasks

Vignesh Nethrapalli, Class of 2025
 Dr. James F. Steven Innovation Award
 Honorable Mention - Robotics and Machine Intelligence
 Advisor: Dr. Mark Cartwright, Informatics

In order to address a scarcity of high-quality audio captioning data, we proposed a data augmentation pipeline to enhance captions. It used machine learning to determine the mood of sounds and large language models to enhance captions with this mood information.

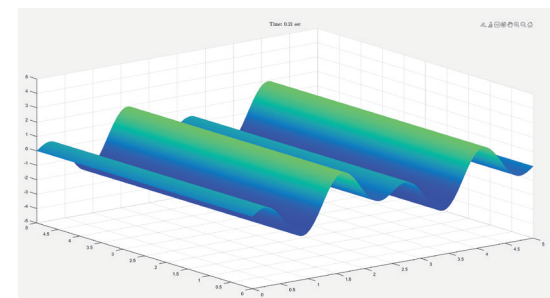


Enhancing Skin Grafting Efficiency: A New Method for Estimating Skin Expansion Ratio Based on Skin's Geometric and Mechanical Properties

Aliza Mujahid, Class of 2025
 Advisor: Dr. Farid Alisafaei, Mechanical and Industrial Engineering

We created a model to evaluate the effectiveness and coverage of skin grafts. By addressing issues such as excessive contracture and inaccurate donor area prediction, which contribute to a 33% failure rate, our protocol predicts expansion ratios and estimates skin strain. The innovative Kirigami concept surpasses traditional methods.

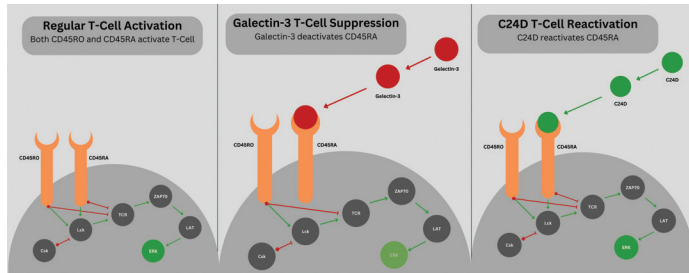
Image credit: Dr. Farid Alisafaei



Nonlinear Water Waves

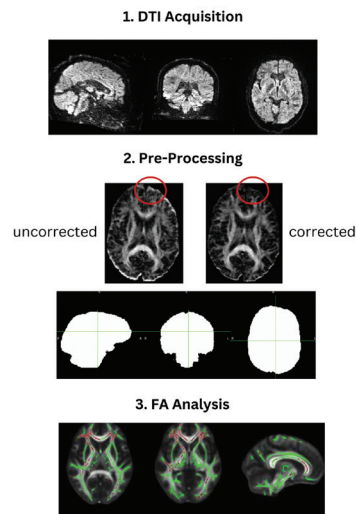
Jaiman Parekh, Class of 2026
 Advisor: Dr. Wooyoung Choi, Mathematical Sciences

Waves have an inherent nonlinear property due to surface tension and viscosity, making models of them inaccurate over long time scales. Our research modeled these nonlinear effects for waves generated by a vertically oscillating tank.



The Effect of Immunopeptides on the Triple-Negative Breast Cancer T-Cell Activation
Suhas Parise, Class of 2024
 Advisor: Dr. Horacio G. Rotstein, Biological Sciences

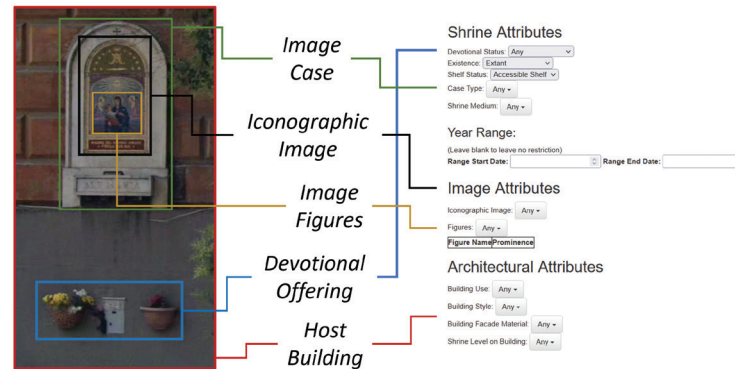
Galectin-3 is a molecule released by tumor cells in triple-negative breast cancer. It suppresses our immune system by deactivating T-cells. This research project mathematically modeled the T-cell suppression pathway and will use experimental data to biologically validate the model's accuracy.



Using DTI to Study Changes in White Matter Tracts in the Brain to Identify Mild TBI Diffusion Tensor
Disha Patil, Class of 2024
 Advisor: Dr. Bharat Biswal, Biomedical Engineering

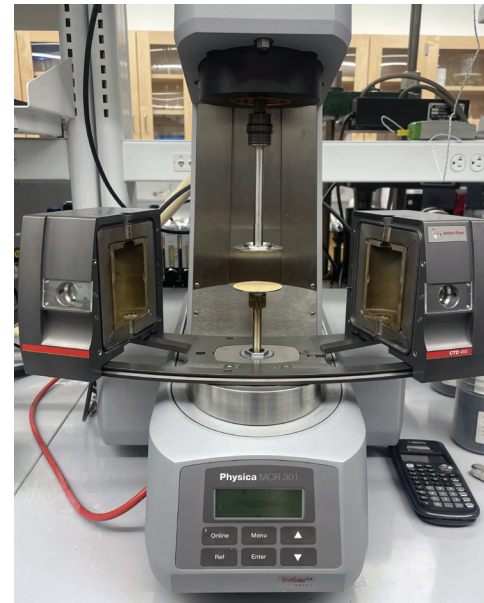
Imaging (DTI) is a type of neuroimaging that can be used to visualize tracts in the brain. Using DTI, I worked on identifying characteristic biomarkers in the brain that can be used to identify mild traumatic brain injuries.
 Image caption: Procedure for Analysis of Tracts in the Brain Using FSL Software

Image: credit: A. Jahn (August 4, 2014)



Roman Street Shrine Database and Querying Interface
Alex Patchedjiev, Class of 2025
 Advisor: Dr. Vincent Oria, Computer Science

To investigate what factors influence devotion at Christian shrines on the streets of Rome, I constructed a shrine database and querying interface. Users can query for different attributes and see devotional data summarized and visualized over a map of Rome.



Rheological Characterization of Concentrated Emulsions in Shear Flows
Pia Piazza, Class of 2026
 Advisor: Dr. David Venerus, Chemical and Materials Engineering

The role of emulsions (oil droplets dispersed in water) in industry is directly related to how they flow. My project aimed to precisely examine the fluid flow of emulsions in order to maximize their storage, handling and functionality. Emulsions were tested using a rheometer that measures shear flow quantities such as shear stress, shear strain and the normal stresses.

HONORS RESEARCH



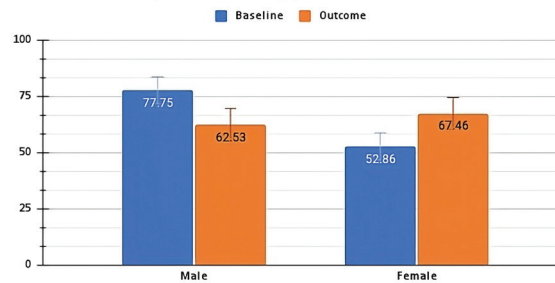
Observing the Occurrence of Panic in *Astyanax mexicanus*

Dhanya Sureshbabu, Class of 2026

Advisor: Dr. Daphne Soares, Biological Sciences

My project involved observing the interactions of large bodies of *Astyanax mexicanus*, which can be used as a model for humans, in order to identify the stimuli related to mass panic. I did this by recording their interactions, and analyzing the videos I took using R software.

Mean MCA Velocity (cm/s) during Eye Movements in Males & Females following PPCS-CI Therapy

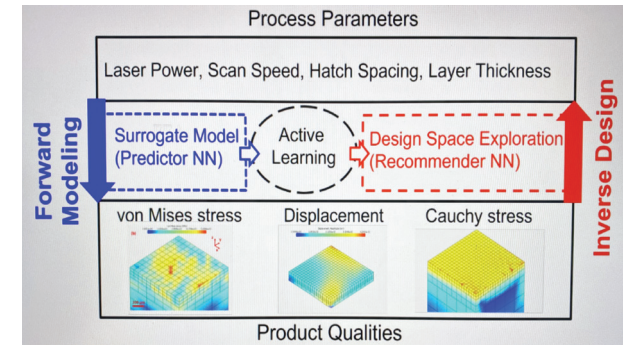


Understanding the Pathophysiology of Persistent Post Concussion Symptoms With Convergence Insufficiency: An Analysis of Cerebral Blood Flow in Concussed Patients

Soham Shashikumar, Class of 2026

Advisors: Dr. Tara Alvarez, Biomedical Engineering and Dr. Stephanie Iring-Sanchez, postdoctoral fellow, Biomedical Engineering

The purpose of my research is to look at the arterial physiology of patients with persistent post-concussion symptoms with convergence insufficiency (PPCS-CI) following vision therapy. We hope to better understand PPCS-CI physiology and how exactly vision therapy leads to clinical improvement.



Prediction of Process-Property Relationship in Metal Additive Manufacturing

Dharam Shah, Class of 2026

Advisor: Dr. Bo Shen, Mechanical and Industrial Engineering

My research project makes additive manufacturing (AM) more efficient by creating a machine learning model that predicts which print parameters have the largest impact on the porosity of a printed metal object. The goal is to increase the yield rate of metals produced using AM.

DANA KNOX STUDENT RESEARCH SHOWCASE

Three Dorman Scholars are named as Top Three Undergraduate Awardees of 2023 at the 18th Annual Dana Knox Student Research Showcase

Jeeshan Ahmed '23H

Effects of Mandible Morphology on the Ecology of Ants

Jeeshan Ahmed graduated with a bachelor's degree in biology. "Working under professor [Phillip] Barden for almost four years, I was given a chance to headline my own lab project from start to finish successfully," he said at the showcase. "That's an experience I'll draw from throughout my career." He was able to study almost 100 ant species from the total of around 14,000; Ahmed is grateful that his efforts will help other researchers in the future build on his findings.

Shaikh Hassan '23H

The Impact of Extracellular Matrix Proteins on Spinal Cord Injury and Repair

Shaikh Hassan concluded his fourth year at ADHC as a biomedical engineering major, now in pursuit of a master's degree in the same field. His research project has helped him work towards his long-term goal of better understanding injury repair models, such as skeletal muscle repair and neuro-regeneration. He has been involved with the Undergraduate Research and Innovation program since 2020 and interned as an engineer at Portable Diagnostic Systems in the summer of 2022.

Jeena Kataria '23H

PoreMaster: Novel Device for the Creation of Aligned Channels Within Anisotropic Scaffolds to Improve Tissue Integration

Biomedical engineering and applied mathematics graduate Jeena Kataria is passionate about STEM and is looking forward to attending medical school. She is also the co-founder of Lyra, which aims to better prepare students for the demands of a modern STEM+ education and career. Kataria works as a Community Associate at VentureLink and a volunteer EMT at East Hanover, N.J. First Aid Squad. She excels with her diverse set of experiences in engineering, entrepreneurship, medicine and research.



Jeeshan Ahmed



Dana Knox participants; center: Shaikh Hassan



Jeena Kataria

RECOGNITION: SCHOLARSHIPS AND FELLOWSHIPS

In the 2022-2023 prestigious fellowship and award winner class, 16 students were recognized for their efforts in earning their recent successes. This is a record accomplishment for NJIT. The awards ranged from a myriad of subjects, including biomedical engineering, mechanical engineering, computer science, applied physics, civil engineering, environmental science and media studies. Some were fellowships and internships lasting a few months, while others were grants to support the recipients' education.

“Our students have always had the ability and drive — our responsibility is assisting them finding ones that are good fits, given their experience and long-term goals,” said Dr. Paul Hoyt-O'Connor, director for honors advising and prestigious fellowships, who highlighted these awardees during a ceremony on May 1, 2023. He firmly believes this is a significant step for scholars, as the awards will support them as they take the next steps in their academic and professional journeys. In addition, he appreciates that the diversity of the programs showcases the variety of aptitudes students at NJIT and ADHC exhibit.

The university has boasted more accolades in the past several years; it has retained its R1 status, which is the highest designation by the *Carnegie Classification*[®], as a research institution. *The Princeton Review* rankings have featured NJIT in the Top 35 Best Value Colleges. “We aim to provide a holistic education of the mind and heart. In doing so, we equip students with both power and marketable skills, like being able to articulate ideas, collaborate and have empathy and grit,” NJIT President Dr. Teik C. Lim said.



Prestigious Fellowship Celebration, May 2, 2023



Barry M. Goldwater Scholarship
Jorge Duarte '23H
 NCE - Civil and Environmental Engineering



Gilman Scholarship
Kevin Diggs '23H
 YWCC - Computer Science/Netherlands



Gilman Scholarship
An'Jolae Seabrooks '23
 NCE - Mechanical Engineering Technology/South Africa



Gilman Scholarship
Olivia Kolakowski '23
 NCE - Mechanical Engineering/Spain



Gilman Scholarship
Brad Vicente '23
 YWCC - Computer Science/Netherlands



Gilman Scholarship
Albina Zhaku '23
 Architecture/Austria



**German Academic Exchange Service (DAAD)
 Research Internship in Science and Engineering**
Patricia Dzwill '23H, YWCC - Computer Science



Brooke Owens Fellowship
Olivia Kolakowski '23
 NCE - Mechanical Engineering



GEM Fellowship
Samantha Augustin '23H
 NCE, NMS - Computer Engineering



GEM Fellowship
Samara Augustin '23H
 NCE, NMS - Computer Science



National Science Foundation - Graduate Research Fellowship (NSF GRFP)
Amal Shabazz '23H
 NCE - Biomedical Engineering



National Science Foundation - Graduate Research Fellowship (NSF GRFP)
Sumbel Yaqoob '23
 CSLA - Environmental Science



National Institutes of Health Intramural Research Training Award (IRTA)
Shareef Syed '23
 CSLA - Biology



Amgen Scholars - Undergraduate Research Fellowship
Milan Patel '23H
 NCE - Biomedical Engineering



National Institute of Standards and Technology (NIST)
Sheetal Padhi '23H
 NCE - Biomedical Engineering



New Jersey Sustainability Journalism Fellowship
Yukthi Sangoi '23H
 CSLA - Communication and Media Studies

STUDENT HIGHLIGHTS



Computer engineering graduate **SAMANTHA AUGUSTIN** is part of the Newark Mayor's Scholars' first cohort, Educational Opportunity Program and McNair Scholars Program. She is grateful for the endless support she has received through those programs. As part of the Center for Pre-College Programs' Math Success Initiative, she has worked with high school students in Newark. In addition, she has tutored for Upward Bound, a pre-college program focused on increasing the rate at which participants enroll in and graduate from institutions of postsecondary education. She has given back to the NJIT community as a tutor, teaching assistant and research assistant, making an impact on others as she continues her education at New York University pursuing a master's degree in cybersecurity.

SAMARA AUGUSTIN graduated from NJIT as a computer science major with her path paved to earning a master's degree at New York University in the same field. She is part of the Newark Mayor's Scholars' first cohort and the GEM Fellowship Program, which encourages underrepresented groups of people to pursue postgraduate studies in fields related to engineering and technology. Augustin has mentored as part of the STEMentor's Club and enjoys getting to know so many bright and creative young students on the competitive teams. She is grateful for the ADHC staff's support throughout her journey at NJIT: "They were invested in my academic success, provided me with several resources to grow professionally and were always invested in my well-being."



CONSTANCE CHU is an interior design graduate, earning countless awards and being featured in shows around the globe. As co-president of the International Interior Design Association NJIT Chapter this past year, she further emphasizes the passion for interior design she has had since she was a child. Having traveled to many places, she becomes exposed to a diverse set of spaces, encouraging her to broaden her visions in her designs. "I have come to understand interior design as more of a mindset, a way of looking, a network of intentional, purposeful decisions about how we shape space and how space shapes us," she said when she was awarded Best in Decorate (Interior) Non-Professional category at the London International Creative Competition in 2022.

Majoring in biomedical engineering and minoring in psychology, **DANIEL IBRAHEEM** graduated from NJIT and is set to earn his doctorate of medicine at Yale University School of Medicine. He has volunteered at the Moonachie, NJ First Aid & Rescue Squad's EMS, tutored students in chemistry, shadowed a pain management physician, and assisted a FEMA COVID-19 vaccination site, all while completing his undergraduate courses. Ibraheem has been involved in NJIT's Coptic Society and Saint Mark's Coptic Orthodox Church, and he uses his bilingual skills as an Arabic speaker while working with patients.



KIAJA JONES has had an eventful few years at NJIT as part of the Newark Mayor's Scholars, ADHC and Educational Opportunity Program. After switching majors, she pursued law, technology, and culture, and is now on her way to pursue a law degree at the University of Maryland. Even prior to attending NJIT, she had the opportunity to intern at Newark's City Hall as part of the Mayor's Scholar Program. "I want to do something that would allow me to advocate for people like the ones I grew up with on a large scale," she said, of her aspirations in the legal field.



HAYLEE MEROLA spent her four years at NJIT crafting her unique style of creation as an interior design major. She held the honor of Best in Show for interior design during HCAD's 2023 Design Showcase. In 2022, she also took home second place in the regional International Interior Design Association Student Design Showcase and Competition with her project, "Bark and Beyond." She interned at Gensler, a global design and architecture firm, in the summer of 2022. After gaining experience with a larger team of 100 there, Merola's current full-time role at architecture firm Kimmerle features a team of 30 while working on projects of various scales and backgrounds.

Chemistry major **SEAN LARMORE** earned his bachelor of arts this year. In 2022, he was awarded the CME-STEM Undergraduate Summer Research Fellowship from Chemical Marketing and Economics, Inc. With the help of this fellowship, he joined The Champagne Research Group to continue his work on computational chemistry. He has published some of his research in the American Chemical Society's *Journal of Organic Chemistry*. In addition, Larmore earned the 2023 Outstanding Undergraduate Student Award as part of CSLA's Department of Chemistry and Environmental Science. He feels very fortunate to have had such positive research experiences at NJIT; it has helped define skills and career opportunities for the future.



Biology graduate **VARUN PAI** received the 2023 Outstanding Undergraduate Student Award as part of CSLA's Department of Biological Sciences. He has tutored for many years in various subjects and hopes to continue embracing that interest as he pursues medicine at Weill Cornell Medical College. He received the Fall 2019 Undergraduate Research and Innovation Student Grant, leading him to start researching during his first semester. A valuable experience of Pai's is when he studied the coronavirus as part of a research group during NJIT's virtual learning phase, which allowed him to understand the significance of open-mindedness and investing in unexpected opportunities.

Mechanical engineering graduate **VISHVA RANA** minored in innovation and entrepreneurship and was named a Goldwater Scholar in 2022. After receiving the ADHC Moonshot Prize in 2021 for examining air pollution in Newark, she was able to work on a prototype in 2022 that she showcased at NJIT's Undergraduate Summer Research. Rana also sees herself building on already existing systems to create more sustainable ones. Because she has worked on systems for Newark's Ironbound area, she wants to help other cities with similar structures in New Jersey, such as Trenton and Camden, and neighborhoods in New York City. Vishva Rana is currently enrolled in the Aerospace Ph.D. program at Georgia Tech.



LARA RIOS has always valued the sense of community she built throughout her four years at NJIT. The civil engineering major's uncle and father graduated from the university, and her brother also attends NJIT. She had been deeply involved in the Society of Hispanic Professional Engineers and NJIT's Student Senate. Serving as president and the diversity and inclusion officer, respectively, while also being the first woman in her family to earn an engineering degree, she worked towards making sure people feel welcomed and a sense of belonging at NJIT. As the student speaker during the 2022 Celebration gala, Rios thanked the strong women in her life who have inspired her so far.

STUDENT HIGHLIGHTS

NEWARK MAYOR'S SCHOLARS

The Newark Mayor's Scholars Program is a competitive scholarship initiated in collaboration with the Office of Newark Mayor Ras J. Baraka and New Jersey Institute of Technology (NJIT). The program was established in 2019 and supports students who live in Newark and meet the eligibility requirements for admission to the Albert Dorman Honors College (ADHC) at the university. Each year, NJIT works with the Newark Public Schools to select Newark Mayor's Scholars. The Albert Dorman Honors College encourages the Mayor's Scholars to identify and articulate their interests, be part of building sustainable community, service and leadership, and to live meaningful and rewarding lives. The Newark Mayor's Scholars Program seeks to foster the future leaders of Newark and the nation.

The First Cohort of the Newark Mayor's Scholars Graduated This Year



Samantha Augustin
graduated with a computer engineering degree and is continuing her education at New York University pursuing a master's degree in cybersecurity.



Kiaja Jones
graduated with a B.A. in law, technology, and culture and is now pursuing a law degree at the University of Maryland Francis King Carey School of Law with an interest in health law and alternative dispute resolution.



Samara Augustin
earned her B.S. in computer science with her path paved to graduating with a master's degree at New York University in the same field.



Okyere Boateng '24H
Computer Science



Dequan Marshall '24H
Biomedical Engineering



Priestly Ogbonna '24H
Electrical and Computer
Engineering



Oluwaseyi Ikujuni '25H
Mechanical Engineering



Joshua Dadzie '25H
Human-Computer
Interaction



**Yorquiria Maldonado
Mejia '25H**
Chemical Engineering



**Oluwanifemi (Niffi)
Fuwa '26H**
Biology



Nyssa Nixon '26H
Engineering



Kaily Peixoto '26H
General Engineering



Arianna Alves '27H
Biology



Mitchel Elusanmi '27H
Computer Engineering



Laura Nwanebu '27H
Computer Engineering
Technology



STUDENT HIGHLIGHTS

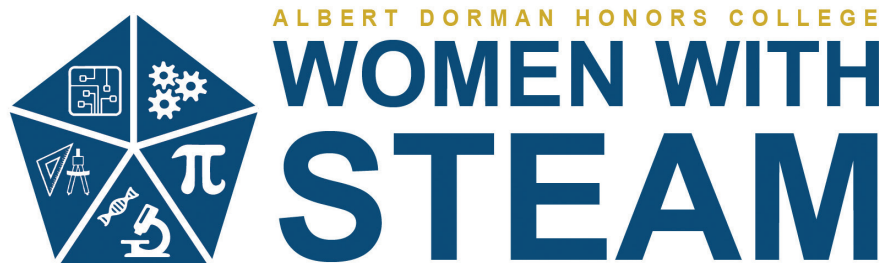
WOMEN WITH STEAM

Written by Mrunmayi Joshi '25H

Even as women have risen to become nearly half of the workforce today, they remain vastly underrepresented in Science, Technology, Engineering and Math (STEM) — careers, forming only 27% of the STEM labor pool. The women who work in these fields also earn only 74% of what their male counterparts do. The lack of support for women has discouraged countless women from entering STEM degree programs and jobs. However, an organization at NJIT is working to change all that. Women With STEAM (WWS) is an initiative started at the Albert Dorman Honors College for women, transgender, and nonbinary individuals interested in science, technology, engineering, architecture and math careers. In the last several years, NJIT has been working to steadily increase the percentage of female students at the university. Last year was particularly record-breaking. “31% of the incoming [class of 2026] identify as women, and in the Honors College, we’re up to 44%,” commented Dr. Burçak Özlüdil, Associate Dean of ADHC.

However, these students will still be pioneers when entering their chosen careers and may face a lack of understanding and support that limits their ambitions. WWS seeks to prevent this by, among other goals, creating a support system around female and transgender/nonconforming (TGNC) students that can guide them throughout the crucial college years and in a woman’s career path afterwards. The organization was originally founded as a scholarship by Lois Chipepo, a beloved member of the Honors College team, who organized a meet-and-greet for scholarship recipients. After Chipepo retired, WWS was taken over by Özlüdil, who visualized a more interactive organization with frequent events among students, faculty members and alumnae. Özlüdil wanted more students to have access to the discussions, resources and mentorship of the organization. The scholarship portion of the association still exists in the form of a \$1,000 prize for which incoming Albert Dorman Honors College first-years, particularly women and TGNC students, can apply, now named in honor of Chipepo. The scholars receiving this award are also invited to future programs with WWS and are invited to become contributing members of the team.

Perhaps the most crucial service that Women With STEAM offers is the mentorship for young women in STEM subjects. Alumnae of NJIT and the Honors College, who work in varying fields such as computer science, biomedical engineering and architecture, come to the Meet-and-Greet and “Passing the Torch” events to give first- and second-year students guidance on how to successfully attain a STEM degree and continue a career in the field. When students are the first in their families to study STEM or pursue it lifelong, they may not have many sources of advice at home.



The mentorship program involves a detailed process that factors in the major, career goals and preferences of both students and alumnae before matching them, and will be launching soon. “We have graduates who are doing their Ph.D., and we have alumnae in different parts of their careers,” remarked Özlüdil. This range allows younger students to access several different experiences.

Women With STEAM is an unconventional organization; rather than a student-run club, it is governed by students, the Honors team and alumnae together. To maximize its potential benefits, the organization is divided into several “pods”, each containing at least one member of the Honors team, an undergraduate student and possibly an alumna. The current pods are Communications, Recruitment, Scholar Engagement, Events, Alumnae Development, and Mentoring and Outreach. These reflect the primary goals of the initiative, which are to raise awareness of WWS in the NJIT student body, enable female students to connect with mentors, and encourage more female and TGNC people to enter STEM fields, especially at NJIT. Additionally, future programs will facilitate current Honors Scholars and WWS members to visit local high schools in Newark and inform young students there about the potential in STEM, and the support they will receive at NJIT.

Women With STEAM hosts at least one meet-and-greet event at the beginning of the school year during which the winners of the WWS scholarship are announced and students have their first chance to meet alumnae. They also aim to host a networking event in conjunction with the Board of Visitors Day. In addition, WWS plans to host academic discussions on being a woman in STEM, academia, or various professional settings for the enrichment of current students and alumnae. In the 21st century, women are frequently hired at entry-level positions for STEM jobs, which are certainly a step up from not being hired at all. Women and TGNC individuals studying STEM at NJIT are ambitious and driven — WWS can provide them the right guidance to become leaders in their workplaces.



Women With STEAM meet-and-greet event, September 13, 2023

CIVIC ENGAGEMENT

Albert Dorman Future Leader Award 2023

The award recognizes the academic excellence and demonstrated leadership potential of a graduating scholar.



Maria Pepper '23H

B.A. Biomedical/Medical Engineering
 Maria Pepper worked as an engineering technician at Ethicon, a Johnson & Johnson company, to support the lifecycle management division. Pepper was able to develop and enhance her skills in technical leadership, communication and public speaking.

Joan Dorman Prize in Community Education and Development 2023

The award recognizes Dorman Honors Scholars whose volunteer efforts serve the educational needs of young Newark residents.



Samantha Augustin '23H, NMS, B.S. Computer Engineering

Samara Augustin '23H, NMS, B.S. Computer Science

The sisters revitalized the NJIT Chapter of Girls Who Code during the COVID-19 pandemic; they volunteered by tutoring local girls in computer programming in the organization, as well as Newark Kids Code.



Dorman Honors Scholar Exceptional Service Award 2023

The award provides funding for Newark-focused community service projects designed and led by Dorman Scholars.



Vishva Rana '23H, Mechanical Engineering

Rana worked to provide funding for Newark-focused community service projects designed and led by fellow Dorman scholars. She also has examined air pollution in Newark and increased access to data for its residents — the system allows residents and policymakers to gain a clearer understanding of the specific pollution sources, so legislative bodies can make more informed decisions.



Scholars volunteering at Newark's Branch Brook Park



Newark Mayor's Scholars volunteering with a Newark city agency

SINGH AND KAUR FAMILY URBAN FOOD FOREST ESTABLISHED IN 2022

Written by Yukthi Sangoi '24H with contributions from Mrunmayi Joshi '25H

NJIT and ADHC alumnus Sarabjit Singh '02H has always had great interest in the quality of food and sustainability in the country, but even more so in Newark. He and his wife, Maneet Kaur, recently endowed an Honors Faculty Fellowship, positively affecting the way professors engage students on campus in an impactful and educational way.

In particular, the program has allowed Dr. Maria Stanko to run an Honors course, *BIOL 498: Food for a Hot Planet*, each spring semester since 2021. The senior university lecturer in the Department of Biological Sciences looked forward to what sort of projects students would propose for their final assignments in the course.

One of them included a food forest on campus. “The students got really interested in the idea of regenerative agriculture, which is a sort of practice of agriculture that contributes to the regeneration of nutrients in the soil, rather than just extracting nutrients from the soil,” Stanko said. “A food forest is a small-scale way of doing regenerative agriculture.”

As part of the assignment, the group of students wrote a detailed proposal that included research behind the topic, justification on why it’s a good kind of agriculture, the budgeting of the potential project, and the layout of the forest itself. The proposal reached the university’s administration, who then approved it to include the landscape on NJIT’s cityscape — half of the green area in front of the residence building, Laurel Hall.

In Spring 2022, the students taking the class in that semester were able to work with the landscape architect to think of the specific layout details of the forest. They were able to refine which plants they wanted to include and eventually planted the seeds. Students in Spring 2023’s cohort added more plants and also worked on creating signs to help visitors understand the project and all the plants. NJIT’s Food Forest was dedicated on May 4, 2023.

The goals of this project directly align with the work the Honors College does with biodiversity and the First-Year Seminar plantings. “I love that through this course, students have been able to change what campus will look like forever. That’s kind of amazing, you know,” Stanko commented, “and I hope that they’ll be able to come back as alumni and see how different that little spot on campus is.” She admires how different skills have come together to put this project in action — there were elements of landscape design for the forest, graphic design for the signs, visual design for the color schemes, showing research for the plant species, and more, all while this is a biology course at its core; it truly shows the versatility of the students involved. Stanko hopes to continue improving ways to communicate information about the forest to people passing by the area. Anyone is free to take a few fruits or vegetables growing in the forest as long as they don’t hoard all the available food.

This is all part of the ongoing efforts by the university to bring more green on campus and enhance biodiversity and natural environments. There are hopes to expand the forest to the second half of the green area in front of Laurel Hall in the near future, which Stanko is excited to see happen.



Left: Dorman Scholars planting the Food Forest



Right: Urban Food Forest Dedication

DEDICATION INSCRIPTION:

“Air is our Guru, water is our father, the earth is our mother.”
-Guru Nank Dev Ji

Let us preserve what sustains us

PLEASE SUPPORT THE DEAN'S FUND FOR STUDENT DEVELOPMENT!
SCAN THE QR CODE TO DONATE



THE DEAN'S FUND FOR STUDENT DEVELOPMENT

The Dean's Fund for Student Development is funded through the generosity of alumni and friends at Albert Dorman Honors College. It enables scholars to engage in co-curricular educational activities that transform their careers. Many of our Goldwater Scholar's first independent research experiences and first research conferences were funded through the Dean's Fund. Many of our Fulbright Scholars first studied internationally with the support from the Dean's Fund. The fund supports applied-learning experiences and our commitment to building a more sustainable campus and strengthening our community by funding projects such as the Food Forest Planting project in front of Laurel Hall, which is part of a larger biodiversity initiative to build a more sustainable ecosystem on campus. In the 2022-23 academic year, the Dean's Fund for Student Development and other donations provided over \$100,000 in funding to support the first-year experience, international study, study tours in Newark and New York City, undergraduate conference travel, and undergraduate research in last year's HSRI.



Food Forest Planting - Laurel Hall



Maintaining the ecological diversity project at Eberhardt Hall



New planting at the Student Mall on Summit Street

ADHC BY THE NUMBERS

Average SAT score
for class of 2027

1,501

Number of applications received for Fall 2023

3,235

99.5%
of first year class arrives
with AP, IB or college credits

47% Female

Women With STEAM

30+ WWS Scholars

10 Lois Chipepo WWS Scholarships in Fall 2023

Service: 2022-23 Academic Year

24,055 hours of volunteer service on campus at NJIT

32,866 hours of volunteer service in our communities,
including 14,737 hours of service in Newark
performed by over 450 scholars

16 scholars volunteered with Newark Kids Code,
through the Urban League of Essex County

Prestigious Fellowships Awards 16 - NJIT

1 Amgen Undergraduate Research Fellowship

1 Brooke Owens Fellowship

2 GEM Fellowships

1 German Academic Exchange service (DAAD)
Research Internship in Science and Engineering

5 Gilman Scholars

1 Goldwater Scholar

1 National Institutes of Health Intramural Research
Training Award (NIH IRTA)

2 National Science Foundation Graduate Research
Fellowships (NSF GREP)

1 National Institute of Standards and Technology (NISTA),
Summer Undergraduate Fellowship (SURF)

1 New Jersey Sustainability Journalism Fellowship



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