



# 21<sup>st</sup> ANNUAL STUDENT RESEARCH CONFERENCE



Sponsored by the UHD Scholars Academy

**April 22, 2022 Virtual**

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 Science, Public Service, and Sciences and Technology.

<b>Opening Session (9:00 AM – 11:30 AM)</b>	
9:00 AM	Introductory Remarks - Executive Director, Dr. Mary Jo Parker Recognition of the 2022 SRC Co-Chairs & Committee members Recognition of any Special Guests
9:15 AM	Introduction UHD President Dr. Loren Blanchard
9:25 AM	Introduction of STEM Keynote - Dr. Mian Jiang, Associate Professor of Chemistry
9:35 AM	STEM Keynote Address - Dr. Dat Truong, Texas A&M University
10:15 AM	Oral Presentations Begin
11:30 AM	Lunch Break (on own)
<b>Poster Sessions (12:05 PM – 3:30 PM)</b>	
12:05 PM	Poster Sessions Begin
12:15 PM	Session I
2:05 PM	Session II
3:15 PM	Closing Remarks by UHD Interim Provost Dr. Akif Uzman
3:30 PM	2022 Student Research Conference closes

### Conference Co-Chairs:

Dr. Shahnjayla Connors, Assistant Professor, Health and Behavioral Science  
Dr. Mian Jiang, Associate Professor, Natural Sciences

### Conference Planning Committee:

Dr. Liza Alonzo, Director, Alumni Relations, Advancement & University Relations  
Dr. Maria Benavides, Assistant Chair, Natural Sciences Department  
Dr. Maria Bhattacharjee, Associate Professor of Urban Education  
Dr. Youn-Sha Chan, Associate Professor of Mathematics and Statistics  
Dr. Shahnjayla Connors, Assistant Professor, Health and Behavioral Science  
Dr. Weining Feng, Associate Professor, Computer Science and Engineering Technology  
Ms. Mercedes Gonzales, Program Coordinator, UHD Scholars Academy  
Dr. Poonam Gulati Salhotra, Director of the Center for Community Engagement and Service Learning  
Dr. Judith Harris, Associate Professor of Criminal Justice  
Dr. Jillian Hill, Associate Professor of English  
Dr. Katarina Jegdic, Professor, Mathematics, Statistics, & Data Science  
Dr. Mian Jiang, Associate Professor, Natural Sciences  
Dr. Yuan Yuan Kang, Associate Professor of Biology  
Dr. John Linantud, Associate Professor Political Science, Degree Coordinator of Political Science  
Dr. Jeffrey W. Martz, Assistant Professor of Geology  
Dr. Whitney Botsford Morgan, Associate Professor of Management & Insurance Risk Management  
Professor Mitsue Nakamura, Lecturer of Mathematics and SA Peer Mentor Coordinator  
Dr. Mary Jo Parker, Executive Director, UHD Scholars Academy  
Dr. Dvijesh Shastri, Associate Professor of Computer Science & Engineering Technology  
Dr. Katherine Shoemaker, Assistant Professor of Statistics  
Dr. Jorge Tito-Izquierdo, Assistant Professor, Computer Science and Engineering Technology

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).

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

## UHD Alumni Speaker

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**Dat Truong, Ph.D.**  
Senior Scientist - Enzymology  
Solugen, Inc.

**Presentation Title:** A Journey of Chemistry through Undergraduate, Graduate School, and Industry - You can Do This Too!

### Bio-sketch

I obtained my Ph.D. in the field of Biochemistry from the department of Biochemistry and Biophysics at Texas A&M University in May 2020. I have a broad background in biochemistry, with specific training in enzyme evolution and mechanistic enzymology from the laboratory of Dr. Margaret Glasner. During my PhD career, my research focused on understanding the mechanism of how an enzyme could evolve a new function by studying a family of enzyme, in which some members are catalytically promiscuous. I discovered that an enzyme could potentially evolve a new function by a substitution mutation at a second-shell amino acid, which is not in direct contact with the substrates. This second shell amino acid substitution is important for an enzyme to gain a new chemical activity because it could modulate the reactivity of the catalytic residue, without affecting the binding of different substrates. This study was significant because it was one of the first reports that showcased the importance of a second-shell amino acid substitution in allowing an enzyme to evolve a new function. After my Ph.D., I spent 18 months training as a postdoctoral researcher at Bondwell Technologies, LLC in College Station, TX, where I further excellence my expertise in enzymology and recombinant protein expression, purification, analysis, and characterization in both bacteria and yeast. I was leading and in charge of the project of manufacturing pharmaceuticals by biomaterial-based enzyme. The project was funded by the Translational Research Institute for Space Health, which is a part of the NASA Human Research Program. During my time at Bondwell, I successfully immobilized and characterized various enzymes on Bondwell technology bio-based materials. By the end of my training, I managed to make those enzymes to work in tandem to synthesize different target pharmaceuticals, which can be modified for use by astronauts during deep space exploration missions. I am currently working at Solugen, Inc in Houston, TX as a Senior Scientist in Enzymology. At Solugen, my role is to engineer enzymes to synthesize different chemicals from sugars. One of so many reasons why I decided to join Solugen is the company's core belief in global warming and its pursuit in reducing industrial carbon footprint with green chemistry. With my expertise in enzymology, I believe I can scientifically contribute to the research and development at Solugen and help fight the climate change issues.

### Presentation Abstract

I didn't discover my passion for chemistry until I attended University of Houston – Downtown, where I had my very first research experience in the electrochemistry laboratory of Dr. Mian Jiang and in the organic chemistry laboratory of Dr. Robin Jose. Not until I took two semesters of Biochemistry with Dr. Jerry Johnson, I then became fully fascinated by enzymes or protein chemistry. The fact that an enzyme can carry out a reaction with such a high specificity and selectivity made me want to obtain my PhD in Biochemistry and to pursue a career in enzymology. In this talk, I will briefly discuss how the undergraduate research experience that I got at UHD influenced and prepared me for my PhD journey and the transitioning to have a career in biotechnology industry.

## Oral Presentations

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### **1 – Huda Alchikh Omar, “The Role of Drosophila UNC-13 in Alcohol Induced Hyperactivity and Sensitivity”**

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

Project Location: University of Houston - Downtown

Alcoholism is one of the most important psychological problems today. To understand how alcohol changes behavior and brain activity, *Drosophila melanogaster* is one of the genetic model systems used to study the genetic mechanisms underlying alcoholism. When exposed to ethanol, *Drosophila* exhibits addiction-like behavior. However, it is not clear how ethanol affects the presynaptic activity in neurons. One presynaptic protein that binds ethanol is *Drosophila* UNC-13 (DUNC-13). Dunc-13 is an active zone protein that is essential for synaptic vesicle fusion. Ethanol binds Dunc-13 and inhibits the binding of diacylglycerol (DAG), which impairs synaptic vesicle release and results in behavioral and physiological resistance to sedative effects of ethanol. A FlyBar loss of righting assay was used to examine ethanol's sedation effect on Dunc-13 mutant flies compared to the control by measuring the time it takes half of the flies to lose their righting reflex ( $t_{1/2}$ ). The fly Group Activity Monitor Assay (flyGrAM) assay was used to measure the hyperactivity of the same flies when exposed to alcohol. Dunc-13 mutant flies showed more resistance to alcohol sedation, consistent with DUNC-13's role in synaptic release. Furthermore, our preliminary data suggested that the alcohol-induced hyperactivity was also affected in these Dunc-13 flies.

### **2 – Hatoon Badawi, “Variability of Traits Conferring Drought Tolerance in Prairie Grasses Along a Precipitation Gradient”**

Co-Author(s): Alannah Barrera, Huda Alchikh Omar, Arnold Villatoro

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

Project Location: University of Houston - Downtown

Previous research has assumed that the major source of variability of functional traits – clearly defined characteristics of plants that strongly influenced their growth, reproduction, or survival – is among species but functional traits also exhibit variability among the individuals of the same species. We investigated the variability in functional traits associated with drought tolerance in the species *Shcizachyrium scoparium* (little bluestem) across the dramatic east to west precipitation gradient in Texas. The grass was sampled during two time periods, spring and fall of 2021 at five sites along the gradient. We quantified leaf traits including stomatal density, stomatal length and width, and minimal leaf conductance. Our results showed a relationship between stomatal density and precipitation in the spring samples. As rainfall increases going eastwards, the stomatal density decreases. There was no relationship between the stomatal density and precipitation in the fall samples. These results support that there was significant variation in functional traits among individuals of the same species, and that this variability was in some cases related to precipitation.

### **3 – Anna Cybulski, Ani Vu, “Testing Degradation of Biodegradable Plastics”**

Research Mentor(s): **Dr. Poonam Gulati Salhotra**

Project Location: University of Houston - Downtown

The worldwide usage and disposal of plastics has created alarming levels of waste in landfills and water bodies. More than 380 million tons of synthetic plastics are produced annually worldwide, with a decomposition rate of up to 500 years. Research has shown that microbes attach and form biofilms on moist surfaces of plastic waste, raising the possibility that they may assist in the breakdown of the plastic. We are studying biodegradable plastics, which are designed to degrade faster. The studies are being conducted in various soil environments. The polylactic acid plastic samples are cut into 4.5-centimeter diameter pieces and placed in different types of soils. Samples are collected on designated collection dates. The microbial biofilms are scraped off, centrifuged and frozen as pellets. These will be sent for DNA analysis to obtain the identity of the bacteria that may be contributing to the degradation of the plastics. The plastic samples are analyzed for macroscopic changes and with infrared spectroscopy to study chemical changes. Preliminary results show changes in the plastic and chemical modifications. We plan to study the degradation in the university garden bed as well, which could harbor different microbes from plant roots.

### **4 – Caiyi Liu, “Using Therapeutic Chinese Massage to Treat Peripheral Neuropathy in People with Human Immunodeficiency Virus: A Randomized Control Trial Pilot Study”**

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

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

Project Location: AIDS Foundation Houston, Inc.

Peripheral neuropathy (PN), characterized by burning, stiffness, prickling, tingling, and numbness or a loss of feeling in a person's extremities, occurs in half of PHIV. Currently, there is no Food and Drug Administration-approved treatment for PN. Only half of those who take off-label medications report a significant reduction in pain. Sometimes, PN becomes a permanent issue that PHIV live up to. Therapeutic Chinese Massage, structured palpations, or movements of soft tissues of the body, is a promising non-harmful and non-costly intervention that can potentially alleviate or even treat PN, but relevant research is limited.

Thus, we did a randomized control trial pilot study to examine if a series of three weekly 25-minute therapeutic Chinese massages delivered by a massage specialist, compared with three weekly placebo massages could 1) reduce PN-related pain and 2) improve lower extremity functioning in PHIV. We delivered the intervention and collected data of 20 PHIV from the AIDS Foundation Houston, Inc. This study is consistent with the mission of UHD as it dedicates to reaching out and serving the underserved population residing in local communities, promoting students' engagement in scholarly research, and contributing to nursing science.

**5– Robert Lwanga, “Discovering New Compounds for Anti-Cell Proliferation Activity”**

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

Project Location: University of Houston - Downtown

According to the World Health Organization, cancer is a leading cause of death worldwide more specifically in breast cancer. In 2020, there were an estimated 2.3 million cases with an estimated 685,000 deaths due to breast cancer. With more effective chemotherapy drugs that are relatively safer with fewer side effects, there is a chance of lowering these death numbers and improving chemotherapy experience. The purpose of my research is to test effectiveness of newly synthesized 30 analogues of various triazoles (coded PM-series 1-30) on proliferation of MCF-7 cells (Breast cancer cells), and MOLT-4 cells (leukemia cells), and their potential to become future chemotherapy drugs. As of now, I have found that PM compounds 9, 10 and 11 are promising in inhibiting the proliferation of these cancer cell lines. Currently we are investigating if these three compounds induce apoptosis in MOLT-4 cells via the apoptosis necrosis assay. As well as looking at how those compounds affect the cell morphology of MCF-7 cells.

**6 – Kayla Mazariego, “The Effects of Recidivism on Residents in Halfway Homes”**

Research Mentor(s): **Dr. Judith Harris**

Project Location: University of Houston - Downtown

This presentation is an undergraduate study project used to gather information and data on how facilities that are considered transitional step in the release of an offender are helpful for communities by offering programs. One of the many objectives for this project was to gather statistical data on recidivism rates from the state of Texas. Most of the acquired information was found from peer reviews articles and Texas Department of Criminal Justice.

**7 – Bianca Mendoza, “Exploring the link between unsupportive parenting and social media-related self-esteem.”**

Research Mentor(s): **Dr. Kara Winkler**

Project Location: University of Houston - Downtown

This study explored links between unsupportive parenting practices and social media-related self-esteem. Parenting styles have been a commonly known factor for influencing how a person views themselves. In more recent years, social media has also become a factor of influence. The leading problem the present study examines is centered on the relationship between unsupportive parenting and how it impacts whether a person allows social media to affect how they feel about themselves. The study was conducted using a survey research method and participants (N = 39) were retrieved from a convenience sample. The results of the study show that there was a non-significant, weak correlation between the two variables ( $r = .13$ ,  $p > .05$ ). Although results do not indicate a clear association between unsupportive parenting and how much social media affects how a person feels about themselves, unsupportive parenting and social media may still have a strong influence individually.

**8- Stephanie Davis, Rhode Villarreal, “Plastic Recycling at the University of Houston-Downtown”**

Research Mentor(s): **Mr. Juan Martinez, Dr. Lisa Morano, Ms. Shohreh Hashemi**

Project Location: University of Houston - Downtown

Plastic recycling has become an important contributor to minimizing pollution, preserving natural resources, and stimulating the economy, by keeping still good plastics out of the landfill and turning them into new items. The goals of this project were 1) to create signage that would bring awareness about plastic recycling to the UHD community and 2) to create a user-friendly, interactive website that related to how plastic recycling is done on campus. This project resulted in signage that is played on various TV monitors at the UHD, and the website <https://mypartrecycling.wordpress.com> is accessible by the public. This research project has made a positive impact at the university and as more students recycle plastic, with additional signage, repositioning of recycling bins, and educational-interactive student events, recycling will become a social phenomenon at UHD. The Center for Urban Agriculture and Sustainability is very excited about the collaboration between Coca-Cola and the University of Houston-Downtown to further promote plastic recycling at the University and in Houston communities in 2022.

**9 – Sabrina Portilla, Younus Zuberi, “Antibiotic Sensitivities of S. marcescens and E. coli Bacteria in Two Modes of Growth”**

Co-Author(s): Sabrina Portilla

Research Mentor(s): **Dr. Poonam Gulati Salhotra**

Project Location: University of Houston - Downtown

Bacteria are found in a planktonic state (free-floating), or communities known as biofilms. Biofilms are a collection of microbes growing in microcolonies attached on moist surfaces. Planktonic bacteria are less resistant to antibiotics than biofilm bacteria due to differential gene expression and production extra polymeric substances (EPS) in biofilms. *Serratia marcescens* and *Escherichia coli* are gram-negative, rod-shaped bacteria. They are being tested in multi-species cultures against the antibiotic kanamycin. In planktonic cultures, kanamycin was tested using the minimum inhibitory (MIC) and minimum bactericidal concentrations (MBC) assays. Results from previous experiments show that single species planktonic cultures had a MIC of 2 µg/ml and a MBC of 4 µg/ml. The results from mixed species cultures show that the MIC is 4 µg/ml and the MBC is 256 µg/ml. These results reveal that mixed species planktonic cultures have a higher resistance to antibiotics, that could be due the result of a symbiotic relation between the two organisms. The crystal violet colorimetric assay is used to test biofilms. Preliminary results demonstrate that the biofilm is mostly destroyed at 32 – 64 mg/ml kanamycin but starts to recover at higher antibiotic concentrations. This may indicate that the bacteria are helping one another, like the planktonic situation

## Poster Session I: 12:15 - 2:05 PM

1 - **Huda Alchikh Omar**, "The Role of Drosophila UNC-13 in Alcohol Induced Hyperactivity and Sensitivity"

UHD Faculty Mentor: **Dr. Yuan Kang**

Project Location: University of Houston - Downtown

2 - **Hatoon Badawi**, "Variability of Traits Conferring Drought Tolerance in Prairie Grasses Along a Precipitation Gradient"

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

UHD Faculty Mentor: **Dr. Michael Tobin**

Project Location: University of Houston - Downtown

3 - **Anna Cybulski, Ani Vu**, "Testing Degradation of Biodegradable Plastics"

UHD Faculty Mentor: **Dr. Poonam Gulati Salhotra**

Project Location: University of Houston - Downtown

4 - **Nichole Dukett**, "Synthesis and Characterization of Catanionic Surfactants with Polymerizable Alkene Moieties"

UHD Faculty Mentor: **Dr. Robin Jose**

Project Location: University of Houston - Downtown

5 - **Christina Estrada**, "Genetic Identification of Kidney Worms in Bowhead Whales"

UHD Faculty Mentor: **Dr. Amy Baird**

Project Location: University of Houston - Downtown

6 - **Emily Fritsche**, "Population Structure of Bowhead Whales Using MTDNA Sequences"

UHD Faculty Mentor: **Dr. Amy Baird**

Project Location: University of Houston - Downtown

7 - **Austin Harmon**, "Quantification of Alcohols Using Headspace GC-MS"

UHD Faculty Mentor: **Dr. Jacob Theruvathu**

Project Location: University of Houston - Downtown

8 - **Carmen Hernandez, Sarah Robinson**, "Screening Compounds for Anti-proliferative Properties"

Co-Authors: **Carmen Hernandez**

UHD Faculty Mentor: **Dr. Rachna Sadana**

Project Location: University of Houston - Downtown

9 - **Omar Khan, Jennifer Nguyen, Leonardo Tenorio**, "Cloning the C-terminus Fragment of PilA in Myxococcus Xanthus."

UHD Faculty Mentor: **Dr. Gabriela Bowden**

Project Location: University of Houston - Downtown

10 - **Robert Lwanga**, "Discovering New Compounds for Anti-Cell Proliferation Activity"

UHD Faculty Mentor: **Dr. Rachna Sadana**

Project Location: University of Houston - Downtown

11 - **Nhat Mai**, "Synthesis of an N-alkyl Substituted Aniline for the Preparation on Methyl Orange Derived Surfactants"

UHD Faculty Mentor: **Dr. Robin Jose**

Project Location: University of Houston - Downtown

12 - **Evelyn Martinez, Joel Osegueda**, "Rapid Tolerance in Drosophila Melanogaster"

UHD Faculty Mentor: **Dr. Yuan Kang**

Project Location: University of Houston - Downtown

13 - **Michelle Martinez, Tomas Osoreo** "Observing locomotive activity in Drosophila using the Drosophila Monitor (DAM) system"

UHD Faculty Mentor: **Dr. Yuan Kang**

Project Location: University of Houston - Downtown

14 - **Christina Nguyen**, "Testing Pine Oil as a Bio-friendly Substitute for Xylene in Histological Staining Techniques"

Co-Authors: **Naghme A. Foroghi, Taylor H. Nguyen**

UHD Faculty Mentor: **Dr. Adriana P. Visbal**

Project Location: University of Houston - Downtown

15 - **Cynthia Luna, Taylor Nguyen**, "Lemon Oil as a bio-friendly alternative to Xylene in histological processing of H&E Staining"

Co-Authors: **Guadalupe Calderon, Tyrese Hamm, Cynthia Luna, Claudia Rivas**

UHD Faculty Mentor: **Dr. Adriana P. Visbal**

Project Location: University of Houston - Downtown

16 - **Lucille Owens**, "Genetic Relatedness of Common Oyster Mushroom Varieties"

Co-Authors: **Alejandra B. Parra**

UHD Faculty Mentor: **Dr. Lisa Morano**

Project Location: University of Houston - Downtown

17 - **Sabrina Portilla, Younus Zuberi**, "Antibiotic Sensitivities of *S. marcescens* and *E. coli* Bacteria in Two Modes of growth"

Co-Authors: **Sabrina Portilla**

UHD Faculty Mentor: **Dr. Poonam Gulati Salhotra**

Project Location: University of Houston - Downtown

18 - **Cristina Reyes**, "Computational studies of Hexamine Cobalt(III) chloride to support its thermal analysis"

UHD Faculty Mentor: **Dr. Maria Benavides**

Project Location: University of Houston - Downtown

19 - **Elizabeth Rosa, Julio Aleman**, "Solar Powered Water Filtration"

Co-Author: **Julio Aleman**

UHD Faculty Mentor: **Mr. Juan Martinez, Dr. Lisa Morano, Dr. Vassilios Tzouanas**

Project Location: University of Houston - Downtown

20 - **Ghazal Shareghi**, "Computational Analysis on Mn (III) Porphyrins using DFT method"

UHD Faculty Mentor: **Dr. Maria Benavides**

Project Location: University of Houston - Downtown

21 - **Riyasa Shrestha**, "Synthesis and Characterization of New Ball-Type Phthalocyanines with Fluorinated Linkers"

UHD Faculty Mentor: **Dr. Eszter Trufan**

Project Location: University of Houston - Downtown

22 - **Tram Tran**, "Molecular Phylogenetics of Central American Shrews"

UHD Faculty Mentor: **Dr. Amy Baird**

Project Location: University of Houston - Downtown

23 - **Tram Tran**, "Earth and Solar Cell Batteries"

UHD Faculty Mentor: **Dr. Mian Jiang**

Project Location: University of Houston - Downtown

24 - **Angela Vasquez**, "Home-based: Microbial Fuel Cells"

UHD Faculty Mentor: **Dr. Mian Jiang**

Project Location: University of Houston - Downtown

25 - **Rhode Villarreal, Stephanie Davis**, "Plastic Recycling at the University of Houston-Downtown"

UHD Faculty Mentor: **Mr. Juan Martinez, Dr. Lisa Morano**

Project Location: University of Houston - Downtown

26 - **Filomena Zau**, "Various metal based alkaline batteries: Preparation and characterization"

UHD Faculty Mentor: **Dr. Mian Jiang**

Project Location: University of Houston - Downtown

## Poster Session II: 2:05 - 3:15 PM

27 - **Danny Abasolo, Rosa Gomez**, "Structural Testing Frame"

UHD Faculty/Mentor: **Dr. Jorge Tito-Izquierdo**

Project Location: University of Houston - Downtown

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28 - **Older Aguilar**, "The synthesis of chiral monomers derived from BINOL and their characterization using spectroscopic and analytical techniques."

Co-Authors: **Dr. Maria Benavides**

UHD Faculty Mentor: **Dr. Maria Benavides, Dr. Robin Jose**

Project Location: University of Houston - Downtown

29 - **Andy Arce**, "Game development for the growth of cognitive skills"

UHD Faculty Mentor: **Dr. Ling Xu**

Project Location: University of Houston - Downtown

30 - **Afaf Atiyah, Ha Do**, "Extracting and isolating anti-cancer components found in Solanum Nigrum Leaves and Curcuma longa"

UHD Faculty Mentor: **Dr. Jacob Theruvathu**

Project Location: University of Houston - Downtown

31 - **Estefania Alvarez**, "Synthesis and Characterizations of Ball-Type Phthalocyanines containing zinc centers and fluorinated peripheral linkers"

UHD Faculty Mentor: **Dr. Eszter Trufan**

Project Location: University of Houston - Downtown

32 - **Jeff Cayax, Aracely Lopez**, "Synthesis and Characterization of Catanionic Surfactant with Polymerizable Acrylate Unit"

Co-Author: **Satya Mehta**

UHD Faculty Mentor: **Dr. Robin Jose**

Project Location: University of Houston - Downtown

33 - **Celia Canga**, "The effect of temperature on the properties of Oil Shale."

UHD Faculty Mentor: **Dr. Janusz Grebowicz**

Project Location: University of Houston - Downtown

34 - **Anh Do, Bhagwat Dhakal, Agda Helena Esperanza, Karen Ni, Huy Pham**, "Flower Website"

Co-Authors: **Bhagwat Dhakal, Agda Helena Esperanza, Karen Ni, Huy Pham, Ting Zhang**

UHD Faculty Mentor: **Dr. Ting Zhang**

Project Location: University of Houston - Downtown

35 - **David Forsman**, "Computational study of Mn(III)Porphyrins with pharmacological and medical imaging applications using Density Functional Theory (DFT)"

UHD Faculty Mentor: **Dr. Maria Benavides**

Project Location: University of Houston - Downtown

36 - **Sarah Frizzell**, "Completing a Shortened Positive Psychology Course Improves Students' Subjective Well-Being"

Co-Authors: **Dr. Kit W. Cho**

UHD Faculty Mentor: **Dr. Kit W. Cho**

Project Location: University of Houston - Downtown

37 - **Noah Galloway, Karen Alvarez, Angelica Palmer**, "Association between insomnia and depression: The moderating role of resilience among law enforcement officers"

Co-Authors: **Karen Alvarez, Angelica Palmer**

UHD Faculty Mentor: **Dr. Danya M. Serrano**

Project Location: University of Houston - Downtown

38 - **Riley Hardwick, Irvin Solano-Teran**, "Combatting Climate Change in the Energy Sector: Development of an Affordable, Solar-Powered, Mobile-Device Charging System"

UHD Faculty Mentor: **Mr. Juan Martinez, Dr. Lisa Morano, Dr. Vassilios Tzouanas**

Project Location: University of Houston - Downtown

39 - **Katelyn King**, "Computational Studies of Recently Synthesized Compounds with Forensic Science Application"

UHD Faculty Mentor: **Dr. Maria Benavides**

Project Location: University of Houston - Downtown

40 - **Caiyi Liu**, "Using Therapeutic Chinese Massage to Treat Peripheral Neuropathy in People with Human Immunodeficiency Virus: A Randomized Control Trial Pilot Study"

Co-Authors: **Linda Dune, Lucy Ndubuisi, Carlota Sweeney, Zhe Wei, Min Xing**

UHD Faculty Mentor: **Dr. Song Ge**

Project Location: AIDS Foundation Houston, Inc.

41 - **Lesby Mayorquin**, "Socioeconomic Influences on Healthcare for Hispanic/Latino and African Americans"

UHD Faculty Mentor: **Dr. Claude Rubinson**

Project Location: University of Houston - Downtown

42 - **Kayla Mazariago**, "The Effects of Recidivism on Residents in Halfway Homes"

UHD Faculty Mentor: **Dr. Judith Harris**

Project Location: University of Houston - Downtown

43 - **Bianca Mendoza**, "Exploring the link between unsupportive parenting and social media-related self-esteem."

UHD Faculty Mentor: **Dr. Kara Winkler**

Project Location: University of Houston - Downtown

44 - **Genavieve Morales**, "Does The U.S. Respect the Sovereignty of Other Countries?"

UHD Faculty Mentor: **Dr. John Linantud**

Project Location: University of Houston - Downtown

45 - **Kortnie Powe**, "Understanding the Importance of Social Support During the Grief Process"

UHD Faculty Mentor: **Dr. Kara Winkler**

Project Location: University of Houston - Downtown

46 - **Irene Prado**, "Distributed Automation with IEC61499 Standard"

UHD Faculty Mentor: **Dr. Weining Feng**

Project Location: University of Houston - Downtown

47 - **Ryan Price**, "Systematic and Stratigraphic Significance of a Leptosuchomorph Phytosaur (Archosauriformes) from the Dockum Group (Upper Triassic) of western Texas"

Co-Author: **Dr. Jeffrey W. Martz**

UHD Faculty Mentor: **Dr. Jeffrey W. Martz**

Project Location: University of Houston - Downtown

48 - **Eusebio Rodriguez**, "Battery Study - State of Health Evaluation"

UHD Faculty Mentor: **Dr. Weining Feng**

Project Location: University of Houston - Downtown

49 - **Tai Quach, Hai Trinh**, "Research on Android E-Learning Application Development"

UHD Faculty Mentor: **Dr. Ling Xu**

Project Location: University of Houston - Downtown

50 - **Naomi Santamaria**, "An Investigation of Romantic Partners Use of Computer Mediated Communication for Conflict Resolution"

UHD Faculty Mentor: **Dr. Kara Winkler**

Project Location: University of Houston - Downtown

51 - **Christina Sterna**, "Preliminary Results of the Big Bend Ranch State Park's Fault Scarps and Volcanic History"

Co-Author: **Dr. Sarah Heinlein**

UHD Faculty Mentor: **Dr. Sarah Heinlein**

Project Location: University of Houston - Downtown

53 - **Stephen Trippy**, "Food and Earning in Space City: Automating a Data Pipeline to Examine Relationships Between Restaurant Price and Income Levels in Harris County"

UHD Faculty Mentor: **Dr. Katherine Shoemaker**

Project Location: University of Houston - Downtown

54 - **Bryan Tuck**, "Evaluation of Twitter Bot Detection through Semantic Representations and Deep Learning"

UHD Faculty Mentor: **Dr. Benjamin Soibam**

Project Location: University of Houston - Downtown

## Graduate Level Project:

52 - **Sahithi Latha Sunkishala**, "Generative Adversarial Networks to increase DNA data size and discover RNA recognition patterns of CTCF"

UHD Faculty Mentor: **Dr. Benjamin Soibam**

Project Location: University of Houston - Downtown

## Acknowledgments

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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 21<sup>st</sup> Annual UHD Student Research Conference.**

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

Texas Workforce Commission (2818WPB001)  
U.S. Nuclear Regulatory Commission (Award No. NRC-HQ-12-G-38-0006)  
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