

41<sup>st</sup> semi-annual Dr. Janet Liou-Mark

# HONORS SCHOLARS & UNDERGRADUATE RESEARCH

## Poster Presentation

2024

**Wednesday, December 4**

Poster Presentation  
(Poster Judging)  
10:00am - 4:00pm  
Academic Complex Lobby

**Thursday, December 5**

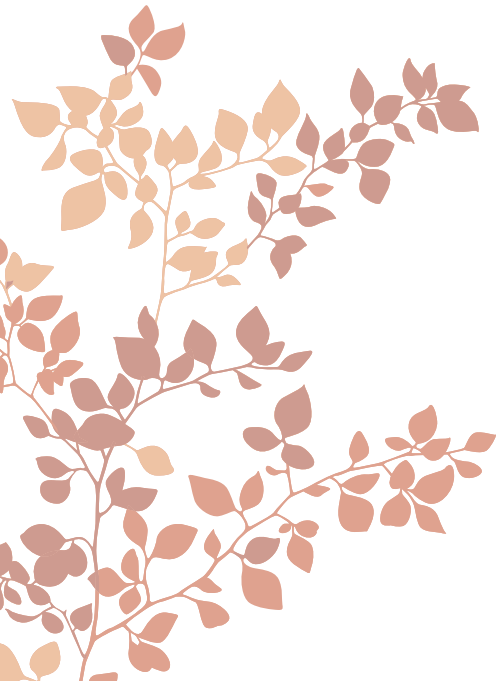
Poster Presentation  
(Award Ceremony)  
12:45pm - 2:15pm  
Amphitheater LG30



Organized by City Tech's Honors Scholars  
& Undergraduate Research Programs



In Remembrance of  
Dr. Janet Liou-Mark





## GREETINGS

**Russell K. Hotzler**  
President

**Pamela Brown**  
Provost & Vice President  
for Academic Affairs

**Reginald A. Blake**  
Associate Provost and Dean of  
Curriculum and Research

## RECOGNITION OF UNDERGRADUATE RESEARCHERS

### Honors Scholars

Reneta D. Lansiquot-Panagiotakis  
Director of the Honors Scholars Program  
& Co-Director of the Interdisciplinary Design  
Game-Based Learning Lab

### CUNY Research Scholars Program (CRSP), Louis Stokes Alliance for Minority Participation (LSAMP), & CUNY Immersive Research Experience (CIRE)

Susan Davide  
Associate Director of Undergraduate Research

### Emerging Scholars

Hamidreza Norouzi  
Director of Undergraduate Research

### Grant-Funded Projects

Hamidreza Norouzi  
Director of Undergraduate Research

### Best Poster Awards

Tamrah D. Cunningham  
Interim Assistant Director of the Honors Scholars  
Program & Co-Director of the Interdisciplinary Design  
Game-Based Learning Lab

# HONORS IN REGULAR COURSES

## The Therapeutic Potential of Ashwagandha: A Comprehensive Review of Its Anti- Inflammatory and Neuroprotective Effects

Ali Al-gemsh, Joana Ciro, & Hilda Wu  
Prof. Sanjoy Chakraborty

BIO 2311: Human Anatomy and Physiology I

## The Industrial Decline of the Red Hook Waterfront

Jessica Calderon-Ascencion  
Prof. Susan Phillip

HMG 4987: Urban Tourism

## Thermal and Chemical Degradation of Feldspathic Ceramic VS Lithium Disilicate Implication of Long-Term Oral Health

Dan Hong Chen  
Prof. Daniel Alter

RES 2314: Restorative Dental Ceramics II

## Non-Destructive Concrete Testing

Roland Guevara  
Prof. Navid Allahverdi

CMCE 2306: Materials Testing Laboratory

## Valve Train Design and Testing

Luis Luna  
Prof. Zayed Saleh

MECH 3510: Advanced Solid Modeling II

## Accessible Assistive Technology through 3D Printing

Hailah Nagi  
Prof. David Lee

COM 2403ID: Health Communication

## NASA Microgreen Cultivation in Space Utilizing PEGDA Hydrogels

Zohaib Khan  
Prof. Ozlem Yasar

MECH 2322: Engineering Materials

## Fotoescultura Publication: Exploring Latina Artists in the Diaspora

Lau Nielsen  
Prof. Amara Rime Lulu

COMD 2400: Communication Design II

## The Bulletin Board

Noor Mohammed Raj  
Prof. Tamrah D. Cunningham

CST 2309: Web Programming I

## Study and Analysis of the Design of a Robot Manipulator

Kimberly McLaurin  
Professor Farrukh Zia

EMT 1220: Mechanisms

## Epitaphs and Elegies: Exploring the Poetics of Death in Green-Wood Cemetery

Kristine Rakowsky  
Prof. Robert Ostrom

ENG 2003: Introduction to Literature III Poetry

## Graph Theory and GitHub

Angelica Tellez  
Prof. Johann Thiel

MAT 3770: Math Modeling I

## Healthcare Setting Observation

Ayah Yusuf  
Prof. Duval Bodden

COM 1403: Introduction to Communication in  
Healthcare Professions

## Simulations, Physics, and the Visual Arts

Rona Zhang  
Prof. Satyanand Singh

MAT 2572: Probability and Statistics

## Project Panels

### Mental Healthcare Marketing: How Effective Are Social Marketing Campaigns in Reducing Mental Health Stigma Within Low-Income or Vulnerable Communities?

Sunita Cheddie  
Prof. Delia Williams-Gunpot  
HSCI 4970: Social Marketing in  
Healthcare Settings

### Cloud-Controlled Smart Lamp

Shiou Ching Chen  
Prof. Xin Zhou Wei  
EET 3112: Advanced Microcontroller and  
Embedded System Design

### Hard Memory: A Zine Study on Digital Media Evolution

Amir Gamble  
Prof. Dirk Rowntree  
COMD 1257: Typographic Design

### 3000 Main Street: 3D Modeling Using Revit

Ali Haruna  
Prof. Wendy Chang  
CMCE 2410: Construction Drawings II (CAD)

### Sustainability Powering the Next Generation of Data Centers

Jalen Jones  
Prof. Alexander Grijalva  
CST 4700: IT Service Management

### Government and Volunteer Collaboration: SHAP's Role in Addressing NYC's Homeless Crisis

Kristine Rakowsky  
Prof. Peter Parides  
GOV 1102: State and Local Government

### The Steps in Opening a Daycare Facility

Nardia Anglin Taylor  
Prof. John Akana  
HMGT 3501: Workforce Management

# SPECIAL PROJECTS



## Amazed: Teaching architectural design styles with a board game

Monisha Sooklall  
Profs. Tamrah D. Cunningham  
& Reneta D. Lansiquot-Panagiotakis

## Community All Stars

Caetana Abreu de Castro Matos,  
*HOPE Community Services*; Chela Charles,  
*Wyckoff Heights Food Drive*; Sasha Cummings;  
*N.E.S.T.* ; Aastha Momi, *Gobind Sarvar*; Lau Nielsen,  
*Brooklyn Movement Center*; Jessica Gomez Parral,  
*The Migrant Center of the Church of St. Francis of Assisi*; Kristine Rakowsky, *Street Homeless Advocacy Project (SHAP)*; Eileen Gonzaga Ramos,  
*Salvation Army Pantry Kitchen*;  
& Donald Witherspoon, *Man Up! Inc.*  
Prof. Tamrah D. Cunningham

## PHYS 1002ID: Introduction to Physics of Natural Disasters

Prof. Yanna Chen

## The Human Impact: How Climate Change Affects Us All

Kevin Balbuena, Jacky Deng, Salman Khan,  
Garush Vahan Martirosyan, James Rosas Cruz  
& Ethan Yim

## Earthquakes Risks and Resilience in Urban Areas

Brandon Chen, Jandelle Andrea Hernandez,  
Nushrat Jahan, Muhammad Jamil,  
Ayo David Johnson & Clifton McFarlane

## Rising Waters: Urban Flood Solutions

Sabina Abduvakhidova, Jaedritz-Angel Agustin,  
Claudia Chavez, Terrell Shacore Gayle,  
Zohaib Khan & Xiaolong Yang

## Spiral of Destruction

Nelie Sarah Louissaint, Alex Manuel Maldonado,  
Shervan McLean & Shante Alecia Miller



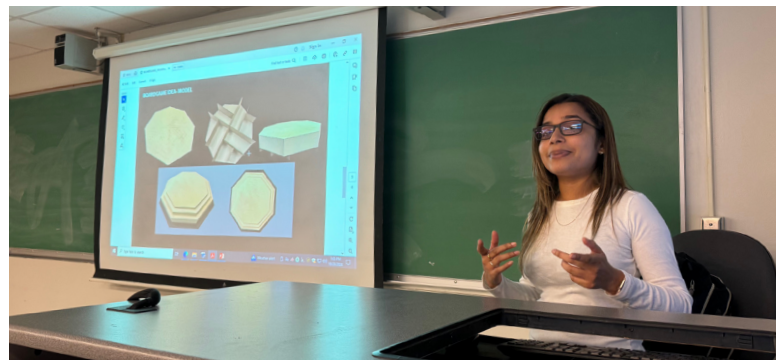
Game Day, September 19, 2024



Game Jam: Perfectly Acceptable, September 26, 2024



Game Jam: Final Fantasy Retrospective, October 24, 2024



Monisha Sooklall, game lab intern, board game presentation, October 24, 2024

# CUNY RESEARCH SCHOLARS PROGRAM (CRSP) & LOUIS STOKES ALLIANCE FOR MINORITY PARTICIPATION (LSAMP)

**Illuminating the Connection Between Galaxy Morphology and Evolution with the Legacy Survey Of Space and Time**

**Samiya Shamsur**  
Prof. Charlotte Olsen

**Find A Specific Area of Cybersecurity, Vendors, and Solutions Available Within That Area**

**Carl-Handy Abraham**  
Prof. Ossama Elhadary

**Reinforcement learning, Statistical learning, Artificial intelligence, Data analysis**

**Ostap (Ari) Tymchenko**  
Prof. Kim Changkyu

**Rebuilding John Hurt's Legacy: Historic Preservation in the Deep South**

**Natalie Simons**  
Prof. Shelley Smith

**Traumatic Brain Injury Modeling by Chemical Mass Transfer**

**Vanessa Robinson & Xionghui Wu**  
Prof. Subhendra Sarkar

**Hands-on Service Learning With Low-Cost Assistive Technology**

**Alison Escalante, Melissa Fernandes & Jasmine Tran**  
Prof. Farrukh Zia

**CyberSecurity Products Comparison**

**India Barker**  
Prof. Ossama Elhadary

**Monitoring Heat in the NYC Subway System**

**Isatu Jalloh**  
Prof. Abdou Bah

**Remixing and Adapting Virtual and Non-virtual Manipulatives in the Teaching and Learning of High School Mathematics: Incorporating Computational Thinking in Preservice Mathematics Teachers' Preparation**

**Alyssa Johnson & Yadira Vazquez**  
Prof. Nadia Kennedy & Ariane Masuda

**Parameters for Entanglement Between Various Qubits for Quantum Computers**

**Alyssa Burtsev, Melissa Demollari & Elizabeth Frias**  
Prof. Oleg Berman

**How Can The Individual Effectively Make Change**

**Kaydin Chappel**  
Prof. Javiela Evangelista

**The Use of Social Media to Predict Election Results**

**Risha Harata**  
Prof. Marcos Pinto

**Alignment of Data Science Techniques to Production and Operations Management Decision Making**

**Benny Wu**  
Prof. Patrick Slattery

**Pandemic to Present Ozone Analysis Comparison: LiDAR's Role in Urban Air Quality Monitoring**

**Julissa Mendez**  
Prof. Viviana Vladutescu

### **Re-Purposed Whole Textile Reinforced Clay to Enhance Bearing Capacity of Pavement Soils**

Angelis Almanzar, Chrisly Narcisse  
& Yoselin Sarita  
Prof. Ivan Guzman

### **Visualization and Analysis of Environmental Data OR Natural Capital Accounting**

Hasib Mahmood  
Prof. Ossama Elhadary

### **Study and Analysis of the Design of a Robot Manipulator**

Kimberly McLaurin  
Prof. Farrukh Zia

### **The Standard Model of Particle Physics**

Christopher Osorio  
Prof. Andrea Ferrogli

### **A Geospatial Analysis of the Intersection of Livability and Sustainability in NYC**

Arianna Dillillo & Sonya Weinstock  
Prof. Anne Leonhardt

### **Transforming Computer Technology Into Green Technology**

Ruth Orlanne Gaboton  
Prof. Farrukh Zia

### **Can Graphic Design Help Improve Overall Communication?**

Ze Huang & Michael Lester  
Prof. Maureen Neuringer

### **Understanding the Impact of Climate Change and Building Energy Consumption**

Rashiek Barber, Abdellah Gessra,  
Takoda Nestor, Christopher Sanchez  
& Ferasuddin Siddiqui  
Prof. Daeho Kang

### **Building An R Library of Financial Functions**

Manahill Arshad & Kevin Ramon  
Prof. Ossama Elhadary

### **Optical Prediction of Personality Characteristics**

Tamara Tugulashvili  
Prof. Daniel Capruso

### **Secondary X-Ray Generation by Composite Filters**

Jasper Cheung, Daler Djuraev  
& Somdat Kissoon  
Prof. Subhendra Sarkar

### **Remixing and Adapting Virtual and Non-virtual Manipulatives in the Teaching and Learning of High School Mathematics: Incorporating Computational Thinking in Preservice Mathematics Teachers' Preparation**

Alyssa Johnson & Yadira Vazquez  
Prof. Nadia Kennedy & Ariane Masuda

### **Parameters for Entanglement Between Various Qubits for Quantum Computers**

Alyssa Burtsev, Melissa Demollari  
& Elizabeth Frias  
Prof. Oleg Berman

### **How Can the Individual Effectively Make Change**

Kaydin Chappel  
Prof. Javiela Evangelista



# CUNY IMMERSIVE RESEARCH EXPERIENCE (CIRE)

## The Use of Social Media to Predict Election Results

Risha Harata  
Prof. Marcos Pinto

## Alignment of Data Science Techniques to Production and Operations Management Decision Making

Benny Wu  
Prof. Patrick Slattery

## Pandemic to Present Ozone Analysis Comparison: LiDAR's Role in Urban Air Quality Monitoring

Julissa Mendez  
Prof. Viviana Vladutescu

## Network Security Technology

Jamel Williams  
Prof. Xiangdong Li

## Advanced Assistive Technology Facilitates Hands-on Service Learning

Suchi Chowdhury & Majida Naz  
Prof. Farrukh Zia

## Remixing and Adapting Virtual and Non-virtual Manipulatives in the Teaching and Learning of High School Mathematics: Incorporating Computational Thinking in Preservice Mathematics Teachers' Preparation

Alyssa Johnson & Yadira Vazquez  
Prof. Nadia Kennedy & Ariane Masuda

## Exploring the Idiosyncratic Volatility Puzzle

ZiHan Cao  
Prof. Ossama Elhadary

## Secondary X-Ray Generation by Composite Filters

Jasper Cheung, Daler Djuraev  
& Somdat Kissoon  
Prof. Subhendra Sarkar

## Artificial Intelligence - Machine Learning, Mobility - Mobile (phones, iPads, watches, etc) apps, Web apps

Joel Mejia  
Prof. Marcos Pinto

## Incorporating AI in the Teaching and Learning of School Mathematics: Design and Assessing Activities with AI for the Mathematics Classroom

Rachel Dawidowicz  
Prof. Nadia Kennedy

# EMERGING SCHOLARS PROGRAM

## NMR Investigations of Ion Transport in Novel Electrolytes

Elizabeth Brandwein  
Prof. Steve Greenberg

## The Solar Shed

Andrew Aucanzhala & Kevin Hernandez  
Prof. Kenneth Conzelmann

## 4G Cellular Bandwidth Allocation Algorithms for Supporting M2M Services

Irina Urmi, Youssef Rouzaqui, Adnan Nabil  
Prof. Ahmed Hassebo & Sanjoy Chakraborty

## A Geospatial Analysis of the Intersection of Livability and Sustainability in NYC

Arianna Dilillo & Sonya Weinstock  
Prof. Anne Leonhardt

## A Model to Classify Face Emotion

Angie Navarro  
Prof. Marcos Pint

## A review of Ashwaganda, a Medicinal Plant, and its Effect on Inflammation and Neuroprotection

Ali Al-Gemsh, Joana Ciro & Hilda Wu  
Prof. Sanjoy Chakraborty

## Advanced Assistive Technology Facilitates Hands-on Service Learning

Suchi Chowdhury & Majida Na  
Prof. Farrukh Zia

## Anti-inflammatory Potential of Common Culinary Herbs and Spices: A comprehensive Review of Ginger, Garlic, Tumeric, and More

Ajla Feratovic  
Prof. Sanjoy Chakraborty

## Apply Machine Learning to Detect and Predict Fraud in Credit Card Transactions

Bartlomiej Gralak  
Prof. Marcos Pinto

## AR Scavenger Hunt/Fun Facts Finder

Amir Gamble  
Prof. Jenna Spevack

## ARCScholars

Bryant Ariza, Sofia Bilbao, Kaylynn Daoud  
& Alex Mendoza  
Prof. Naomi Langer-Voss

## Arduino Obstacle Avoidance Electric Vehicle

Kristian Rice  
Prof. Ahmed Hassebo

## Arduino-Based Color Detection Electric Vehicle

Louis Medina & Egypt Paige  
Prof. Ahmed Hassebo

## Arduino-Based Irrigation Research

Erick Cabrera  
Prof. Ahmed Hassebo

## Are New Yorkers Prepared for Coastal Flooding? An analysis of 2023 National Household Survey on Disaster Preparedness

Suzana Edmond & Erica Falcon  
Prof. Smita Ekka Dewa

## Are Quantum Computers Suitable as Accelerators for Numerical Modeling of Diffusion Processes?

Sean Sinclair  
Prof. German Kolmakov

## Assessing the Autoantibody Repertoire During Malaria

Sanobar Mardonova  
Prof. Juan Rivera-Correa

## Authority and Legitimacy in the Albanian Case: the Kanun

Enis Ukaj  
Prof. Xavier Moysen Alvarez

## Behind the Emerald Curtain: The Aesthetics of Wicked

Amanda Padilla  
Prof. Sue Brandt

## Blended Shadow Puppet

Samuel Cheung  
Prof. David Smith

## Brewing Recommendations: A Data-Driven Approach to Coffee Recommendations Using Linear Algebra

Angelica Tellez  
Prof. Johann Thiel

## Building an R Library of Financial Functions

Manahill Arshad & Kevin Ramon  
Prof. Ossama Elhadary

## Bullying and Suicide Prevention

Amari Ellis  
Prof. Annie Ngana Mundeke

## Careers in Architecture

Ash Robertson  
Prof. Charles Jenkins

## Characterizing NADPH Oxidase genes in Tetrahymena Thermophila

Joshua Fernandez  
Prof. Ralph Alcendor

## Characterizing Thioredoxin gene in Tetrahymena thermophila

Susanna Pahalyants  
Prof. Ralph Alcendor

## Cinnamon and Gene Expression: A Systematic Review

Monique Fungkhee, Matthew Velez & Rita Zou  
Prof. Ralph Alcendor

### **Combinatorial Problems**

Jessica Gustave  
Prof. Satyanand Singh

### **Combinatorial Analysis II**

Emmanuel Oitamong  
Prof. Satyanand Singh

### **Control Systems in Hydraulic Technology**

Ahmad Rafi  
Prof. Mohammed Islam

### **Data Science Ethics in Cancer Research**

Jade Acevedo  
Prof. Elizabeth Milonas

### **Department of Energy Solar Decathlon Design Challenge**

Levi Fraser  
Prof. Alexander Aptekar

### **Design and Fabrication of Custom Assistive Technology Devices**

Mareefa Khanam  
Prof. Farrukh Zia

### **Developing a Pilot Framework for a Virtual Shadow Puppet Environment in Unity**

ZiXuan Wu  
Prof. David Smith

### **Effects of Electric Field and Heat on X-Ray Absorption by Biological Media**

Hala Yousef  
Prof. Subhendra Sarkar

### **Exploring Properties Of Resolved Regions In Galaxies Through Cosmic Time**

Ena Chia  
Prof. Charlotte Olsen

### **Fabrication and photoluminescence of 2D semiconductor materials**

Keven Cruz, Tomas Gonzalez & Stefanie Rivera  
Prof. Vitaliy Dorogan

### **Form and Airflow: Integrating Sculptural Aesthetics with Passive Ventilation**

Gladys Vigil  
Prof. Alexander Aptekar

### **Fraud Detection in Financial Transactions**

Faria Promi  
Prof. Elizabeth Milonas

### **Future Cities / Transportation**

Fahima Zannat  
Prof. Anne Chen

### **Garden Monitoring System using IOT**

Afroza Aktar  
Prof. Farrukh Zia

### **Governance of AI: Potential Risks, Mitigations, and Automated Controls**

Ibraheem Esa  
Prof. Patrick Slattery

### **Hands-on Service Learning With Low-Cost Assistive Technolog**

Alison Escalante, Melissa Fernandes  
& Jasmine Tran  
Prof. Farrukh Zia

### **Healthcare Systems**

Halima Alazeb  
Prof. Farrukh Zia

### **How Are Forensic Tools Used to Gather Evidence?**

Orlando Salas  
Prof. Yu-Wen Chen

### **How can Human Services Respond to Domestic Human Trafficking?**

Rosalyn Mcintos  
Prof. Smita Ekka Dewan

### **How Do South Asians Communicate in Healthcare Settings with Respect to Their Cultural/Ethnic Backgrounds?**

Sabahat Moughal  
Prof. Sarah Price

### **How Has Russian Propaganda from the Soviet Era Been Repurposed in Today's Conflict with Ukraine?**

Ahmed Babaev  
Prof. Stephanie Boyle

### **How Have Strategic Management Practices Evolved to Drive Innovation and Business Creativity with AI?**

Kevin Moreno  
Prof. Shakira Henry

### **Immigrant Children's Perspective on Parents Coping Mechanism and Manners of Internalization**

Bisleisy Galindo Dejesu  
Prof. Smita Ekka Dewan

### **Impact of AI in Society**

Khalid Farhad & Daniela Sanchez  
Prof. Suela Aalsberg

### **Implementation of multi-agent reinforcement learning algorithm**

Yahya Mohamed  
Prof. Changkyu Kim

### **Innovations in Full-Stack Web Development: Front-end to Back-end**

Yassine Chahid  
Prof. Patrick Slattery

### **Integrating Ecological Design Principles into Urban Public Spaces for Community Well-Being**

Priya Babu & Rayen Osorio  
Prof. Anne Chen

### **Learning Strategy of Multi-Agent Reinforcement Learning in an Open Environment**

Parviz Subkhankulov  
Prof. Changkyu Kim

### **Material Sensitivity in Dentistry: Silver and Nickel Based Alloy**

Dan Chen & Abbi Raper  
Prof. Daniel Alter

### **Mechanical Stress Induced Mineral Displacement in Apples**

Achlyn Genao & Natalya Tomskikh  
Prof. Subhendra Sarkar

### **Moderating Effects of Consumer Traits and Situational Factors of Collaborative Consumption**

Juan Del pozo Severino  
Prof. Alyssa Dana Adomaitis

### **MR Diffusion Databases to Identify Common, Vulnerable Regions in Various Neurological Diseases**

Jakiya Akter  
Prof. Subhendra Sarkar

### **NASA Lunar Geopolymer Project**

Maria Hashmi  
Prof. Sam Rahman

### **NASA Microgreen Cultivation in Space Utilizing Minimum Water**

Fabiha Samiha  
Prof. Ozlem Yasar

### **Network Security Research**

Yinson Tso  
Prof. Xiangdong Li

### **Nightmare of Dengue Fever**

Williana Alcis  
Prof. Liana Tsenova

### **Off the Grid and Thriving: A Regenerative Architecture**

Lamar Charles, Jeremiah Herrera,  
Michael Ray Malonjao, Thomas Plunkett,  
Jocelyn Sanchez & Brailyn Ventura  
Prof. Alexander Aptekar

### **OpenLab Design / Outreach**

Adaliat Iusupova  
Prof. Jenna Spevack

### **Optimizing Indoor Environment Quality**

Anjum Ahmmed, Nick Antoine, Christopher  
Gabriel Lopez, Jennifer Garcia & Marti Tapia  
Prof. Alexander Aptekar

### **Optimizing Microgreen Growth: Seed Germination in PEGDA**

Ousmane Diallo, Tonatiuh Fitzgerald,  
Zohaib Khan, Samuel Mensah & Kelly Wu  
Prof. Ozlem Yasar

### **Parameters for Entanglement Between Various Qubits for Quantum Computers**

Alyssa Burtsev, Melissa Demollari  
& Elizabeth Frias  
Prof. Oleg Berman

### **Pearl Poster Designs**

Oscar Wong  
Prof. Maria Hitchings

### **PEGDA Tissue Research**

Emily Yong  
Prof. Ozlem Yasar

### **Probabilistic Simulations**

Rona Zhang  
Prof. Satyanand Singh

### **Programming and Control of ROS-Compatible Turtlebot with an Onboard Manipulator**

Christian Rosa  
Prof. Lili Ma

### **Public Space: Impact on physical, mental and social health of communities**

Patricia Marrero (Allen) & Josue Peralta  
Prof. Smita Ekka Dewan

### **Queer Signaling and Sexuality-Based Discrimination**

Christal Jean-Soverall  
Prof. Annie Ngana Mundeke

### **Reconstructing Cosmic Filaments around Dwarf Galaxies with the Rubin Observatory**

Sarah Draves  
Prof. Charlotte Welker

### **Reimagining Wayang Kulit: A Modern Storytelling Approach**

Tshari Yancey  
Prof. David Smith

## Re-Purposed Whole Textile Reinforced Clay to Enhance Bearing Capacity of Pavement Soils

Angelis Almanzar, Chrisly Narcisse  
& Yoselin Sarita  
Prof. Ivan Guzman

## Research Skills

Brandon Rios  
Prof. Lillian Amann

## Secondary X-Ray Generation by Composite Filter

Jasper Cheung, Daler Djuraev  
& Somdat Kissoon  
Prof. Subhendra Sarkar

## Securing the Endpoint: A Comparative Analysis of Leading Security Solutions

Darling Cespedes  
Prof. Ossama Elhadar

## Smart City Self-Driving Security

Sumiya Jahan  
Prof. Anne Chen

## Social Media Addiction

Ricky Yin  
Prof. Amara-Rime Lulu

## The Solar Shed

Andrew Aucanzhala & Kevin Hernandez  
Prof. Kenneth Conzelmann

## SQL Work Applied to Real Jobs

Jaquan Lasalle  
Prof. Elizabeth Milonas

## Strong Interactions and Big Bang Nucleosynthesis

Alexis Vidals  
Prof. Boris Gelman

## Sustainability and Dental Waste, Effects on the Environment

Kailin Liu & Chulan Xu  
Prof. Khrystyna Vyprynyuk

## Sustainable Building Envelopes

Fareda Elsherif, Mohamed Hassan,  
Fatima Ikhmais, Aia Mahmoud  
& Mariam Selim  
Prof. Alexander Aptekar

## Task-Specific Architectures in Multi-Agent Reinforcement Learning

Taimoor Awan, Derrick Keith  
& Jason Lin  
Prof. Changkyu Kim

## Technology Behind Self-Driving Cars

Danielle White  
Prof. Marcos Pinto

## Teledentistry

Alaysia Simmons  
Prof. Dora-Ann Oddo

## The Addiction of Social Media

Joel Burke  
Prof. Amara-Rime Lulu

## The Future of UI/UX in Virtual and Augmented Reality

Kevin Hutchinson  
Prof. Amara-Rime Lulu

## The Impact of Aging on Dental Restorations

Sarah Flores  
Prof. Aneesa Hussain

## The Impact of AI on Society

Kevin Balbuena Montes  
Prof. Suela Aalsberg

### **The Impact of AI on Society**

Lawrence Osowski  
Prof. Elizabeth Milonas

### **The Impact of Climate Change on Health**

Marissa Escarez  
Prof. Annie Ngana Mundeke

### **The Impact of Moving Humans and Objects on WiFi Signals**

Boming Shao  
Prof. Li Geng

### **The Impacts of COVID-19 on High School Students**

Saeni Watson  
Prof. Annie Ngana Mundeke

### **The Intersection Between Sustainability and Accessibility**

Aurora Hidalgo  
Prof. Tracy Zimmermann

### **The Orthodontia-Oral Health Connection**

Sem Lama, Cynthia Monroy,  
& Alexandra-Kelly Rubiano  
Prof. Khrystyna Vyprynyuk

### **The Study of Endometriosis and the Barriers of Healthcare**

Tais Chicaiza  
Prof. Lillian Amann

### **The Technology Behind Metamaterial (ART)**

Raymond Sekyere  
Prof. Marcos Pinto

### **The Use of Non-Traditional Shapes to Improve Natural Air Flow**

Emilio Tlacomulco  
Prof. Alexander Aptekar

### **Topics in Climate Change**

Casper Chen  
Prof. Annie Ngana Mundeke

### **U.S. Healthcare System**

Hailah Nagi  
Prof. Farrukh Zia

### **Understanding the Impact of Climate Change and Building Energy Consumption**

Rashiek Barber, Abdellah Gessra, Takoda Nestor,  
Christopher Sanchez & Ferasuddin Siddiqui  
Prof. Daeho Kang

### **Use of Sensors to Control Mechatronic Devices**

Rachica Jean Baptiste  
Prof. Andy Zhang

### **Using Blockchain Technology to Safeguard Pharmaceutical Supply Chain**

Melissa Garcia  
Prof. Marcos Pinto

### **Using Machine Learning to Build a Speech Recognition App**

Mohammed Imad  
Prof. Marcos Pinto

### **Utilizing PEGDA for Sustainable Seed Growth: Microgreens in Space**

Thomas Alarcon Ali, Ariel Marroquin  
& Samuel Martinez  
Prof. Ozlem Yasar



# GRANT-FUNDED PROJECTS

## NSF REU Grant # 2150432

Prof. Reginald Blake,  
Hamidreza Norouzi & Ms. Julia Rivera

### Analyzing Atmospheric Correction Algorithms for Climate Change Impact on Water Quality in Clear Lakes Using Landsat

Aisha Malik  
Dr. Marzieh Azarderakhsh

### Using Varioptic Liquid Lens Improving Laser Radar Accuracy in Insect Detection

Andrii Iarmolenko  
Dr. Andrii Golovin

### Wind Trajectories in an Urban Setting using Doppler LiDAR and Ancillary Ground based Remote Sensing Instrumentation

Joseph Rukaj  
Dr. Viviana Vladutescu, Dr. Yonghua Wu, Dr.  
Thomas Legbandt & Dr. Fred Moshary

### Analysis of Historical Rainfall Features of Flash Flood Events in New York City

Naureen Asha  
Dr. Seonho Kim & Dr. Naresh Devineni

### Estimation of Water Parameters From Ocean Remote Sensing

Rosa Pavlak  
Prof. Eder Herrera Estrella  
& Dr. Alexander Gilerso

### We'll Fix It in Post: Deep Learning for Numerical Weather Prediction Post-Processing in Medium-Range Precipitation Prediction in the NE U.S.

Steven Aarons  
Dr. Yanna Chen

### Cross-instrument Validation of Aerosol Optical Properties Measurements

Tahsinur Rahman  
Dr. Viviana Vladutescu, Dr. Yonghua Wu,  
Dr. Thomas Legbandt & Dr. Fred Moshary

### Optical Extinction and Backscatter of Aerosols in an Urban Area

Tianyi Zhao  
Dr. Viviana Vladutescu, Dr. Yonghua Wu,  
Dr. Thomas Legbandt & Dr. Fred Moshary

### Heat Monitoring in the New York City Subway System

César Pascal Vasquez, Tyler Ayala,  
Joseph Moise & Isaac M. Morel Lopez  
Dr. Abdou Bah

### Mapping Air Quality in New York City Using Low-Cost Air Quality Monitors

Jonathan Rubinov & Keba-Amady Nelson  
Omar Addasi, Narjis Sabar  
& Dr. Prathap Ramamurth

### RESCUE: Resilience & Engagement for Sustainable Climates in Urban Environments

Kazi Tasin & Alijah Anyagwosi  
Andrew Dixon, Richard Rivera  
& Dr. Tarendra Lakhankar

### CONNECT THE DOTS

Pls Dr. Jonas Reitz, Dr. Ariane Masuda,  
& Dr. Kate Poirer  
Grant # MSEIP Grant #P120A220033

### On the Equality of Sums & Products for Certain Multisets

Hannah Bahn (St. Ann's School)  
Dr. Satyanand Singh

## The 41<sup>st</sup> semi-annual

# Dr. Janet Liou-Mark Honors Scholars & Undergraduate Research Poster Presentation

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