



Student Research Conference
Oral Presentation Abstracts
Thursday, March 4, 2021

- Behavioral and Social Sciences
- Business, Economic, and Public Administration
- Engineering and Computer Sciences
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Behavioral and Social Sciences

Helen Chan, Kimberly Ayala, Sabrina Belen, Christina Chu, Graduate Student

The Ethnicity of Occupational Therapists in Southern California: Experiences in the Workplace and with Clients

Faculty Mentor: Sheryl Ryan, Occupational Therapy

According to the U.S. Department of Health and Human Services (2017), White healthcare workers comprise 64.4% of the healthcare workforce. Similarly, this statistic holds true for the racial diversity within occupational therapy, where the majority of occupational therapists are White. As research has shown that clients demonstrate positive feedback with healthcare providers who are of same ethnic backgrounds, undergraduate programs have implemented programs to increase ethnic diversity in healthcare professions. However, discrimination in the workplace still presents as an issue, even within the occupational therapy profession. Although ethnic diversity within the healthcare profession has increased, there lacks research on occupational therapists' experiences related to ethnicity in the workplace. The aim of this qualitative study was to examine occupational therapists' perception of ethnicity in the workplace and client interactions within Southern California. A multiple case study was used to compare and contrast the workplace experiences of six female occupational therapists. Of the six participants, two identified as Latina, one as African American, and three as mixed ethnicities. Participants conveyed various narratives related to their experience working with clients and colleagues of the same and different ethnicities. Seven themes emerged: easier to connect, building connections through experiences, workplace experiences, stereotypes, negative client interactions, learning from others, and perspectives of ethnic diversity. While structured support was provided to all participants within the workplace, many experienced barriers and challenges such as discrimination and underrepresentation as therapists from a minority population when working with clients. Results from this study indicate the need for more diversity within the field of occupational therapy and increase the understanding of the experiences of occupational therapists of varying ethnic backgrounds. Additionally, occupational therapy curriculum and conferences should continue to address ethnicity and cultural sensitivity in order to address the AOTA 2025 vision of equity, inclusion, and diversity.

Janet Mejia, Alumni

Generational Outlooks on Hospice Enrollment: Does Acculturation Matter?

Faculty Mentor: Sonja Ulrich, Anthropology

When it comes to evaluating end-of-life decisions, many factors can influence a family's course of action. Factors such as wealth, cultural background, level of acculturation, family size, and educational level have influenced hospice enrollment. This research study employed a mixed-methods approach, guided by the constructivism worldview, to examine 25 cross-sectional surveys and four interviews to evaluate the research question: How does the current generation feel about becoming caregivers to terminally ill family members? The level of acculturation matters when opting for hospice enrollment and taking on the role of at-home caregiver. The hypothesis is: the is that the higher the acculturation level, the more likely a California State University, Dominguez Hills student is to choose hospice enrollment for a terminally ill loved one, with care most likely to occur at a facility or home with hired caregivers. Since one of the variables is acculturation, the lower the level of acculturation, the more likely a family member will be the primary caregiver. The outcome of this research supported the hypothesis that acculturation influences students undertaking the role of primary caregiver to a terminally ill loved one. The surveys were hand-sorted and cross-tabulated. Respondents were mostly female, except for one of the different cultural backgrounds and immigrant descent. The four interviews are from four staff members of a hospice located in Southern California, lasting about 30 minutes each. The interviews were recorded, transcribed, and color-coded. All samples were collected during the fall 2020 semester of POL 494 (in place of BEH 490).

Josef Noah Joshua Dizon, Samantha Betts, Cindy Carrillo, Lauren Fukuyama, Graduate Student

The Lived Experience of Intimate Relationship of Adults with Cerebral Palsy

Faculty Mentor: Sheryl Ryan, Occupational Therapy

Cerebral Palsy (CP) is the most common physical disability in childhood (Centers for Disease Control and Prevention, n.d.). Currently, more children with CP are surviving into adulthood, but current literature lacks representation of the lived experiences of adults with CP (Siven, 2008, & Young, 2007, as cited in Kembhavi et al., 2011). Thus, a need for research involving their experiences in adulthood, including engagement in intimate relationships, has emerged. The purpose of this study was to understand the lived experiences of adults with CP regarding the formation of an engagement in intimate relationships. A convenience sample of five participants, aged 24-39, were recruited via online groups and social media. Semi-structured interviews were conducted using a qualitative phenomenological approach. The results highlight the unique barriers adults with CP face in intimate relationships such as reframing their lens on their disability as part of their identity, disclosing their disability to potential partners, navigating sex and relationships, and fighting stigma. Participants also voiced the same intrinsic desire for committed relationships found in many adults without disabilities. Additionally, participants expressed that intimate relationships were not often discussed with health care providers and that they learned about sex and relationships through other means. These results indicate a need to destigmatize disabilities and normalize intimate relationships of people with disabilities. Occupational therapists can create a positive impact on society by advocating for people with CP by facilitating conversations about intimacy in their practice, promoting positive identity development, and normalizing sexuality among clients with CP.

Juliet O'Brien, Rachel Reyes, Mele Weaver, Graduate Student

The Occupational Aftermath of Sexual Assault Survivors

Faculty Mentor: Sheryl Ryan, Occupational Therapy

Sexual assault is a public health concern that is staggeringly prevalent. One in three women globally report having experienced sexual violence (World Health Organization, 2013). While numerous aspects of sexual assault have been studied, there is limited attention in the existing literature to the changes in survivors' everyday activities. The purpose of our research is to explore how activities or 'occupations' change after the event of sexual assault. As future occupational therapists, it is our hope that this will enable us to deliver and promote trauma-informed, client-centered care for this population. Our qualitative study examines the narratives of four women who have experienced sexual assault at least two years prior to our meeting. Their stories were gathered individually in semi-structured interviews conducted via the online platform Zoom. Research was guided by the Occupational Therapy Practice Framework (AOTA, 2020), which examines the full breadth of human occupation organized into nine key areas: activities of daily living, instrumental activities of daily living, rest and sleep, education, work, play, leisure, social participation, and health management. Triangulation between researchers revealed that changes to occupation post-sexual assault range from unnervingly similar in pattern to profoundly different. The following themes emerged: Contextual Influences that trigger, support, or influence well-being; Social Disengagement resulting from strained relationships and altered social skills; Loss of Self resulting from changes in routines, roles and health management; and Occupation as Power exemplified by instances of taking control. Tellingly, all participants felt failed by the systems in which they lived. We propose that multidisciplinary support is necessitated to meet survivors' occupational needs and trauma-informed care is crucial for individuals who have experienced sexual assault. Recognizing that trauma alters a person's daily life activities and defending every survivor of sexual assaults right to engage in meaningful occupations can reform healthcare perspectives and practices.

Kori Kutsch, Megan Guerra, Katy Kelley, Katy Kwan, Graduate Student

Lived Experiences of Parents Who Have Adopted Children with Mental and Behavioral Health Challenges

Faculty Mentor: Sheryl Ryan, Occupational Therapy

Between 1998 and 2019, the number of adoptions with public agency involvement almost doubled (Children's Bureau, 2006; Children's Bureau, 2020). As the rates of adoption have increased, so have the rates of mental and behavioral health challenges in adopted children (Burke et al., 2018). The 2000 census identified 11.8% of adopted children having a disability, 6.9% of stepchildren, and 5.2% of biological children (Hill & Moore, 2015). Adoptive parents have reported their child's mental health challenges as a main source of stress and need for support, but few studies have focused on their lived experiences. The purpose of this qualitative phenomenological study was to understand the lived experiences of parents who have adopted children with mental or behavioral health challenges. Participants included 7 parents who were at least one year removed from their adoption date and have reported at least one behavioral or mental health challenge experienced by their adoptee. Through in-depth interviews, the researchers explored the lived experiences of adoptive parents with a focus on the adoption process, challenges, support, and routines. Themes included: feeling unprepared, belief in adoption, power of a diagnosis, and the bright side. As advocates for their adoptive children, participants experienced difficulty with receiving appropriate services and understanding their child's unique challenges; but all believed that their adoption was meant to be. Adoptive parents and their families can benefit from service providers who understand the adoption process and the challenges that it comes with. As the adoption rates in the U.S. rise and the number of adoptees with mental and behavioral health challenges increases, occupational therapists must advocate to have a greater role on multidisciplinary teams in adoption and foster care services. Occupational therapists need continuing education on trauma and attachment related issues in order to provide more adoption-informed family based interventions.

Lauren Vioria, Courtney Ramirez, Michael Tran, Caresse Zhong, Graduate Student

Understanding the Occupation of Drag

Faculty Mentor: Sheryl Ryan, Occupational Therapy

Drag performers employ unconventional identities that stray from society's gender norms and roles (Greaf, 2016). However, heteronormative society imposes stigmas on these gender identities that create barriers to health, transphobia, and gross misunderstanding (Acker, 2017; Hopkins, 2008; Sharber, 2018). The purpose of this study is to understand the occupation of drag and its participants for the field of occupational therapy to better serve this population. There is a gap in the literature on this population, as drag has historically been a hidden and taboo occupation until recent times. We conducted semi-structured interviews over Zoom with three participants who engaged in drag. Using the SHOWeD photovoice method, we asked our participants to present us with ten photos that represented their personal meaning of drag (Lienberg, 2018). Following the explanations of their photos, we asked probing questions to construct a holistic narrative of their experience. Findings suggest that the occupation of drag is more multifaceted than what is understood, even by those within the LGBTQIA+ community, with its participation going beyond employment and leisure participation. Major themes derived from our participants included discussions of the origin of their drag personas, representing culture, breaking stereotypes, and overcoming barriers. Participation in drag is used as a means to express one's culture, to further explore and build camaraderie in the community, and defy gender norms. The role of occupational therapy is to help clients engage in occupations that are meaningful to them. The findings of this study gives insight into the personal experiences of drag performers that have not been previously explored in occupational therapy research. In order to provide holistic, client-centered care, it is important to have an inclusive and diverse scope of practice. Through this research, we can help practitioners build a foundation of knowledge of an occupation that is impactful to many people.

Lorimelle Grace Dedace, Graduate Student

Filipino Colonial Mentality Influencing Help Seeking for Mental Health Services

Faculty Mentor: Quang Duongtran, Social Work

This research is a pilot study that will illustrate colonial mentality and its construct amongst Filipino nationals in the Philippines, Filipino-American immigrants, and Filipinos born in the United States, to understand colonial mentality's moderating effect on provider ethnic preference, decision to seek help for psychological problems, and choice of therapy modality (in-person, telephone, or web-based). Current research shows low utilization rate of mental health services and high stigma among Asian immigrants. Presently, Filipinos represent the second largest group of Asian Americans, with an estimated population of 4 million, in the United States. The Health Belief Model in Rosenstock (1974), a recognized applied theory that was developed in the early 1950s by social psychologists, will be examined to understand the construct of colonial mentality among the identified population that was mentioned. Two research questions will be explored: (1) "is there a direct effect of colonial mentality on beliefs and help-seeking behaviors among residents in both the United States and Philippines?" and (2) "does colonial mentality influence preferences of therapists and therapy formats?" (Dalmacio, 2019; & Pew Research Center, 2020). In this study, 10 adults (aged 18 to 65) residing the Philippines and United States will equally participate, utilizing the criterion sampling method. The variables are colonial mentality measured by the Colonial Mentality Scale (CMS) by David & Ozaki (2006), provider ethnic preference measured by similar ethnic, language, or regional backgrounds, and therapy format preferences measured by in-person, telephone, video or web-based. The consent approval to participate is under review at CSUDH. Data collection will begin in early January, and analysis will be completed in late January. Participants will receive a formal research introduction by telecommunication. The consent will be elaborated on the first page. This research expects that there is a correlation among colonial mentality, ethnic congruence, and therapy format preferences.

Melanie Ramirez, Mary Grace Perez, Justin Navarro, Bernice Verzosa, Graduate Student

The Impact of Stroke on Transportation Use in the Greater Los Angeles Area

Faculty Mentor: Sheryl Ryan, Occupational Therapy

Many stroke survivors experience reduced mobility due to the physical and cognitive consequences of a stroke. Stroke significantly impacts community mobility, including the ability to drive and use public transportation, and leads to limited community engagement. No occupational therapy research has been conducted on post-stroke transportation experiences in a major city in the U.S. To add to existing literature and better inform occupational therapy services, this narrative analysis study aimed to understand the transportation experiences of stroke survivors in L.A. County. Three participants, ages 53 to 66 and who were at least six months post-stroke, were remotely recruited from a community center serving L.A. County. Each participant underwent two semi-structured interviews focused on their pre- and post-stroke transportation experiences and conducted via telephone or Zoom. Interviews were transcribed and coded by at least two researchers before undergoing thematic analysis. To depict the participants' transportation experiences before, immediately after, and years following their stroke, individual chronological stories were also written. There were five themes found: (1) limitations, restrictions, and loss, (2) "regaining and relearning," (3) "I feel blessed," (4) planning and waiting, and (5) resourcefulness. Factors that promoted transportation use post-stroke were compensatory or adaptive strategies, equipment, devices, social support, resilience, and diverse transportation options. Factors that inhibited post-stroke transportation use were physical limitations, vehicular features, and environmental factors. Immediately post-stroke, participants experienced a pattern of decreased transportation use and occupational engagement, followed by a gradual increase of both during the long-term recovery period. Participation in work and leisure occupations were reduced or lost. Results demonstrated the impact of stroke on the person, their environment, and valued occupations. This study revealed the value of community-based occupational therapy in promoting transportation use, occupational engagement, and community reintegration during the long-term recovery of post-stroke individuals.

Business, Economics, and Public Administration

Sara Garcera, Undergraduate Student

Handwritten Journaling, Creative Thinking, and Humanity

Faculty Mentor: Orie Berezan, Management & Marketing

Reflective learning is the process of engaging more deeply with knowledge, beyond comprehension. It takes the learner through three stages: awareness, critical analysis, and ultimately perspective transformation. Ideally, this results in the ability for students to separate facts from attitudes or their emotional responses, and students challenging their own ideals from a new perspective. This is especially important with topics that are sensitive in nature, such as loneliness. Although journaling has been utilized in the classroom for areas such as educational psychology and social work, it is not widely practiced in business courses such as marketing. The question is: Can reflective journaling in business school result in a higher level of learning? This project investigates the relationship between learning outcomes and the reflective journaling process in an undergraduate marketing and humanity class at a large university on the west coast. The data was collected from the assignments of 17 students on the topic of social media and loneliness and were analyzed to evaluate the students' learning experience using content analysis through the lens of Bloom's Taxonomy. The opportunity provided a unique learning experience and a hands-on approach to allow marketing students to experience learning in a new light, through their handwritten journals. Additionally, student feedback on the course was collected and will be analyzed in conjunction with the journaling results. All analysis, results, and implications will be presented on Student Research Day.

Alan Augusto Santos Couto, Brenda Arellano, Undergraduate Student

The Impact of Students' Backgrounds on Their Excel Learning Effectiveness

Faculty Mentor: Sheng Yi, Accounting & Law

Learning Excel can be a challenge for college students. Students who just enter college and who are first in their family to attend college tend to face extra challenges in learning digital skills such as Excel because they have a greater disadvantage than their peers during their academic career. Nevertheless, Excel is a skill that employers are looking for from college graduates. Prior research states that Microsoft Excel is the most ubiquitous analytics tool in business (Formby, Medline, and Ellington 2017). Geiger (2015) also finds that 78% of middle-skilled jobs require digital skills like Excel. In this paper, we plan to study how students' Excel learning effectiveness varies among their different backgrounds. In addition, we will study the impact of different types of teaching methods on students' Excel learning effectiveness. In particular, this study will answer the following questions: 1) Will students' background (transfer student, first-generation student, and ethnicity) affect their Excel learning effectiveness? 2) Will students learn better with hands-on instruction or by watching video examples? Informed by digital skill training research, we predict that transfer students will score higher than first-year students; students from different ethnic backgrounds will show different Excel learning effectiveness; a first-generation student will score lower than their peers; and the hands-on instruction will be more effective than video examples. To test our hypotheses, we will collect quantitative data from pre-workshop and post-workshop surveys, and from post-workshop Excel tests from students attending CSU Dominguez Hills. The unit of analysis is students. We will perform quantitative data analysis by using statistical techniques including ANOVA and regression. Data analysis results and research implications will be presented and discussed. The findings of this research will contribute to the digital skill development of undergraduate students from diverse backgrounds in a minority-serving university.

Jennifer Van, Graduate Student

Engaging Citizens in the Budget Process: Implications on Police-Community Relationships

Faculty Mentor: Rui Sun, Public Administration and Sarah Britto, Public Administration

In 2020, the rise of the “Defund the Police” movement brought increased citizen interest in municipal budgeting and a desire to have their voices reflected in these budgets, especially regarding law enforcement spending. Prior to this, many local governments have been moving towards increased citizen engagement in their budgeting processes through budgeting transparency, increased outreach, and added avenues for participation. This study uses a mixed-methods approach. The quantitative portion examines the relationship between the level of citizen engagement undertaken by municipal governments and their police expenditures using primary data from a survey of 38 cities in the Los Angeles metropolitan area, the cities’ budget documents for FY2020, Census Bureau’s American Community Surveys, and FBI’s Uniform Crime Reporting Program. The study also includes a qualitative analysis of police department websites and budget narratives for evidence of community engagement efforts. The study is expected to contribute to both public budgeting and criminal justice literature and provide practical implications for municipal management and civic engagement.

Lauren Hull, Graduate Student

Effects of Law & Public Policy on the Supply of Women's Healthcare Providers in California

Faculty Mentor: Fynnwin Prager, Public Administration

California’s shortage of women’s healthcare providers has steadily increased over the past decade. Many different factors have been asserted as the root cause of this issue, resulting in numerous policy proposals aimed at increasing the number of providers in the state. This study uses policy analysis to evaluate the effects of such policies on the basis of their ethicality, political feasibility, cost-benefit tradeoffs, and effectiveness (in terms of the number of people with access to care). Within the context of policy proposals for addressing the shortage, significant controversy has arisen specifically over the function of California’s current physician supervision mandate for Certified Nurse Midwives (CNMs) and its capacity for reducing access to healthcare by restricting scope of practice. This study evaluates the effects of the physician supervision requirement, the effects of allowing autonomous practice for CNMs, and the effects of funding obstetrician-gynecologist (OB-GYN) residencies to determine the most effective policy for increasing the number of women’s healthcare providers in the state. The results of this study indicate that the physician supervision requirement does more harm than good, and suggest that policymakers should pursue a multi-pronged approach to solving the provider shortage by both removing physician supervision requirements for CNMs and funding OB-GYN residencies.

Rushi Patel, Megan Baker, Undergraduate Student

An Empirical Study of Undergraduate Students' Interest in Technical and Analytical Jobs and Their Motivation to Learn Excel Skill

Faculty Mentor: Nancy Deng, Information System and Operations Management

Studies have shown that 80% of middle-skilled jobs require job applicants to have a basic understanding of Microsoft Excel and that having advanced knowledge in analytics skills leads to higher job acceptance rates and compensation (Ellington, Formby, and Medlin, 2017). We want to study student's motivation to learn Excel skills, which can help prepare students for future access to internships and the job market early on in their education. Specifically, the purpose of the study is to determine the relationship between the choice of a STEM career and motivation to learn Excel. Our research questions include: (1) Are students who want to do technical, analytical positions more likely to show higher motivation to learn Excel? (2) Are they more likely to achieve better learning than other students? Guided by prior research on digital skills and STEM careers, we predict that the students who are interested in technical, analytical positions will be more likely to show a higher motivation to learn Excel, and those students will be more likely to show a higher motivation to learn Excel. To test our hypotheses and answer the research questions, we collect quantitative data from student participants in Excel workshops and analyze data using statistical procedures including correlation and ANOVA. The independent variable will be future STEM career choice; the dependent variables will be the student's motivation to learn and their Excel learning effectiveness. Control variables include students' demographic background and prior knowledge in Excel. The study participants are students at Cal State University Dominguez Hills. The unit of analysis is student. Findings of the study will be presented and discussed. The study will provide useful guidelines for undergraduate students who are interested in the new job market of data analytics and data science.

Susana Saborio, Undergraduate Student

Understanding Adversities of Gig Workers from Different Online Platforms and By Worker Characteristics

Faculty Mentor: Nancy Deng, Information System and Operations Management

In the new age of digital transformation, many people seek to become gig workers for popular online platform companies in order to gain job flexibility and financial independence. Gig workers are classified as independent contractors who work for popular online platforms such as Uber and Instacart. Gig workers stem from the gig economy, a labor market characterized by the prevalence of freelance work as opposed to permanent jobs. Although gig workers obtain the flexibility to be their own boss while managing a healthy work life balance, many of them are faced with the harsh realities of the gig economy: inconsistent low paying rates and safety concerns. The purpose of the study is to find out if gig workers from different types of platforms face adversity and if their experiences differ by their characteristics of gender and age. Informed by prior research, this study predicts that workers face different adversities from working with the two different platforms – ride-hailing and delivery – and female and older gig workers are more subject to higher risks than male and younger gig workers. To test our hypotheses, we surveyed 56 active gig workers on the ride-hailing platforms (Uber and Lyft) and the grocery and food delivery platforms (Instacart and Postmates) and performed statistical data analysis. The findings show that more women worry than men about their physical safety while working, and older people are more concerned about contracting Covid-19 when coming in contact with patrons. Although many workers find that gig work is an alternative to making extra income to pay their bills, our study shows that not all gig workers have the same experiences. The study contributes to our understanding about the adversities of the platform-based workers in the gig economy.

Nirnay Thoolkar, Graduate Student

Studying Resiliency and Retention of university on Student Recovery Planning Survey

Faculty Mentor: Rama Malladi, Accounting, Finance and Economics

In response to COVID-19, as part of the President Challenge, our university had formed a committee and they conducted a recovery planning student survey of the emerging corona gap to study resiliency among faculty and the students. Survey included how our university had experienced the spring 2020 term and what are the plans for the fall 2020 semester to support the success based on the needs and the suggestions. We used various statistical tools and techniques like Python and Tableau to analyze these survey data. Students are worried about the classes and had basic needs which included food and housing insecurity, 47% respondent had psychological stain due to remote learning and major impact on finances.

Joshua Mean, Alumni

Thriving in College during a Pandemic: Explaining COVID-19 Affected Student GPA Performance using the Thriving Quotient

Faculty Mentor: Rama Malladi, Accounting, Finance and Economics

The COVID-19 pandemic has changed the paradigm for students enrolled in higher education. Students have been required to shift to an online or distance learning model, and have encountered unprecedented financial, personal, and health challenges due to the virus. In this study, we investigate the relationship between student's most recent COVID-19 affected term GPA performance and their "Thriving Quotient", a factor-based model that measures student success and has demonstrated high reliability. Each of the factors represents an element of academic, intrapersonal, or interpersonal thriving that has been empirically demonstrated to be amenable to change within students, rather than a fixed personality trait over which we have little control. The study utilized data collected by California State University Dominguez Hills as part of the President's Challenge: Understanding and Building Academic Resilience, Community and Retention at CSUDH. The President's Challenge seeks to understand the qualities that define academic resilience using qualitative and quantitative analysis, while recommending implementations for improvement. The data was modeled using Ordinary Least Squares regression in the R programming language. In our results, we showed that Thriving Quotient factors "Engaged Learning" and "Spirituality" were the strongest predictors of student GPA performance.

Engineering and Computer Sciences

Deepa Kishore Malani, Dhanraj Rana, Graduate Student

Transcript Reader (Android app)

Faculty Mentor: Bhriagu Celly, Computer Science

When the Computer Department takes new admissions or transfer students, they need to manually check students' transcripts to evaluate which courses satisfy prerequisites for the program. This manual task is laborious and time-consuming. We have developed an Android application, called 'Transcript Reader' that helps to reduce this manual work using Optical Character Recognition (OCR) technology. Transcript Reader manages a database of prerequisite courses for CS department. Using this app, the Admission department personnel can scan the students' transcripts using a device camera, and then the app will fetch only prerequisite courses and corresponding grades. This app also allows to edit and save students information into the database. This project was developed using Android Studio IDE and Java language. Google MLK its text recognition API was used to detect and recognize the text from transcripts.

Phillip Aguilera, Undergraduate Student

Virtual Network Function Load Balancing in Cloud Data Centers Using Machine Learning

Faculty Mentor: Bin Tang, Computer Science

Virtual network functions (VNFs) are software versions of the hardware middle boxes including firewalls, load-balancers, and web proxies. Due to their management flexibility and inexpensive manufacture cost, they are more frequently used in enterprise cloud networks compared to their hardware counterpart. However, due to their limited processing capability, there is a need to load-balance them. In this project, we study how to load-balance VNFs in dynamic virtual machine (VM) traffic that commonly exists in cloud data centers. We implement a fat tree-based cloud data center, and design two VNF load-balancing algorithms viz. a greedy algorithm and a reinforcement learning algorithm. We compare their performances via different network parameters including number of VM pairs, traffic rates of VM pairs, and processing capacities of VNFs.

Jennifer Ly, Undergraduate Student

VM Migration for Dynamic VM Traffic in Policy Aware Data Centers

Faculty Mentor: Bin Tang, Computer Science

Policy aware data centers initially are configured with the emphasis on making the virtual machines (VMs) as resource efficient as possible. However, network loads are dynamic and can change their behavior at any point in time. Our research goal is to find the most efficient path to migrate the VMs with the lowest communication cost. Currently, we designed a minimum cost flow based VM migration scheme, which is difficult to implement. We propose to use machine learning techniques to calculate the minimum cost VM migration more efficiently. Machine learning techniques like reinforcement learning can allow the VM migration to be adjusted as needed as variable values begin to change (e.g., traffic rate, VM pairs, migration coefficient, and the number of middle boxes). With this philosophy, the VMs should almost always be optimally placed.

Sterling Abrahams, Graduate Student

Migrating Virtual Network Functions in Dynamic Cloud Data Centers Using Reinforcement Learning

Faculty Mentor: Bin Tang, Computer Science

Virtual network functions (VNFs) are virtualized middle boxes such as firewalls, load-balancers, and web proxies. They have been actively deployed in cloud data centers to achieve performance and security guarantees of the cloud user applications. Previous research shows that migrating VNFs (i.e., whether and where to migrate a VNF from one switch to another) inside a dynamic cloud data centers could improve QoS such as reducing the traffic and delays among communicating virtual machines (VMs). However, it only focuses on a static and short-term scenario - because of the overhead involved, not migrating at all can be the optimal decision. How to migrate VNFs continuously in a dynamic cloud data center in a long-term is a challenging and unsolved problem. We first show that an optimal VNF scheme according to current traffic status could be myopic, resulting in more traffic and time delays in the long term compared to even the no migration scenario. Then we use reinforcement learning (RL) to model the VNF migration problem and the VNFs. In particular, we model VMFs as RL agents and let them decide how to migrate based on the dynamically changing VM traffic in the data center network. Because the nature of the problem is continuous, a temporal difference learning agent may be the best choice. We show that the RL-based approach outperforms the optimal but myopic VNF migration in terms of long-term network traffic and time delay.

Yeswanth Saidu Sai Polu, Graduate Student

A Dynamic Data Resilience Algorithm for Sensor Networks

Faculty Mentor: Bin Tang, Computer Science

Many of the sensor network applications are deployed in challenging environments, wherein sensors do not always have connected paths to a base station and propose a new data resilience problem. Such applications include underwater/deep sea sensor networks, seismic sensor networks, and volcano monitoring networks. Existing research endeavors to maximize data resilience in such networks by offloading the overflow data from data nodes to initially high-energy storage nodes. We show that this approach does necessarily result in high data resilience level (DRL) that quantifies the data resilience performance. We propose a new algorithm that selects high-energy storage node dynamically. As the high energy storage nodes could change after each data offloading, choosing a best storage node in each iteration can help in achieving optimal data resilience. Using extensive simulations, we show that the dynamic data resilience algorithm outperforms the existing research in terms of achieved DRLs.

Humanities and Letters

Joseline Gonzalez, Undergraduate Student

“Padre, Perdóname!”: Machismo, Family Structures, and Safe Spaces in Empanada and Butterfly Boy

Faculty Mentor: Roderick Hernandez, English

This research paper examines the relationship between queer identities and Chicana/o family dynamics, as presented in Chicana/o literature. Due to Chicana/o families regarding themselves as close-knit, little space is given to an opposition to their family dynamics. The nuclear family structure is mirrored in Chicana/o families and therefore, excommunication and isolation exists to parties that seemingly oppose rigid gender roles and gender expectations. The excommunication is fueled by religious beliefs within the communities, which includes the violent implementation of catechism in young adolescent girls. Homophobia and sexism is seen through the physical violence and harassment of the characters when they identify as queer. Through my literary analysis of *Empanada* and *Butterfly Boy*, I argue that Chicana/os must leave their homes and families in order to build safe-spaces and simultaneously practice their sexualities. First, I will analyze the concepts of machismo and femininity as it facilitates the character’s identity and resistance to traditional roles. Then, I will be investigating the ways in which queer identities are framed as oppositions to Chicana/o families through religion and beliefs. Finally, I will explain the importance of safe-spaces especially for queer-identifying characters and revealing how the Catholic Church and Chicana/o households are juxtaposed with these safe-spaces.

Katie Colln, Graduate Student

Medieval Women as Monsters: Taming Beast and Beauty

Faculty Mentor: Debra Best, English

In this paper, I will be exploring the topic of women as monsters in Medieval texts. The paper will focus on how women are described and introduced in Middle English Romances and it will discuss women who step outside of gender roles in their text. The question this paper attempts to answer is this: does the objectification of women and the constant attempt to define women by their sexuality in Middle English Romances reveal a medieval view of women as monsters? Is this view reflective of a male anxiety over feminine power and is this literary take on women an attempt to reaffirm the patriarchal views of the time? This interrogation into the place of women in English romances will expand a perspective of societal views on gender during the later Medieval period, and it will develop an interest in understanding how those views came to shape modern gender constructs. In this study I will be focusing primarily on the medieval text *Bevis of Hampton*, more specifically the characters of Josian and Bevis mother. Josian is a character who is well liked and elevated as a female heroine in most medieval scholarship. My argument will challenge that view in a sense. This paper will argue not so much with her heroic attributes but with why those attributes are present and what they reveal about views of women at the time. I will be examining the similarities that Josian holds with traditional monsters in literature, both in her physical description and in her actions, as well as addressing how these similarities ultimately align her with something that is “other” and unnatural. I expect to connect Josian’s ability to move on the gender spectrum with a monster’s ability to inhabit liminal spaces, using both research on Josian’s fluid femininity (from Myra Seaman) and research on monster theory (from Misty Urban and Jeffrey Jerome Cohen). My tentative argument is that the objectification of women paired with their ability to blur gender roles places them in a space reserved for the unnatural, ultimately subjugating them in Medieval society as men attempt to conquer and tame both species.

Maha Furrukh-Butt, Undergraduate Student
Subverting Servants in The Revenger's Tragedy
Faculty Mentor: Kimberly Huth, English

Nobles in early modern English literature and theater were socially divided from lower classes and well protected, making it difficult for revengers from lower classes to fulfill their purpose. A common way nobility interacted with those in lower classes was through their servants and employees. This paper will argue that through this relationship of employer and employee, the revenger fashions himself and creates a space where they have the chance to get close to the noble who has wronged them, gain the noble's trust and enact their revenge. In Thomas Middleton's play, *The Revenger's Tragedy*, the protagonist Vindice, takes advantage of this complex dynamic and gets his revenge on the Duke. I analyze Vindice's revenge through the theoretical lenses of Greenblatt's self-fashioning and Althusser's interpellation. Class distinction between nobles and their servants is important because it provides nobles with a sense of importance and a false sense of security. Nobles are also used to being surrounded by servants since birth which makes their presence mundane and unassuming. In Middleton's play the Duke's request is immoral—he asks Vindice to find him a woman to sleep with. The nature of this task creates a secrecy between the employer and employee which separates the Duke from his protection. The Duke puts himself in a situation where only Vindice will know his whereabouts, and because of this secrecy, Vindice is able to get his revenge without being caught in the act. *The Revenger's Tragedy* shows a scenario in revenge tragedy where a lower-class revenger is able to use their class and employee position to take advantage of a noble and get their revenge.

Matthew Hernandez, Undergraduate Student
"Please Don't Kill Me": Confronting Racist Violence in Contemporary Young Adult Literature
Faculty Mentor: Helen Oesterheld, English

This research project concerns the representation of racist violence in contemporary young adult literature as a form of confrontation □ both of the traditional genre of young adult literature and of the young person's ability to challenge racism and respond to violence. I focus on two novels *Children of Blood and Bone* (2018) by Tomi Adeyemi and *All American Boys* (2015) by Jason Reynolds and Brendan Kiely—written in the wake of the murders of Aiyana Stanley-Jones, Trayvon Martin, and Michael Brown. While Adeyemi imagines a fantasy world in which only black people exist, and Kiely and Reynolds depict a realistic and diverse American town, both works center the responses of young adults to violence in locales that are permeated by racism. Representative of the experiences of many young black people in contemporary America, these novels illustrate a traumatic coming of age for black youths, making special note of the many deaths of unarmed people of color at the hands of law enforcement in the United States. I examine and redefine this emerging subgenre of young adult literature through the framework of confrontation. I argue that these novels confront contemporary instances of racist violence in the U.S., calling their readers to feeling and ultimately to action, by utilizing narrative employments of realist events of racist violence, describing these events through counter narratives in a dialogic relationship between characters. Ultimately, these narratives model ways in which young people can seize agency and create change by addressing the melancholic maturation that has been experienced by both the characters and readers, and demonstrating the pathways of protest, resistance, and rebellion open to them.