

Symposium Schedule – Friday, April 16, 2021

Morning Presentation Session
9:00 – 10:00 a.m.

Faculty Moderator: Dr. John Smith

“Better system for detecting, revising and confirming Java program security bugs” – Chunyang Tang
Faculty Sponsor: Dr. Young Lee

“Legendre's Theorem” – Bruce McOsker
Faculty Sponsor: Dr. Jingbo Liu

“Biological Branching Patterns explained by Fractal Geometry Theory” – Victoria Lucero
Faculty Sponsor: Dr. Kun Gou

Register for This Session

<https://tamusa.zoom.us/meeting/register/tjYkdemsrzorGdVUDOcDtW7vwszFLMmEpxjU>

Once you register, you will receive a link and password to the session; make sure to add to your calendar!

Morning Poster Session
10:00 – 11:00 a.m.

Faculty Moderator: Dr. Amy Bohmann

“How fictional pandemics reflect a real-life understanding of the science of illness” – Andrew Klebahn
Faculty Sponsor: Dr. Jackson Ayres

“Predicting University Students' Volunteerism” – Luis Perez
Faculty Sponsor: Dr. Amy Bohmann

“Dual Task Facilitation May Improve the Identification of Missing Persons” – John Whitehorn and Rolando Guerrero Camacho
Faculty Sponsor: Dr. Dawn Weatherford

“The N250 as an Index of Criminal Face Familiarity” – Alonna Rios, Audrie Cabrera, and Nikai Hinojosa
Faculty Sponsor: Dr. Mario Baldassari

Register for This Session

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Special Workshop Session
How to Apply for PhD Programs
Faculty Presenters: Dr. Weixing Ford and Dr. Ho Huynh
11:00 a.m. – 12:00 p.m.

Register for This Session

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Keynote Speaker
12:00– 1:00 p.m.

Introduction: Dr. Vijay Golla

Speaker
Mr. Branson P. Brockschmidt
Research Engineer, Manufacturing and Robotic Technologies
Southwest Research Institute

“How Recent Advancements Allow Robots to Perform Complex Tasks”

Mr. Brockschmidt is a robotics research engineer at Southwest Research Institute. He has worked on a variety of projects that range from developing a robot to print graphics on airplanes to building small tools for handling delicate food products. Mr. Brockschmidt holds a degree from North Carolina State University in Mechanical Engineering.

Register for This Session

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Afternoon Presentation Session

1:45 – 3:00 p.m.

Faculty Moderator: Dr. Ho Huynh

“The Inescapable Death of a Culture” – Deborah Hoggard

Faculty Sponsor: Dr. Jackson Ayres

“Spanish Flu of 1918” – Jacob Monteverdi

Faculty Sponsor: Dr. Amy Porter

“Increasing Public Access to Holistic Wellness through Social Media” – Melisa Arroyo

Faculty Sponsor: Dr. Tamara Hinojosa

“A Conceptualization of Physician Humility from the Patient's Perspective” – Caitlyn Nelson

Faculty Sponsor: Dr. Ho Huynh

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Afternoon Poster Session

3:00 – 4:00 p.m.

Faculty Moderator: Dr. Dawn Weatherford

“COVID Oral History Project” – Tyler Rhea and Rafika Islam

Faculty Sponsor: Dr. Sandra Lara

“Go Green: The Psychological and Physiological Benefits of Natural Environments” – Gabrielle Thompson, Dylan Escalante, Nadia Padron, Nikai Hinojosa, Cody Lace, Joanna Martinez Gutierrez, Mark Torres, and Payton Davis

Faculty Sponsor: Dr. Dawn Weatherford

“Building Bridges to Improve Social Communication in Children with Autism Spectrum Disorder” –

Shanna Nunez, Jessica Lazcano Trevino, Madeleine Anderson, and Asbel Ramos

Faculty Sponsor: Dr. Dawn Weatherford and Dr. Theresa Garfield

“Does Naming Induce Anthropomorphism?” – Aisha Abdirahman, Payton Davis, Jude De La Cruz, Itiel Huerta, Henry Milner, Gabriella Pena, and Gabriella Ruiz

Faculty Sponsor: Dr. Alan Daniel

Register for This Session

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Once you register, you will receive a link and password to the session; make sure to add to your calendar!

Evening Presentation Session

4:30 – 5:30 p.m.

Faculty Moderator: Dr. Scott Peters

“Towards implementing SDN-based security controls” – Michael Alicea

Faculty Sponsor: Dr. Izzat Alsmadi

“Encouraging Secure Attachments for the Treatment of Hypersexual Disorders” – Cassandra Jones

Faculty Sponsor: Dr. Scott Peters

“The Effects of Jim Crow in the Modern Era: From the Abolishment of Slavery to Mass Incarceration” – Dominique Katauskas

Faculty Sponsor: Dr. William Kiser

Register for This Session

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Once you register, you will receive a link and password to the session; make sure to add to your calendar!

Evening Poster Session

5:30 – 6:30 p.m.

Faculty Moderator: Dr. Theresa Garfield

“Comparing Interventions for Children with Autism Spectrum Disorders A Literature Review Synthesis” – Jessica (Asia) Steinhauser

Faculty Sponsor: Dr. Theresa Garfield

“Special Education in the Time of COVID-19” – Lucia Luna and David Luna

Faculty Sponsor: Dr. Theresa Garfield

“Nanotechnology mediated bee venom: applications in rheumatoid arthritis” – Lydia Smith

Faculty Sponsor: Dr. Sayantan Das

“Is Moral Judgment the Key to Conflict Styles?” – Madison Valdez

Faculty Sponsor: Dr. Amy Bohmann

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Texas A&M University San Antonio

2021 Student Research Symposium Abstracts

Oral Presentations			
Student Names	Title	Faculty Sponsor	College
Michael Alicea	Towards implementing SDN-based security controls	Dr. Izzat Alsmadi	College of Business
<p>Maintaining proper access control rules is a crucial part to running any network. When a network administrator sets up access controls, it is important that they perform tests to ensure that the policies they implement work as they intended. Additionally, those access control rules should not conflict with each other and should ultimately protect all system resources. When changes are made to a network, it is important to test the access control policies again to ensure they still work as originally intended. In this scope, our thesis intends to accomplish the following three goals: first, to create a program that can automatically check for rule misconfiguration in system firewalls; second, to create a program that can generate access control rules based on real time threats; third, generate traffic that can frequently test the effectiveness of our access control rules.</p>			
Melisa Arroyo	Increasing Public Access to Holistic Wellness through Social Media	Dr. Tamara Hinojosa	College of Education
<p>Humans are a multifaceted species with numerous wants, needs, and interests. Holistic approaches to wellness foster a well-rounded lifestyle by addressing the multifaceted needs of the entire person, rather than focusing on one specific aspect. For this presentation, holistic wellness is defined using the University of Michigan’s Eight Dimensions of Wellness (2012), which includes (1) spiritual, (2) intellectual, (3) emotional, (4) physical, (5) occupational, (6) financial, (7) social, and (8) environmental health. Although research indicates that integrating these eight dimensions is beneficial, most human service professionals (e.g., doctors, counselors, financial advisors) focus on their areas of expertise and neglect the other dimensions. This presentation includes strategies to increase public access to the eight dimensions of wellness using social media (i.e., YouTube, Facebook, and applications). Attendees will walk away with general knowledge about the eight dimensions of wellness and how to use social media to promote, sustain, and manage holistic wellness.</p>			
Deborah Hoggard	The Inescapable Death of a Culture	Dr. Jackson Ayres	College of Arts and Sciences
<p>This essay considers the impact of Dylan Thomas’ poem, “The Force the Through the Green Fuse Drives the Flower;” and how the poem’s imagery relates to and explains the death of the Welsh culture. It notes that while Thomas uses the opposing forces within living creatures, nature, and divine myths to display the balance between life and death, his poem also brings awareness to his own Welsh culture being slowly extinguished as the English language and culture continues to invade Wales. The imagery in this poem alludes to Thomas’ own life as a Welsh man who only speaks and writes in English. The essay concludes by realizing that there is an inevitable shift in the Welsh culture as his poem relates time to destruction, and that eventually, all things must come to an end.</p>			
Cassandra Jones	Encouraging Secure Attachments for the Treatment of Hypersexual Disorders	Dr. Scott Peters	College of Education
<p>Hypersexual disorders result in people struggling to control their sexual compulsions so much that they suffer consequences (often interpersonal) from the behaviors they employ to meet their urges. Mental health counseling services based on attachment theory has been suggested as effective for various mental health issues. Recent findings suggest including hypersexual disorders to this list. To gauge the progress of this treatment strategy’s influence in the clinical counseling field, a systematic literature review was initiated. Two search algorithms were designed, one for literature searches within the A&M-SA library database system and one for use on the Google Scholar platform. The existing literature shows a selection of qualitative studies and aligns with the counseling thesis that nurturing healthy interpersonal connections is more effective than treatments that focus on guilt and shame. However, quantitative evidence and controlled studies are limited.</p>			
Dominique Katauskas	The Effects of Jim Crow in the Modern Era: From the Abolishment of Slavery to Mass Incarceration	Dr. William Kiser	College of Arts and Sciences

<p>This research demonstrates how Jim Crow Era laws, despite having been rescinded, continue to affect educational opportunities, socio-economic status, and the racial profiling of African Americans. My argument focuses on three key aspects that affect the Black community: laws, politics, and socialization. Utilizing a variety of primary sources, including Supreme Court cases and Bureau of Justice statistics, this research aims to expose the ongoing societal flaws that have made life arduous for African Americans, from the abolition of slavery in 1865 to the mass incarceration of the modern era. Even though legislative equality has been achieved in the United States, the fight for social justice has not only continued but expanded in recent years. As civil unrest proliferates throughout the country, it is critical that people become educated on the complex history of race and social justice as they pursue a greater semblance of equality and equity.</p>			
Victoria Lucero	Biological Branching Patterns explained by Fractal Geometry Theory	Dr. Kun Gou	College of Arts and Sciences
<p>Biological spatial patterns exist widely in nature, and this kind of phenomena can be explained by a mathematical theory called fractal geometry. This talk reviews current trends of research in fractal geometry and examines how it can be applied to interpret organic branching systems in nature. We will demonstrate how fractals are defined, and how they are used to reveal the geometrical patterns appearing in biological structures. The specific biological process of branching systems will be examined for their fractal properties. This study would be novel in its effort to determine if the optimization of coverage by a biological structure is achieved by fractal properties.</p>			
Bruce McOsker	Legendre's Theorem	Dr. Jingbo Liu	College of Arts and Sciences
<p>As part of our research into the representation theory of quadratic forms we take a look at the famous Legendre's Theorem in number theory regarding ternary quadratic forms. Namely that the Diophantine equation $ax^2+by^2+cz^2=0$ with a, b and c are non-zero, squarefree and pairwise coprime integers, has non-trivial solutions if and only if the following criteria are met: a, b and c do not all have the same sign. $-bc, -ac$ and $-ab$ are quadratic residues of a, b and c respectively. In our talk we attempt an alternate proof of this theorem using Local-Global Principle, Hasse invariant and Jacobi symbol.</p>			
Jacob Monteverdi	Spanish Flu of 1918	Dr. Amy Porter	College of Arts and Sciences
<p>The Spanish Flu pandemic of 1918 was a catastrophic pandemic that ravaged the early modern era but has largely been overshadowed by the other major events of the 20th century, especially World War I. Since the end of the Spanish Flu epidemic in early 1919, there has not been a disease that has swept across the world in a similar way, until the 2020 Covid-19 outbreak. This study seeks to focus on the conditions, response and ultimately the fallout and effects of the Spanish Flu using recorded accounts and archived documents. Ultimately, the research is intended to ask the question if the study of an outbreak that happened just over a hundred years ago can aid us in understanding pandemics today.</p>			
Caitlyn Nelson	A Conceptualization of Physician Humility from the Patient's Perspective	Dr. Ho Huynh	College of Arts and Sciences
<p>Previous research indicates that humble doctors have positive effects on patients' health including increased trust and better adherence to medical advice. However, current research also lacks insight into what humble behaviors look like from a patient's perspective. In this paper, participants ($N = 326$) were asked to describe their experiences with their humble, or not humble, doctors. Afterwards, a thematic analysis was used to create codes that were ultimately used to extrapolate overarching themes of humility from the patient's responses. From this analysis, five themes were revealed: Friendliness/Approachability, Patient focus, Respect for patient, Knowledge/Acknowledgement of limitations, and Mannerisms/ Nonverbal communication. These themes were also found to correlate with traditional themes of humility such as low self-focus and egalitarian beliefs.</p>			
Chunyang Tang	Better system for detecting, revising and confirming Java program security bugs	Dr. Young Lee	College of Business
<p>Finding a better tool to help write Java code has been the focus of recent decades. Static analysis programs for source code inspection have been proven to be quite useful in developing software processes and mentoring programming beginners. The static analysis tool, SpotBugs, can identify potential Java software bugs or security leaks without running the software. However, the analysis results are hard to understand and contain many false positives. This research proposes an equivalent-mutant-method with 1) an easier-to-understand description for security leaks, 2) a code correction suggestion, 3) equivalent code logic using a mutant-based approach. Command-line-interface version of this proposed framework is expected to be developed soon.</p>			

Poster Presentations			
Student Names	Title	Faculty Sponsor	College
Aisha Abdirahman, Payton Davis, Jude De La Cruz, Itiel Huerta, Henry Milner, Gabriella Pena, and Gabriella Ruiz	Does Naming Induce Anthropomorphism?	Dr. Alan Daniel	College of Arts of Sciences
The Unique-Naming Effect (UNE) is a newly discovered phenomenon in which an individual tends to prefer an entity that they have given a proper name over other identical entities. The UNE is not easily explained using ownership or emotional attachment as previous literature would suggest. The present study explores whether anthropomorphism, the tendency to ascribe human characteristics to nonhuman or inanimate entities, explains why individuals would prefer unique named entities. If naming an object induces anthropomorphism, then it would be expected that those with a lower propensity toward anthropomorphism would show less preference for the named entity, and the named entity should be viewed more anthropomorphically than other similar entities. Experiments were conducted to test these hypotheses, with implications for the UNE and the literature on anthropomorphism.			
Andrew Klebahn	How Fictional Pandemics Reflect a Real-life Understanding of the Science of Illness	Dr. Jackson Ayres	College of Arts and Sciences
This essay reads James Joyce's <i>The Dead</i> (1914) to understand how fictional pandemics reflect real life understanding of the science of illness. <i>The Dead</i> is revered as one of the best demonstrations for studying the essential elements of modernist movement literature, with its exploration of cognitive dissonance. Joyce invites readers into the mind of a winter storm of self-censorship amongst a pandemic made of snow and a misconstrued comprehension of infectious diseases. The explosive modernist movement transformed the real life understanding of the science of illness into an emotional impact of contracting the romanticism of an artist's disease that ignites inwardness of an imaginative and experimental literary masterpiece.			
Lucia Luna and David Luna	Special Education in the Time of COVID-19	Dr. Theresa Garfield	College of Education
The Individuals with Disabilities Act (IDEA), Part B Implementation, describes how State Educational Agencies (SEAs) and Local Educational Agencies (LEAs) must provide a free and appropriate public education (FAPE) and delineates guidance to provide FAPE, and can be applied to students with disabilities during the national pandemic. The pandemic created a national shut down and now education agencies are facing challenges in ensuring that students with disabilities are receiving a meaningful academic instruction that will not be in violation of (FAPE). Regardless of how academic instruction is delivered, whether it be remote, in person, or hybrid, educators are faced with the problem in ensuring that all students have the proper access to FAPE to ensure academic success. This presentation will provide an overview of litigation and legislation related to FAPE, guidance from the Department of Education, and resources for educators to provide legally mandated special education to students with IEPs.			
Shanna Nunez, Jessica Lazcano Trevino, Madeleine Anderson, and Asbel Ramos	Building Bridges to Improve Social Communication in Children with Autism Spectrum Disorder	Dr. Dawn Weatherford and Dr. Theresa Garfield	College of Arts and Sciences
Professionals are implementing an intervention that has not yet been empirically evaluated to reduce substantial deficits in social emotional communication (e.g., avoiding eye contact, failing to react to non-verbal cues, and overlooking body language) in individuals with autism spectrum disorder (IwASD). As several studies support early intervention reduces these deficits, our research aims to establish an empirical basis for the use of one such intervention, Milo the humanoid robot. Recruited participants will take facial expression recognition and social understanding measures (i.e., Let's Face It! - Adapted; [LFI]-A) and the Social Responsiveness Scale-Second Edition [SRS-2]) before and after a six-week training session. We hypothesize the intervention will improve emotional understanding, depicted by greater post-intervention scores on the LFI-A! and the SRS-2, compared to baseline scores. As Milo is currently used by educators and interventionists, this study may substantiate its continued use and identify areas of improvement deemed most beneficial for IwASD.			
Luis Perez	Predicting University Students' Volunteerism	Dr. Amy Bohmann	College of Arts and Sciences

<p>Has Covid-19 affected volunteer behaviors in students? We hypothesized that gender, demographics, and motivational factors measured via the Volunteer Functions Inventory (VFI; Clary et al., 1998) predict student volunteerism during a pandemic. A pilot study conducted with 46 participants demonstrated no statistical significance ($\chi^2(9) = 5.46, p > .05$) in motivational factors and volunteerism. A follow up study is being conducted that contains additional VFI factors and new demographic questions, based on the limitations of the pilot study.</p>			
Tyler Rhea and Rafika Islam	COVID Oral History Project	Dr. Sandra Lara	College of Arts and Sciences
<p>Historians have placed the infectious COVID-19 virus in the cannon of the 1918 Flu Pandemic that also traveled worldwide and affected a large part of the global population. Coronavirus cases appeared in the United States starting in January of 2020. Over time, the pandemic forced society and various public, private, and federal institutions to lockdown, quarantine, and respond to the virus, severely limiting the movement of millions of people worldwide. This session seeks to capture the effects of COVID-19 on the students and community that surrounds TAMUSA. What were the community's lived experiences? How did the 7th largest city in the United States survive and endure the Coronavirus pandemic? The works presented are part of a broader effort to build a digital depository to house COVID-19 artifacts.</p>			
Alonna Rios, Audrie Cabrera, and Nikai Hinojosa	The N250 as an Index of Criminal Face Familiarity	Dr. Mario Baldassari	College of Arts and Sciences
<p>Witnesses sometimes refuse to identify a culprit to the police due to fear, allegiance, or physical inability. We have previously shown that the P300-based Guilty Knowledge Test may be a useful lie detection test for eyewitness identification, but the possible use of the N250 as an index of face familiarity has not been tested in this context. Participants were shown a crime video twice to maximize exposure. Then, they studied a new face to a criterial recognition performance. These two faces were later repeatedly presented intermixed with ten new faces in an oddball paradigm. We instructed half of participants to "lie" by not identifying the culprit overtly. We anticipated N250 amplitudes would be larger to the criminal and the studied faces than to the new faces, which would enable classification of the reactions to criminal's face as lineup identifications or rejections.</p>			
Lydia Smith	Nanotechnology mediated bee venom: applications in rheumatoid arthritis	Dr. Sayantan Das	College of Arts and Sciences
<p>Bee venom has made medicinal progress with the Human Immunodeficiency Virus and cancer treatment. However, bee venom has made little progress in treating Rheumatoid Arthritis, in which this therapy is rooted. This substance is both simple and complex in chemical structure, and a few significant obstacles are limiting the effectiveness of the venom. Primarily, the non-specific cytotoxicity of the venom negatively affects the surrounding cells of the target, and the known degradation of bee venom, before it reaches the target cells, reduces the potency. One promising way to circumvent these issues would be through nanotechnology. Nanoparticles have a high surface area and, in conjunction with proper functionalization, can be used to derive the venom into an effective treatment for Rheumatoid Arthritis. The primary goal of this work is to study contemporary nanoparticles used in drug delivery and do a comparative study to develop a viable clinical treatment for Rheumatoid Arthritis.</p>			
Jessica (Asia) Steinhauer	Comparing Interventions for Children with Autism Spectrum Disorders A Literature Review Synthesis	Dr. Theresa Garfield	College of Education
<p>Autism spectrum disorder (ASD) is a developmental disorder that effects communication and behavior. When asked about their opinions, parents get overwhelmed with the massive number of therapies and interventions available for children with ASD. Additionally, there are pharmacological options that can be mixed and matched with traditional therapies until results may become convoluted. This systematic literature review examines 23 peer-reviewed papers, each addressing a different method for improving social skills in children with ASD. With the needs of parents held foremost in mind, the scholarly papers are divided into three categories of interventions that would benefit parents' decision making pertaining to ASD therapies: those done at school, those done with therapists, and medical interventions.</p>			
Gabrielle Thompson, Dylan Escalante, Nadia Padron, Nikai Hinojosa, Cody Lace, Joanna Martinez Gutierrez, Mark Torres, and Payton Davis	Go Green: The Psychological and Physiological Benefits of Natural Environments	Dr. Dawn Weatherford	College of Arts and Sciences

<p>As the world becomes increasingly urbanized, natural environments may enhance learning when purposefully integrated into academic spaces. Previous research suggests that natural environments benefit a wide range of cognitive outcomes such as the Attention Restoration Theory (ART). ART suggests that nature restores more goal-directed cognitive processes that require substantial attentional and metabolic resources. In order to test ART, fifty participants will complete cognitive tests and provide salivary samples while sitting in an indoor space covered with or without natural features. We predict that participants in natural environments will show a decrease in stress level indicators and improved performance on cognitive tasks. Potential results could inform substantial changes to indoor learning environments. Classrooms and offices often require an intense amount of focus and attention. If educators and employers incorporate natural features in their focus intended spaces, individuals could benefit from the effects of ART.</p>			
Madison Valdez	Is Moral Judgment the Key to Conflict Styles?	Dr. Amy Bohmann	College of Arts and Sciences
<p>Having an adaptive conflict style is crucial for all fields, as human interactions are very important. An increase in stress and anxiety, with a decrease in productivity and satisfaction can be the result of managing conflict poorly. Previous studies have been conducted that examine moral developmental stages and conflict handling styles (Chow & Ding, 2002). Their findings showed that stages of moral development indicated a significant association with conflict styles. Therefore, the present study investigates the relationship between moral development and conflict styles to further understand conflict resolution in relationships. Participants will complete the Rahim Organizational Conflict Inventory-II scores (ROCI-II; Rahim, 1983) and the Visions of Morality Scale (VMS; Shelton & McAdams, 1990). We expect to better understand whether an advanced moral development is related to preferred conflict style by examining correlations between moral development and the five conflict styles measured on Rahim's scale.</p>			
John Whitehorn and Rolando Guerrero Camacho	Dual Task Facilitation May Improve the Identification of Missing Persons	Dr. Dawn Weatherford	College of Arts and Sciences
<p>Police commonly call upon the public to aid in the search for missing persons by posting picture/video alerts. However, previous research suggests these alerts are ineffective, unless participants devote large amounts of attention to a strategic search at the expense of other goals. Nevertheless, creating a dual task for a related target (i.e., another rare event) might enhance attentional focus and increase the likelihood of identifying a missing persons. Across 80 trials, participants will complete an ID matching task to determine if presented IDs are authentic or fake. Then, participants will perform the same task while also searching for a missing person presented in an alert. We predict that participants will identify more fake IDs and missing persons when both tasks are combined, compared to the ID matching task alone. This experiment may aid police in determining how to implement effective missing person's alerts.</p>			