



# 22<sup>nd</sup> ANNUAL STUDENT RESEARCH CONFERENCE

Sponsored by the UHD Scholars Academy



**April 14, 2023 In-Person**

The Student Research Conference (SRC) is a showcase of academic excellence demonstrated by UHD undergraduates and graduates majoring within the Colleges of Marilyn Davies College of Business, Humanities and Social Sciences, Public Service, and Sciences and Technology.

## SRC Program Schedule for April 14, 2023

8:00 AM	Registration	Mural Area
	Continental Breakfast	Skyline Lounge
9:00 AM	Introductory Remarks - Executive Director, Dr. Mary Jo Parker Recognition of the 2023 SRC Co-Chairs & Committee members Recognition of any Special Guests – Dr. Robert West, Microbes, Inc. & others	Robertson Auditorium
9:15 AM	Introduction of UHD President Dr. Loren Blanchard Introduction of Provost Dr. Deborah Bordelon Introduction of CST Dean, Dr. Akif Uzman	
9:30 AM	Introduction of STEM Keynote Speaker – Dr. Poonam Gulati	
9:35 AM	STEM Keynote Speaker – Dr. Geraldine Schott, UHD Alumna <i>From the Bench to Investment Banking: an Unusual Journey Fueled by Curiosity and the Desire to Innovate</i>	
10:10 AM	Oral Presentations Begin Introductions by SRC Chairs	
11:55 AM	Dr. Mary Jo Parker Remarks	
12:00 PM	Lunch	Welcome Center & Milam/Travis Rooms
1:00 PM	Poster Sessions Begin	A300
1:00 PM	Session I	
2:30 PM	Session II	
3:30 PM	SRC closes – Receive Conference Gift with Survey	

### Conference Co-Chairs:

Dr. Judith Harris, Associate Professor, Criminal Justice  
Dr. Mian Jiang, Associate Professor, Natural Sciences

### Conference Planning Committee:

Dr. Liza Alonzo, Assistant Vice President for Presidential Affairs and Constituent Relations  
Dr. Maria Benavides, Assistant Department Chair, Natural Sciences Department  
Dr. Youn-Sha Chan, Associate Professor, Mathematics and Statistics  
Dr. Shahnjayla Connors, Assistant Professor, Health and Behavioral Science  
Dr. Weining Feng, Associate Professor, Industrial Control Systems  
Dr. Poonam Gulati Salhotra, Executive Director, Office of Impact Learning  
Dr. Judith Harris, Associate Professor, Criminal Justice  
Dr. Katarina Jegdic, Professor, Mathematics, Statistics, & Data Science  
Dr. Mian Jiang, Associate Professor, Natural Sciences  
Dr. Yuan Yuan Kang, Professor, Biology  
Dr. Jeffrey W. Martz, Associate Professor, Natural Sciences  
Dr. Whitney Botsford Morgan, Professor, Management & Insurance Risk Management  
Professor Mitsue Nakamura, Lecturer, Mathematics & Scholars Academy Peer Mentor Coordinator  
Dr. Laura Ruth Parker, Assistant Professor, Psychology  
Dr. Dvijesh Shastri, Professor, Assistant Department Chair, Computer Science & Engineering Technology  
Dr. Katherine Shoemaker, Assistant Professor, Statistics  
Dr. Jorge Tito-Izquierdo, Assistant Professor, Computer Science and Engineering Technology  
Dr. Michael Tobin, Associate Professor, Biology  
Dr. Saveena Veeramoothoo, Assistant Professor, English  
Ms. Mercedes Gonzales, Program Coordinator, UHD Scholars Academy  
Dr. Mary Jo Parker, Executive Director, UHD Scholars Academy

The **UHD Scholars Academy (SA)** is an academically competitive program in the College of Sciences and Technology (CST) that promotes scholarship and student success for undergraduate students majoring in Science, Technology, Engineering and Mathematics (STEM).

Phone: 713-222-5344; Fax: 713-223-7410; [www.uhd.edu/scholars](http://www.uhd.edu/scholars)

## UHD Alumni Keynote Speaker

---



### **Geraldine Schott, Ph.D.**

Consultant, Grants, R&D  
Thermocuff

**Presentation Title:** *From the Bench to Investment Banking: an Unusual Journey Fueled by Curiosity and the Desire to Innovate*

#### **Bio-sketch**

I received my PhD in Biochemistry and Molecular Biology from the University of Texas Medical Branch in 2020 after spending 5 years studying processes related to RNA biology. My thesis ultimately focused on the role genetic variants play in splicing decisions and how that relates to disease etiology in the laboratory of Dr. Mariano Garcia-Blanco, a pioneer in the study of RNA splicing and negative-strand RNA viruses. During my graduate studies, I was able to participate in a variety of projects studying host proteins-virus interactions, the effects of pharmacological compounds on virus replication, and the mechanisms of RNA splicing. I was fortunate to be in the lab of a PI who had interest in company formation and biotech and was able to explore the translational aspect of science from the lab to industry and the clinic. I completed several internships and projects for medical device companies throughout grad school and was able to transition to a business development role with a foreign government after graduating and spending a few months in the lab as a Post-Doctoral fellow. I worked for the UK Government's life sciences trade and investment team for about 10 months where I was able to interact with both US and UK companies looking for support in their international expansion plan. For example, I assisted US companies in navigating the clinical trials landscape in the UK to help them take advantage of the government's mandate to bring innovation to the country. I then transitioned into a role as an Associate with an investment bank focused on providing merger and acquisition and capital raise services in the life sciences and healthcare sector. There I interact with start ups and large corporations in the therapeutics, medical device, and digital health verticals to help them raise money to fund their development or sell/acquire new assets. I enjoy my job as I am at the forefront of innovation in healthcare and help bring all the stakeholders in that space together to fund new solutions for patients.

#### **Presentation Abstract**

As I began my journey as an undergrad at UHD, I really did not realize the breadth of opportunity an education in STEM could bring. It was not until I started undergrad research with Dr. Gulati that I realized research was an option for me. The Scholars Academy opened my eyes to the importance of research but also to all the different academic paths that were available to me. Without this knowledge and the support of my mentor and the Academy, I can easily say that I would not be standing here giving this talk today. During the talk, I want to highlight my experience at UHD, in grad school, and how that has shaped me as an individual and my career. Hopefully, I will drive home the fact that one needs to be perseverant, take advantage of the opportunities presented to them, and have an open mind.

## Oral Presentations

---

**1 – Jason Bickel**, “Association between seropositivity for toxocariasis and cognitive functioning in older adults: An analysis of cross-sectional data from the U.S. National Health and Nutrition Examination Survey (NHANES) 2011–14.”

**Co-Author(s):** Candise Daniels, Thi Tran

**Research Mentor(s):** Dr. Song Ge

**Project Location:** University of Houston - Downtown

**Objectives:** This study sought to examine the relationship between seropositivity for toxocariasis and cognitive functioning in a nationally representative sample of U.S. older adults.

**Design:** A cross-sectional study.

**Setting:** The National Health and Nutrition Examination Survey (NHANES) study took place at participants' homes and mobile exam centers with specialized equipment.

**Participants:** The study population consisted of 3,188 community-dwelling U.S. older adults aged 60 and above from the NHANES 2011 to 2014.

**Exposure of interest:** IgG antibody against *Toxocara* spp. was tested by a Luminex assay using recombinant rTc-CTL-1 antigen. A value  $>23.1$  mean fluorescence intensity (MFI) indicated positive for toxocariasis and a value  $\leq 23.1$  MFI as negative for toxocariasis.

**Primary and secondary outcome measures:** The Consortium to Establish a Registry for Alzheimer's Disease Word Learning subtest (CERAD-WL) immediate and delayed memory, the Animal Fluency test (AFT), and the Digit Symbol Substitution Test (DSST) were used to assess cognitive functioning. Cognitive test-specific and global cognitive z scores were computed using sample means and standard deviation (SD).

**Results:** The study population consisted of 3,188 participants who represented a total of 111,896,309 civilian citizens in the US. The mean age of the participants was 69.6 years (SD 6.8). The prevalence of toxocariasis in this population was 7.3% (95% confidence interval [CI]: 6.1 to 8.5). The survey-weighted linear regression model showed that compared with participants who were toxocariasis seronegative, those who were seropositive had lower DSST z score (beta [ $\beta$ ] = -0.12, 95% CI: -0.22 to -0.01) and global cognition z score ( $\beta$  = -0.11, 95% CI: -0.22 to -0.01), after controlling for age, sex, race/ethnicity, education, depressive symptoms, smoking status, body mass index, prevalent coronary heart disease, prevalent stroke, and systolic blood pressure, physical activity, and total cholesterol.

**Conclusions:** In our study, seropositive toxocariasis is independently and significantly associated with worse working memory, sustained attention, processing speed as well as global cognition in older adults. Public health measures to prevent human toxocariasis might help protect older adults' cognitive function.

**2 – Jude Campbell**, “Arylidene-hydrazinyl-thiazole analogs induce apoptosis in cancer cell lines and exhibit the potential to be novel anti-cancer agents.”

**Co-Author(s):** Robert Lwanga, Sarah Robinson

**Research Mentor(s):** Dr. Rachna Sadana

**Project Location:** University of Houston - Downtown

With many chemotherapy treatments being non-specific and highly toxic, it is imperative to find new therapies with low cytotoxicity and high specificity. Additionally, cancer cells become resistant to chemotherapeutic drugs after some time, so having new drugs in the inventory is beneficial. Thiazole derivatives have been shown to possess anti-cell proliferative activity by inhibiting DNA synthesis. In this framework, our collaborators synthesized a new series of arylidene-hydrazinyl-thiazole analogs. We tested the effects of these newly synthesized arylidene-hydrazinyl-thiazole analogs for the inhibition of cell proliferation and induction of apoptosis on multiple cancer cell lines. Three (PS-371, PS-376, PS-379) out of 20 tested compounds inhibited cell proliferation by more than 50% at a final 20  $\mu\text{M}$  concentration when measured using an MTT cell proliferation assay. These three compounds also induced apoptosis (a programmed cell death) when measured by caspase 3/7 activation and loss of mitochondrial membrane potential. These results support our hypothesis that specific analogs of thiazoles induce apoptosis and have the potential to inhibit cancer growth. Using flow cytometry, we are currently investigating at what point in the cell cycle the cancer cells get arrested when treated with these compounds.

**3 – Luis Cruz**, “Can mechanical curves really square the circle?”

**Co-Author(s):** Linda Dune, Min Xing, Lucy Ndubuisi, Carlota Sweeney, Zhe Wei

**Research Mentor(s):** Dr. Sergiy Koshkin

**Project Location:** University of Houston - Downtown

My presentation reviews a few significant discoveries throughout history pertaining to geometry. I will specify with mathematicians such as Pythagoras, Euclid, Hippias, Archimedes, and Apollonius. These mathematicians created the branch of mathematics known as "geometry" today. This field of mathematics helped establish many important proofs such as Pythagorean theorem, mean proportional, and angle bisection. However, there were three problems that they were not able to solve with straightedge and compass; cube duplication, angle trisection, and quadrature of a circle. These problems are now known as the "Problems of Antiquity". My presentation will

dive into the third one, how to find a square with equal area to a circle. Hippias, Archimedes, and Apollonius are credited for the discovery or contributing work of the quadratrix, spiral, and helix respectively. The first two are plane curves and the latter is a space curve. These curves can be used to find the quadrature of a circle. I will go over why these solutions were rejected by mathematicians. I will also point out the logical circularity with the genesis of each curve. For example, pi is required for constructing each curve, but if we assume the knowledge of pi then we can square the circle directly.

#### **4 – Andrew Garcia, “Human Engagement Analysis for Virtual Meetings”**

**Co-Author(s):** Jaffer Hassan, Javier Berdejo, Dvijesh Shastri

**Research Mentor(s):** Dr. Dvijesh Shastri

**Project Location:** University of Houston – Downtown

The worldwide pandemic has created a much larger use for video conferencing tools such as zoom and Webex. At the same time, students tend to doze off, play games, or use social media and become inattentive during the virtual lecture. Because of this, me and two other masters level students worked on a project that talks about the human engagement analysis for virtual meetings to see if students truly pay attention during lectures. This project has also given me an introduction to computer science research and assistance with things such as developing algorithms and analyzing computer models. Tools such as python and OpenCV were used to effectively track eye movements and facial expressions to accurately determine whether participants in these virtual meetings are actually attentive or not. Medical devices were used to collect data such as heart rate, wrist movements, and brain activity for the analysis part of the project to determine human attentiveness as well.

#### **5 - Duc Thanh La, “Comparative Study of Explainable Machine Learning Models from Handwriting Dataset.”**

**Research Mentor(s):** Dr. Gideon Gogovi

**Project Location:** University of Houston - Downtown

Machine Learning (ML) has become an important tool for making use of the increasing amount of data available for analysis and decisions in healthcare. These models are not trustable, hence their limited acceptance in healthcare. The mistrust is often attributed to the interpretability deficiency and the ability to explain results. This creates doubts about reliability and limits its application to diagnostic results in healthcare. In this research, we used ML to classify Alzheimer's disease handwriting data. We develop Deep Learning Network models to classify to three categories (dictation, Graphic, and Copy) of the data with varying levels of Interpretable and provide interpretation using SHAPley Additive Explanations (SHAP). This will help in the explaining the decision-making process used by the models. The method performs a model result in a narrower range and also interpret the range of values to be able to classify the outcome.

#### **6 – Bhooma Parthasarathy, “Using U-Pb dating of detrital zircons from the westernmost exposures of the Chinle Formation in southern Nevada to reconstruct early Mesozoic paleo drainage systems.”**

**Research Mentor(s):** Dr. Kenneth Johnson, Dr. Jeffrey Martz

**Project Location:** University of Houston - Downtown

The Upper Triassic Chinle Formation has been well-studied in southern Utah and northern Arizona on the Colorado Plateau but is not as well-known in southern Nevada. The Chinle Formation depositional layers lie above the Early-Middle Triassic Moenkopi Formation and the TR-3 unconformity, and below the Early Jurassic Glen Canyon Group. The Chinle Formation depositional layers are probably entirely Norian and Rhaetian in age. Facies within Chinle Formation provide evidence of early Mesozoic fluvial systems, changes in climatic conditions, persistent volcanism in the Cordilleran arc to the south and west, and other tectonic activity. The westernmost exposures of the Chinle Formation in Nevada were the closest to the Cordilleran volcanic arc. The Late Triassic, when sediment was being deposited into the Chinle basin, corresponds with the first pulse or flare-up of the Cordilleran arc to the south indicating high Magma Addition Rates. The proximity of western exposures of the Chinle Formation to the Cordilleran arc and the intensity of volcanism during the Late Triassic points to the high potential of volcanic ashfall and detrital zircons to have syndepositional ages. The goal of this project is to isotopically date samples from the western-most exposures of the Chinle Formation to correlate the stratigraphic sequence with the sections to the east, reconstruct paleo drainage systems, and interpret early Mesozoic tectonic history.

#### **7 – Eusebio Rodriguez, Suleiman Anaza, “Development of a Safe and Efficient Battery Management System for Lithium-Ion Batteries in Mobile Applications”**

**Research Mentor(s):** Dr. Weining Feng

**Project Location:** University of Houston – Downtown

This research project focuses on developing a battery management system (BMS) for mobile applications, specifically lithium-ion battery packs. The BMS monitors the battery pack during use and charging phases. Ensures safe charging, maintaining constant current and voltage. The BMS will ensure that cells are balanced and prevent other unsafe charging parameters that could negatively impact the batteries. During the discharge

phase, the BMS will avoid overheating and overdrawing current. The design is being evaluated with a numerical simulation model and further validated with a proof-of-concept physical build.

**8 – Dominique Taylor**, “The Ongoing Battle for Stability: A Political Risk Report On Ukraine.”

**Co-Author(s):** Lizbeth Ramirez, Damaris Y. Sanchez

**Research Mentor(s):** **Dr. John Linantud**

**Project Location:** University of Houston - Downtown

This project is the political analysis of the country of Ukraine. A political report is a written document examining a particular political situation or issue. A report usually includes a critical and impactful concentration of relevant background information on countries such as Ukraine. Information stated here will be an assessment of Ukraine’s current situation, an analysis of the key factors, political agents involved, and recommendations for policy or action. The combination of the gathered data for Ukraine can give those in government and non-governmental organizations such as academic institutions, a better understanding of global political and economic trends related to international affairs concerning Ukraine.

## Poster Session I: (1:00 - 2:30 PM)

**1 - MJ Asuncion**, "Location Privacy Under Local Differential Privacy"

Co-Authors: **Dr. Emre Yilmaz**

Research Mentor(s): **Dr. Emre Yilmaz**

Project Location: University of Houston-Downtown

**3 - Hatoon Badawi, Rachel Colorado, Ragad Abu Alteen**, "Variability of Traits Conferring Drought Tolerance in Prairie Grasses Along a Precipitation Gradient"

Co-Authors: **Alannah Barrera, Arnold Villatoro, Huda Alchikh Omar, Carlina Schubert**

Research Mentor(s): **Dr. Michael Tobin**

Project Location: University of Houston-Downtown

**5 - Zachary Belanger**, "Metal-air battery study: the preparation and application of a Fe-air battery"

Research Mentor(s): **Dr. Mian Jiang, Dr. Mary Jo Parker**

Project Location: University of Houston- Downtown

**7 - Jason Bickel**, "Association between seropositivity for toxocarasis and cognitive functioning in older adults: An analysis of cross-sectional data from the U.S. National Health and Nutrition Examination Survey (NHANES) 2011-14"

Co-Authors: **Candise Daniels, Thi Tran**

Research Mentor(s): **Dr. Song Ge**

Project Location: University of Houston-Downtown

**9 - Danny Blevins**, "The effects of empathy and religion on transprejudice"

Research Mentor(s): **Dr. Travis Crone**

Project Location: University of Houston-Downtown

**11 - Linda Burger**, "Association between sleep quality and depression: The moderating role of resilience"

Research Mentor(s): **Dr. Danya Serrano**

Project Location: University of Houston-Downtown

**13 - Katie Burke**, "Pressure and Temperature Estimates of Metamorphism at the Tectonic Suture Between the Blue Mountains Province and the Margin of North America"

Research Mentor(s): **Dr. Kenneth Johnson**

Project Location: University of Houston-Downtown, Blue Mountains, ID

**15 - Jessica Cain**, "Metamorphic History of Garnet Hornblendite Blocks, Blue Mountains Province, NE Oregon"

Research Mentor(s): **Dr. Kenneth Johnson**

Project Location: University of Houston- Downtown

**17 - Jude Campbell**, "Arylidene-hydrazinyl-thiazole analogs induce apoptosis in cancer cell lines and exhibit the potential to be novel anti-cancer agents"

Co-Authors: **Robert Lwanga, Sarah Robinson**

Research Mentor(s): **Dr. Rachna Sadana**

Project Location: University of Houston-Downtown

**19 - Amaya Craft**, "Investigating the Relationship Between CARM1 and CBP within RL Human Lymphoma Cells"

Research Mentor(s): **Dr. Jee Won Hwang**

Project Location: MD Anderson

**21 - Luis Cruz**, "Can mechanical curves really square the circle?"

Research Mentor(s): **Dr. Sergiy Koshkin**

Project Location: University of Houston-Downtown

**23 - Aby Diagne**, "Study of Aluminum Based Battery by Home Fabrication"

Co-Authors: **Dr. Mian Jiang**

Research Mentor(s): **Dr. Mian Jiang**

Project Location: University of Houston-Downtown

**25 - Chien Do, Belen Hernandez**, "Backcrossing and characterization of the Sirt1 and Sirt2 mutants in Drosophila melanogaster"

Research Mentor(s): **Dr. Yuan Yuan Kang**

Project Location: University of Houston- Downtown

**27 - Ha Do, Omar Khan, Kayla Wleczyk**, "Expressing the recombinant C-terminus Fragment of PilA from Myxococcus xanthus"

Co-Authors: **Jennifer Nguyen, Leonardo Tenorio**

Research Mentor(s): **Dr. Gabriela Bowden**

Project Location: University of Houston-Downtown

**29 - Nichole Dukett**, "Theoretical Calculations of Zn(II) Complex Containing Pyridine-2,6-dicarboxylic acid"

Research Mentor(s): **Dr. Maria Benavides**

Project Location: University of Houston-Downtown

**31 - Gaelle Elias**, "The Synthesis of a Novel Fluorinated Ball-Type Phthalocyanine Using Microwave Irradiation"

Co-Authors: **Brendan Kepseu**

Research Mentor(s): **Dr. Eszter Trufan**

Project Location: University of Houston- Downtown

**33 - Camille Espitia**, "The Effects of Deportation on Families"

Research Mentor(s): **Dr. Yajaira Ceciliano-Navarro**

Project Location: University of Houston-Downtown

**35 - Andrew Garcia**, "Human Engagement Analysis for Virtual Meetings"

Co-Authors: **Jaffer Hassan, Javier Berdejo, Dr. Dvijesh Shastri**

Research Mentor(s): **Dr. Dvijesh Shastri**

Project Location: University of Houston-Downtown

**37 - Madiha Hussain, Adewonuola Adelaja**, "Investigating Alcohol Sensitivity Based on Various Drosophila melanogaster Sleep Lines"

Research Mentor(s): **Dr. Yuan Yuan Kang**

Project Location: University of Houston-Downtown

**39 - Hafsa Khalil**, "Genetic and environmental effects on the development of socially- and ecologically-relevant behaviors in the house fly *Musca domestica*"

Research Mentor(s): **Dr. Pablo Delclos**

Project Location: University of Houston-Downtown

**41 - Thanh La**, "Comparative Study of Explainable Machine Learning Models from Handwriting Dataset."

Research Mentor(s): **Dr. Gideon Gogovi**

Project Location: University of Houston- Downtown

**43 - Amy Lam, Alicia Arias Morales**, "Analysis of urban coyote diets using DNA barcoding of scat"

Research Mentor(s): **Dr. Amy Baird**

Project Location: University of Houston-Downtown

## Poster Presentation Session II (2:30 PM-3:30 PM):

**2 - Kennedi Landry, Kismely Castillo Dilone, Caitlyn Anderson**, "The locomotor activity pattern of day-night anticipation in *Drosophila simulans* and *Drosophila sechellia*"

Co-Authors: **Kismely Castillo Dilone, Caitlyn Anderson**

Research Mentor(s): **Dr. Yuan Yuan Kang**

Project Location: University of Houston-Downtown

**4 - Melissa Maldonado**, "Knockdown of Arginine Kinase Gene in *Drosophila melanogaster* Eyes Yields Abnormal Eye Phenotypes"

Co-Authors: **Melissa Maldonado, Emily F. Fritsche, Kennedi R. Landry, Karina S. Romero, Mardelle Atkins**

Research Mentor(s): **Dr. Adriana Visbal**

Project Location: University of Houston-Downtown

**6 - Samantha Marinez, Audrey Rubio**, "Compound screening for anti-proliferative properties of SHP and PBI series"

Research Mentor(s): **Dr. Rachna Sadana**

Project Location: University of Houston-Downtown

**8 - Evelyn Martinez, Misael Calderon**, "SUSTAIN: Indoor Hydroponic Vertical Garden"

Co-Authors: **Ginger Jeudy, Rene Hill**

Research Mentor(s): **Dr. Lisa Morano, Dr. Vasilios Tzouanas, Ms. Adriana Penabad**

Project Location: University of Houston-Downtown

**10 - Alondra Moreno**, "Study of the Titration End-point Determination"

Research Mentor(s): **Dr. Mian Jiang**

Project Location: University of Houston-Downtown

**12 - Shymie Nguyen**, "Synthesis and thermal characterization of three novel cationic surfactants"

Co-Authors: **Satya Mehta, Dr. Jose Robin**

Research Mentor(s): **Dr. Jose Robin**

Project Location: University of Houston-Downtown

**14 - Bhooma Parthasarathy**, "Using U-Pb dating of detrital zircons from the westernmost exposures of the Chinle Formation in southern Nevada to reconstruct early Mesozoic paleo drainage systems."  
Research Mentor(s): **Dr. Jeffrey Martz, Dr. Kenneth Johnson**  
Project Location: University of Houston-Downtown

**16 - Andre Paolo Ramirez**, "Synthesis and characterization of chiral monomers from BINOL"  
Research Mentor(s): **Dr. Robin Jose**  
Project Location: University of Houston-Downtown

**18 - Charzjon Rice, Lewis Dougher**, "Thermal properties of physical materials"  
Research Mentor(s): **Dr. Janusz Grebowicz**  
Project Location: University of Houston-Downtown

**20 - Danessy Rivera**, "Discovering Novel Compounds for Anti-Cancer Cell Proliferation Activity"  
Research Mentor(s): **Dr. Rachna Sadana**  
Project Location: University of Houston-Downtown

**22 - Eusebio Rodriguez, Suleiman Anaza**, "Development of a Safe and Efficient Battery Management System for Lithium-Ion Batteries in Mobile Applications"  
Research Mentor(s): **Dr. Weining Feng**  
Project Location: University of Houston-Downtown

**24 - Jennifer Rodriguez**, "Abnormalities in D. Melanogaster eye development observed through the down regulation of the Dor gene under the Gal4-UAS system"  
Co-Authors: **Victor Leyja, Michelle Guillen, Sara Alba**  
Research Mentor(s): **Dr. Adriana Visbal**  
Project Location: University of Houston- Downtown

**26 - Carlina Schubert**, "Functional leaf traits associated with minimum leaf conductance in multiple grass species"  
Research Mentor(s): **Dr. Michael F. Tobin**  
Project Location: University of Houston-Downtown

**28 - Irvin Solano**, "Breaking Down Barriers: Enhancing access for all students in STEM labs"  
Research Mentor(s): **Dr. Eszter Trufan**  
Project Location: University of Houston-Downtown

**30 - Chloe Stowe, Ava Garrison, Itzel Galindo, Antonietta Stamps, LaTasha LeBlanc**, "A Social Work Program's Voter Engagement Evaluation"  
Research Mentor(s): **Dr. Liza Lane, Dr. Fei Yang, Dr. John Rountree**  
Project Location: University of Houston- Downtown

**32 - Dominique Taylor**, "The Ongoing Battle For Stability: A Political Risk Report On Ukraine"  
Co-Authors: **Lizbeth Ramirez, Damaris Y. Sanchez**  
Research Mentor(s): **Dr. John Linantud**  
Project Location: University Of Houston-Downtown

**34 - Chessa To**, "The Detection of Aldehydes in Hand Sanitizers using GC-MS."  
Co-Authors: **Miranda Johnson, Delath Zoysa**  
Research Mentor(s): **Dr. Jacob Theruvathu**  
Project Location: University of Houston-Downtown

**36 - Jocelyn Torres**, "Finding Shortest Paths and Matchings in Networks: A Comparison of Algorithms and Applications"  
Research Mentor(s): **Dr. Timothy A. Redl**  
Project Location: University of Houston-Downtown

**38 - Brenda Villalobos, Jaquelin Torres, Abraham Aradillas, Dariana Ceja, Ciara Gordillo, Luis Martinez, Juan Valdez, Karina Rodriguez, Giselle Vera**, "Clear Creek Pedestrian Bridge"  
Research Mentor(s): **Dr. Jorge Tito Izquierdo**  
Project Location: University of Houston-Downtown

**40 - Ella Wasel, Justin Matthews**, "Investigating the Effect of Plant Growth Promoting Rhizobacteria (PGPR) and Mycorrhizal Fungi on the growth of cucumber, Cucumis sativus"  
Co-Authors: **Ashley Bonilla, Irene Byju**  
Research Mentor(s): **Dr. Lisa Morano**  
Project Location: University of Houston-Downtown

**42 - Ella Wasel, Claire Ghan**, "Making decisions: does mitochondrial metabolism influence retinogenesis?"

Co-Authors: **Albert Beltran, Yasli Tax**  
Research Mentor(s): **Dr. Elda Rueda**  
Project Location: University of Houston-Downtown

**44 - Allegra Williams, Brandy Deason, Rosario Bonilla, Maria Garcia**, "Addressing Climate Change Through Innovation: Solar Thermal Collector"  
Research Mentor(s): **Dr. Lisa Morano, Dr. Vasilios Tzouanas**  
Co-Authors: **Brandy Deason, Rosario Bonilla, Maria Garcia**  
Project Location: University of Houston-Downtown

## Acknowledgments

The SRC event provides an opportunity to experience a professional conference simulation while still on the UHD campus. Most conferences do not state or outline a conference dress code, but rather allow the attendee to infer, through standards upheld by their disciplines' professional societies, the most appropriate dress expectations. SRC will adopt this approach in keeping with the nature of the disciplines comprising the conference and in keeping with the UHD mission/strategic plan supporting student inclusion.

It is a great pleasure to recognize the many individuals, organizations, and institutions supporting our UHD students in their research endeavors. These include significant funding of research over the past year from the Texas Workforce Commission (2818WPB001), The Brown Foundation, Inc., Welch Foundation (BJ-0027), National Science Foundation (Award No. 0934913), and University of Houston-Downtown.

Many students conducted their research during summer research programs on and off-campus. Faculty and staff members of these and other academic institutions, as well as personnel at industrial facilities, have generously supported/mentored our UHD students.

In addition, we would like to thank the UHD faculty and staff who have worked tirelessly to support undergraduate and graduate research experiences as well as the UHD staff, faculty and administrators who have helped make this conference a success.

**Thank you for participating in the 22nd Annual UHD Student Research Conference.**

### Thanks to the generous supporters of this student conference:

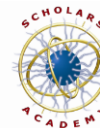
Texas Workforce Commission (2818WPB001)  
The Brown Foundation, Inc.  
Welch Foundation (BJ-0027)  
National Science Foundation (Award No. 0934913)  
UHD Marilyn Davies College of Business  
UHD College of Humanities and Social Sciences  
UHD College of Public Service  
UHD College of Sciences & Technology  
UHD Scholars Academy  
UHD



THE BROWN  
FOUNDATION, INC.



**UHD**  
University of Houston  
DOWNTOWN



**Please share your impressions of the SRC by completing a conference evaluation.**

### Post-Conference Evaluation Survey

Please complete the electronic Student Research Conference 2023 Post-Evaluation Survey by visiting the following web link:

[https://uhd.qualtrics.com/jfe/form/SV\\_4YDVyhXXuZzJtaK](https://uhd.qualtrics.com/jfe/form/SV_4YDVyhXXuZzJtaK)

