

## **Faculty Development Grant Awards: 2018 – 2019**

### **Awards to Faculty in the School of Arts, Education, and Culture**

**Project Title:** Recording session for “A Woman Knows: 8 Songs on the Progress of Women”

**Faculty Investigator Name:** Heather Gilligan, Music

**Abstract:** This project seeks to partially fund the recording of a song cycle for women’s voices, called “A Woman Knows: 8 Songs on the Progress of Women.” The song cycle employs texts from a variety of sources throughout history, chronicling the trajectory of women’s rights as voters and as functional decisionmakers in American society. The composition includes some humorous accounts of women in suppressed roles, such as a passage from an etiquette book called “Mrs. Beeton’s Book of Household Management;” it also includes more serious accounts, such as the transcripts from the Seneca Falls Convention of 1848 and the 19th amendment of the constitution, set to reverent melodies and harmonies. The eight-song composition will be used as the first song cycle on Heather Gilligan’s second album of compositions, thus forwarding her scholarship and disseminating the songs in a way that is appropriate to the field of music.

**Project Title:** The Scholarship of Teaching School Law – Taking an Online School Law Course

**Faculty Investigator Name:** Ellen Nuffer, Education

**Abstract:** This project will enable me to further investigate the scholarship of teaching school law. I have taught School Law (EDUC 641) for 10 years. I would like to take a course in Legal Issues in Student and Parent Rights from the University of Connecticut School Law Online Graduate program. Not only will the content that I learn be relevant to the research in which I am involved, but it will answer one of my major research questions: what are the approaches to and content of courses in school law as taught in educator preparation programs in New England? This connects to my larger program of the scholarship of teaching school law.

**Project Title:** Invited Lecture Recital at College Music Society National Conference

**Faculty Investigator Name:** Christina Wright-Ivanova, Music

**Abstract:** My proposal involves an invited Lecture-Recital talk and performance at the ‘College Music Society National Conference’ in Vancouver, BC, Canada from Oct 11-13, 2018. This Lecture Recital will illuminate the life and works of Canadian composer Barbara Monk Feldman, with a performance of the solo piano work *The I and Thou* in honor of her 65th Birthday year, 2018. After a composing career spanning more than thirty years, BM Feldman remains in the shadow of worldrenowned minimalist composer and late husband, Morton Feldman (d. 1987). This lecture will explore how BM Feldman extends Morton’s tradition while still creating and molding her own voice. There will be a special focus on her piano and chamber music, with examples from her early, middle, and present-day works.

This dedicated presentation will aim to identify key aspects of the genesis of her art in the context of her early studies and personal relationship with Morton Feldman, as well as the unique path in which she has developed her own musical voice today and has enriched Canadian and American art. Biographical details and specific comparative analyses of Morton's work and Barbara's early compositions will be discussed, as well as key philosophical trends and compositional styles that Barbara evolved to connect music with visual arts.

The performance of Barbara Monk Feldman's *The I and Thou* will represent the way we engage with each other, how the performer engages with the audience and community, and how a new reality emerges out of these interactions. This is parallel to the compositional dialogue between diverse trends in the musical collective.

I have also been invited to be the pianist in the conference's presentation of John Luther Adam's "10,000 Birds", (2014), which is a concert-length work written for an ensemble of 17 players and involves the theatrical performance of short sequences of stylized bird songs and other animal sounds.

**Project Title:** Performance with the New Sousa Band

**Faculty Investigator Name:** Craig Sylvern, Music

**Abstract:** Saxophone performance has always been a part of my professional identity – as a college student, in graduate studies, and as a professional musician. As a professional, it is a rare opportunity to receive an invitation to perform with world-class musicians. I have been fortunate to have received such an invitation from Keith Brion, one of world's foremost experts on the music of John Philip Sousa, and conductor of The New Sousa Band. He has invited me to perform with the New Sousa Band at the prestigious Chicago Midwest Clinic, an international conference for instrumental music education. The conference is in its 72<sup>nd</sup> year and it is an opportunity for all who attend to hear some of the finest ensembles in the world, attend clinics, and interact with over 350 vendors and exhibitors. To quote their website, "The Midwest Clinic brings together all levels of talent and expertise to guide and grow each participant."

**Project Title:** PAPER PRESENTATION/ POTENTIAL PUBLICATION FOR THE 19TH INTERNATIONAL CONFERENCE ON DIVERSITY IN ORGANISATIONS, COMMUNITIES, AND NATIONS

**Faculty Investigator Name:** SHIRLEY WADE MCLOUGHLIN, Education

**Abstract:** This project involves doing a paper presentation at the 19th Annual Conference on Diversity in Organizations, Communities, and Nations at the University of Patras, in Patras, Greece. The paper examines crossing borders, from geo-political, ethnic, racial, gender and ability related, to others, requiring acknowledgement of the perception and presence of borders. It also requires the acceptance of the individual discomfort that often occurs in initiating these journeys. Reexamining historical and personal narratives within this framework can uncover painful truths not yet confronted by many. Acknowledgement of these truths is critical in developing more inclusive classrooms, communities, and countries. This begins by how we teach our children, and how we present counter-narratives within the nationalistic environments which may exist where we live. The paper addresses the importance of supporting and encouraging higher education faculty, preservice teachers, public school teachers, and

administrators as they begin and/or continue their personal and educational journeys towards a more just world. It examines techniques, tools, and teaching approaches that sustain this process. Furthermore, it discusses encountering resistance and how to move forward, hopefully turning that resistance into committed personal, institutional, and community based efforts to provide environments where all individuals can create meaningful, productive lives, and have opportunities to live to their highest potentials. Another component of this project is to develop and build upon relationships to foster international scholarly efforts in this field.

**Project Title:** Preservice Teachers' Perceptions of Self-Efficacy & Co-Teaching

**Faculty Investigator Name:** Nancy Farstad Peck & Lance Neeper, Education

**Abstract:** This grant will be used to support the tools and services needed to systematically investigate preservice teachers' perceptions related to participating in a co-taught class that focuses on supporting children who receive special education services. The research questions guiding the investigation include: a) What are early childhood teacher candidates' perceptions of self-efficacy related to supporting children who receive special education services? and, b) What are early childhood teacher candidates' perceptions of their learning experience in a co-taught course? Teachers must be prepared to support increasingly diverse student populations in the general education environment by using inclusive practices and collaborative approaches. Barriers to supporting children in the general education settings often revolve around the lack of awareness regarding professional roles and resources. Therefore, EDUC 315 was developed to increase awareness and perceptions of the field of special education by providing field experiences with various professionals. One way to support the inclusion of all children in schools is by utilizing collaborative approaches such as co-teaching. Co-teaching is typically defined as a general education teacher and special education teacher planning and simultaneously teaching together to provide the greatest level of support to students. The goal of this investigation is to explore what potential impact a co-taught course on special education has on future teachers' preparedness in an effort to inform our own practice and the field of teacher education. The research has been approved by the IRB. With support of this grant, the results will be disseminated via conferences and professional publications.

**Project Title:** "Gender, Torture and Memory in Chile" Paper Presentation at Cine-Lit. International Conference on Hispanic Film and Fiction and the Latin American Studies Association Conference

**Faculty Investigator Name:** Lisa DiGiovanni, Modern Languages and Cultures

**Abstract:** The Faculty Development Grant will support my participation as a presenter at the Cine-Lit. International Conference in Portland, OR, March 9-11, 2019 and at The Latin American Studies Association (LASA) conference in Boston, MA May 24-27, 2019. At both conferences, I will present my most recent scholarship that focuses on the ways in which cinema explores the relationship between state violence and gender-based violence. More specifically, I will examine how the Chilean filmmaker Marcela Said casts light on the links between militarism, masculinity and torture in the context of the Pinochet military dictatorship. The Faculty Development Grant will provide me with the opportunity to test and disseminate my ideas, to learn from experts in the field, and to enhance my professional associations. This opportunity to engage with activists and scholars will not only benefit me, but also my students at Keene State College. Whether I am teaching a course in Spanish (Modern Languages and Cultures) or in English (Holocaust

and Genocide Studies, the Honors Program, Women's and Gender Studies), I share my research in discussions that enliven the course material and inevitably inspire interest in global learning.

**Project Title:** Signs On The Dotted Line: The Story Of The FHWA Standard Alphabet

**Faculty Investigator Name:** Randall Hoyt, Art & Design

**Abstract:** I will create a documentary that reveals the origin and current implementation of the typeface used on the majority of US highway signage — the FHWA Standard Alphabet. As a graphic design educator with a specialty in typography, this project leverages my knowledge of the US highway and typographic systems in an informed and meaningful way and develops my established trajectory as a scholar. In addition to the documentary I intend to publish papers based on this work at conferences and incorporate this material into my classes through specific projects, delivering

lectures on the experience, and screening the film at a variety of regional, national, and international venues. I look to my colleagues on the Faculty Development Grant committee at Keene State College to help me realize this vision, and with your support I will take full advantage of this opportunity to create a dynamic documentary that both contributes to my field and invigorates and strengthens my capacities as an educator. Signs on the Dotted Line is a natural trajectory for me toward engaging significant research imperatives, communicating what I discover, and ultimately bringing it all back into the classroom experience for the benefit of the students.

**Project Title:** Recording Project: *Sacred and Profane: New Song Cycles by Daron Hagen*

**Faculty Investigator Name:** Christina Wright-Ivanova, Music

**Abstract:** As a classical pianist, my scholarship is related to the national and international performance of classical and new music, as both a soloist and a chamber musician with other artists. I am dedicated to working with award-winning, living composers who are recognized as leading composers in our field. A vital part of my scholarship as a performer is professional recording, as this allows musicians to garner reviews in radio and the press and gives us maximum public exposure. With mezzo-soprano Dr. Stephanie Weiss, we formed 'duo au courant'. We have commissioned works by several living composers, have performed in 3 continents, and appeared at the Berlin Art Song Festival, the Alte Schmiede in Vienna, and in Sydney Australia. We recently received 2<sup>nd</sup> place at the *New York City 'songSLAM' 2019*, premiering a work by fellow-Keene State faculty member Dr. Heather Gilligan.

In this particular recording project, *Songs: Sacred and Profane*, we have recorded three world premieres of new song cycles by composer Daron Hagen, whose music is "dazzling, unsettling, exuberant, and heroic" (The New Yorker). Daron Hagen was the Producer for the project, recorded in May 2017 in Las Vegas. It is now completed and ready for distribution. This grant would allow us to get the CD ready for distribution through Albany Records, one of the leading record companies for new American music. We have already been accepted by the label, and are requesting the final funding source to complete the project. The anticipated release date would be Summer 2019.

**Project Title:** “The Stony Silence Thing”: Contextual Subversion of Ideologies about Gender and Literacy in English Classes

**Faculty Investigator Name:** Christopher Parsons, English/Secondary Education

**Abstract:** The turn of the 21<sup>st</sup>-century saw a wave of panic about, and attention to, the putative literacy deficits of young men (e.g., Sommers’s *The War against Boys*). Scholarly responses to the “boy turn” (Weaver-Hightower, 2009) varied, but surprisingly little research on the topic investigates students’ own perceptions and management of local ideas about gender and literacy. For this project, I combined voluntary, semi-structured interviews (Seidman, 2006) with students in a high school English class with six weeks of classroom observation. The interviews focused on students’ interpretations of the role (if any) of gender and gender stereotypes in English classes.

In this project, I focus on two students in the class: Stan and Wanda. They were perceived, both by themselves and their classmates, as subverting locally-defined ideologies about gender and literacy circulating in their classroom. Stan confronted a localized version of the young men’s literacy deficit narrative in which English class was perceived as a site of female passion and success. He draws on the language of the ideology only to reject it. Greta subverted a different ideology, that female students should be engaged, but also “respectful,” when issues of gender-based social justice arose in the class curriculum.

These findings suggest that locally circulating ideologies about gender and literacy in English class can be productive performative resources for students. Stan and Greta rely heavily on these ideologies—in order to define themselves and their work in class against them.

**Project Title:** H2O Exhibition NCECA 2019 (National Council on Education for the Ceramic Arts)

**Faculty Investigator Name:** Professor Paul McMullan, Art & Design

**Abstract:** While I was an artist in residence at the Northern Center for Clay in Minneapolis during the summer of 2018 I made a proposal to work with the Water-Bar (a environmental educational center)([water-bar.org](http://water-bar.org)) in N.E. Minneapolis. My proposal “H2O” was accepted by the NCECA council and will be part of the 53<sup>rd</sup> NCECA Conference. March 27-30, 2019.

The exhibition “H2O” will include six artists including myself. Artists are exploring the inter-relationship of water and life, drawing inspiration from drinking vessels, water habitats, diminishment of clear water, and disappearing polar caps.

In addition to curating and setting the show up I am also creating a series of water jars and vases. Based on 16<sup>th</sup> Century British Majolica wares. My vases are originally designed in Rhino 3-d software program and printed on a Makerbot replicator in plastic filament. I then take the 3-d printed object and turn it into a plaster mold, which is used to create the ceramic object.

**Project Title:** *Georgia's Line*

**Faculty Investigator Name:** Johanna Dery, Film Studies

**Abstract:** *Georgia's Line* is a 20-minute film project written and directed by Associate Professor of Film Studies, Jo Dery. The film tells the story of Georgia, a woman in her late 60's who has chosen to spend each winter on a frozen lake – as part of a mysterious all-female ice fishing commune who has taken a vow of silence. However, when Georgia's daughter and grand-daughter return home after living in Pennsylvania, it may signal the time for her to make a change. The film explores a range of themes: intergenerational relationships between women, different notions of home, and the conflict between a mother's need to sacrifice and her desire for solitude. This exciting collaborative project will utilize the skills and talents of Keene State College faculty, alums, and current students.

**Project Title:** Historical Novel on Colonial Virginia

**Faculty Investigator Name:** Brinda Charry, English

**Abstract:** This historical fiction project is set in colonial Virginia a few decades before the Revolutionary War and focuses on the role and place of plantation slaves and indentured workers in these tumultuous times. The narrative will center around figures (based on historical fact) who travelled between the "East Indies" and the Americas. These figures make for interesting and hitherto unexplored links between Asia and colonial America.

**Project Title:** Collaboration: Telling the Story of Collaborative Engagement Among Educator Preparation Programs and the Community

**Faculty Investigator Name:** Dr. Kimberly Bohannon and Dr. Jayme Hines, Education

**Abstract:** This project directly relates to our professional roles and the development of our courses, overall curriculum and the success of Educator Preparation at Keene State College. We currently are the faculty responsible for the student teaching experience in the Early Childhood and Elementary Education programs. Collaborative relationships with schools are central to the success of this intensive culminating experience. As we have developed the courses over time, our partnerships with local schools have become a key focus of our professional identities.

We are both actively engaged with the ATE. Dr. Hines received the Clinical Practice Fellowship for the 2017-18 academic year and also serves on the Professional Publications Committee for the organization. Dr. Bohannon has presented at past ATE conferences, served as a reviewer for proposal submissions and is currently serving on the planning committee for the 2019 Summer Annual Conference.

**Project Title:** Creative Writing, Literary Activism and Cuerpo- Libro (book-body)

**Faculty Investigator Name:** Patricia Pedroza Gonzalez, Women and Gender Studies

**Abstract:** The Faculty Development Grant will support my international traveling to Santiago de Chile. I will take classes with Pia Barros in her Ergo Sum Workshops. My scholarly work engages on conversation with a feminist Latin American community. This opportunity to share and engage with a feminist Chilean community will not only benefit me, but also my teaching

praxis at Keene State College. This specific training will help me to shape and improve my methodology about embodiment, creative writing and literary activism.

**Project Title:** Researching and Reflecting on Recent French Documentary

**Faculty Investigator Name:** Irina Leimbacher, Film Studies

**Abstract:** France has played a seminal role in the history of cinema – with the first film screening in a café in Paris in 1895. In nonfiction cinema, French directors have also played a ground-breaking role, with directors like Jean Rouch and Chris Marker changing the aesthetic and intellectual direction of documentary film in the 1950s and 1960s, and makers such as Raymond Depardon and Agnes Varda doing the same since the 1980s. My research, which involves 2 weeks watching films and reading books in France (1 in Marseille and 1 in Paris) will allow me to delve into and deeply reflect on the current state of French documentary film.

As a documentary scholar, it is imperative that I keep up with some of the current trends and theories. However, foreign documentary films do not travel nearly as much as their fictional counterparts. I therefore hope to spend time going to a festival and numerous libraries to engage with films I cannot see here and meet and correspond with filmmakers. In this way I can gain familiarity with current films and filmmakers and use this knowledge in my classroom at Keene State and as a faculty mentor to students, many of whom want to study abroad. As part of the research I will write and publish a review article (on current trends visible at the Marseille documentary film festival) and submit proposals for longer academic article on the new French documentary.

**Project Title:** Mosaic Fictions: Writing Identity in the Spanish Civil War

**Faculty Investigator Name:** Emily Robins Sharpe, English

**Abstract:** The Faculty Development Grant will cover the cost of copyright permissions for my book manuscript. My book, *Mosaic Fictions: Writing Identity in the Spanish Civil War*, has already successfully passed peer review and is forthcoming with the University of Toronto Press. In it, I analyze a wide range of North American writers' depictions of the war (1936-1939). The book reframes the familiar narrative of Spain's noble, but ultimately tragic struggle against fascism by examining how transnational supporters of the Spanish Republic crafted narratives of citizenship and belonging amidst a national crisis not entirely their own. I focus primarily on the contributions of Jewish Canadian writers as they articulate the stakes of the war in the language of a nascent North American multiculturalism, and expand this analysis to a comparative study of marginalized authors' representations of marginalized characters: an interrelated network of Jewish, Black, immigrant, female, and queer writers. I argue that disempowered and marginalized writers frequently used the Spanish conflict as a point of comparison to their first-hand experiences of secondary citizenship and alienation. By covering permissions costs, the grant will allow me to publish my full book manuscript, including quotations from a variety of authors' poetry, fiction, memoir, and lyrics. This publication opportunity is not only the culmination of my scholarly research thus far, but will also benefit my students at Keene State. I teach a variety of courses that incorporate my research, in English, HGS, and WGS, fostering interest in postcolonial, LGBTQ, women's, Black, and Jewish literatures.

**Project Title:** Participate as performer & composer in the Barcelona Festival of Song  
**Faculty Investigator Name:** José Manuel Lezcano, Music

**Abstract:** I am applying for funding this year to help me participate as concert guitarist, collaborative artist accompanying singers, and as composer in the 15th edition of the Barcelona Festival of Song. Dr. Patricia Caicedo is highly-regarded in the professional music world as the foremost authority on the Latin American and Iberian song repertoire. Each summer for the past 15 years, Dr. Caicedo has directed the Festival which she founded, dedicated to the teaching and promotion of this specialized repertoire, and attracting talented and accomplished singers and collaborative pianists from around the world. In the last few years, singers who participated have come from Australia, Turkey, Colombia, Spain, France, the United States, and other nations. Many of them are Professors at universities and colleges, and are graduate students in highly selective programs. For the fifteenth festival, Dr. Caicedo plans to publish a volume of my song-cycles from previous festivals, including our collaborative "Songs of Absence" (Canciones de Ausencia), a cycle featuring Patricia's poetry set to my music. It is anticipated that we will make recordings of some of the songs for a CD project in the week following the festival.

**Project Title:** Humans of Keene State College  
**Faculty Investigator Name:** Amber Davisson, Communication and Philosophy

**Abstract:** My project trains participants to engage with participatory culture as a form of civic imagination, and test to see whether or not this civic imagination strengthens their sense of community and belonging. The project is modeled after Brandon Stanton's internationally successful Humans of New York photoblog. Participants for this project will create postings for a "Humans of Keene State College" Facebook page. These posts will include a combination of photos, written texts, and short videos. This project involves both a creative and a scholarly component. The creative component is the participant photos and narratives, which will be distributed through the photoblog and corresponding Facebook and Instagram accounts. The scholarly component of the project will consist of the analysis of the participants reflection essays and observation of their group work. That component of the project will be submitted as a conference paper and a journal article.

### **Awards to Faculty in the School of Sciences, Sustainability, and Health**

**Project Title:** ROAD TO ZERO ENERGY BUILDINGS. SIMULATION OF ACTIVE AND PASIVE STRATEGIES.  
**Faculty Investigator Name:** FERNANDO DEL AMA GONZALO, SPDA

**Abstract:** The office of ENERGY EFFICIENCY & RENEWAL ENERGY defines Zero Energy Buildings as those buildings that combine energy efficiency and renewable energy generation to consume only as much energy as can be produced onsite through renewable resources. This



achievement requires collaboration between architects, engineers and building stakeholders. The objective of this project is to provide professionals with a tool to design and evaluate active and passive measures in buildings. Analyzing the features of existing buildings in Keene, New Hampshire, will allow the Research team to be aware of the problems and needs of buildings in this region. By means of Energy Building Simulation (EBS) the team will provide a catalogue of solutions to improve the quality of construction. Firstly, we will evaluate the impact of passive energy reduction strategies, such as optimizing building orientation, well-insulated building envelope and ultra-efficient lighting. Finally, by integrating active measures and energy production devices, future architects and engineers will be able to turn existing buildings into energy producers.

**Project Title:** Last Punta\* at San Pedro: Analysis of the Chipped Stone Tools from the Final Season (2019) of Excavations at San Pedro, Ambergris Caye, Belize

**Faculty Investigator Name:** James Stemp, Sociology, Anthropology, and Criminal Justice

**Abstract:** Archaeologists working in Belize continue to reconstruct the impact of the Spanish arrival on indigenous Maya communities in the 15<sup>th</sup>-17<sup>th</sup> centuries A.D. Available evidence suggests not all Maya communities were affected in the same way. Some fell under the direct control of the Spaniards; however, others managed to maintain various degrees of autonomy. One way to observe the effects of the Spanish presence is to examine the Late Postclassic and Early Colonial period (ca. A.D. 1450-1700) material culture at Maya sites. One of the few known Late Postclassic/Early Colonial offshore Maya occupations is the site of San Pedro on Ambergris Caye. At this site, chert and obsidian stone tools are being used to document patterns of raw material acquisition, technological production, stone tool repair and recycling, stone tool use, and trade and exchange relationships. Based on the results of stone tool analysis in the 1990s and 2017, Maya lifeways were minimally disrupted on Ambergris Caye. The final season of excavations at San Pedro in the summer of 2019 will provide one last opportunity to examine more stone tools to see if this pattern of minimal disruption continues to hold true. The lack of any major upheaval on the caye, based on archaeological evidence, serves as a valuable contrast to the significant cultural changes noted at many mainland Maya sites after the Spaniards arrived.

**Project Title:** Travel for keynote address at Silk Road Archipelagos conference in Macau, China.

**Faculty Investigator Name:** Jeffrey 'Sasha' Davis, Geography

**Abstract:** I have been invited to give a keynote address to a conference in April 2019 in Macau, China. The conference, titled "Silk Road Archipelagos: Islands in the Belt and Road Initiative," is an international meeting of researchers who study China's new massive global infrastructure projects. I am being invited because of my past research on mega-projects on islands and my previous publications on the geopolitics of strategic islands in Asia and the Pacific. While the conference organizers have offered to cover my expenses while in Macau (hotel, meals, and conference fees), they do not have the resources to pay for my travel all the way from New Hampshire to Macau. I am therefore asking for \$1334 to cover my airfare from Boston to Hong

Kong to present a keynote address at the conference in Macau. This conference will contribute to my professional development because presenting a keynote address will give me a chance to discuss my research at greater length (and to a larger audience) than a typical conference presentation. It will also give me a unique opportunity to network with scholars in Asia who will be attending the conference.

**Project Title:** Normal Tadpole Behavior and the Impact of Developmental PAH Exposures  
**Faculty Investigator Name:** Susan Whittemore, Biology

**Abstract:** My research project focuses on the impacts of PAH exposure on neurodevelopment in the African clawed frog, *Xenopus laevis*. The PAHs under investigation here are ubiquitous and persistent in the environment and are known to cross the placenta. Human fetuses, infants, and children are exposed to these pollutants although their potential for toxicity to the nervous system is unknown. Developing frogs (tadpoles) are also exposed to these pollutants and with the global decline in amphibian populations, the impact of PAH exposure on tadpole neurodevelopment and behavior warrants attention as well. The specific objectives for this study are to achieve a more thorough understanding of the kinship and social behaviors of the tadpole to aid in the development of standardized behavioral assays that could be used to assess for PAH-induced abnormalities. In addition, I propose to develop a model of anxiety using the *Xenopus* tadpole which could prove useful for the testing of anxiolytic drugs and to better understand freezing behavior. We will use video tracking and open-sourced software to analyze our behavioral data and then complete a study to compare the behavioral responses of *Xenopus* to those of the native species *Rana catesbeiana*. The results of these experiments will be of both biomedical and environmental relevance.

**Project Title:** Network intrusion detection based on machine learning  
**Faculty Investigator Name:** Wei Lu, Computer Science

**Abstract:** A network intrusion is any unauthorized activity on a computer network. A network intrusion happens when a collection of infected computers, connected to the Internet, interact to accomplish some distributed tasks for harm-causing purposes. Typical such purposes include such as key-logging passwords, emitting spam emails or phishing scams. The proposed research project involves studies aimed at developing a next-generation network intrusion detection system, which shall be offering a significant improvement over existing solutions by addressing two typical challenges, namely (1) How to detect new network intrusions (or zero-day intrusions) as, or soon after they appear? and (2) How to identify applications for unknown and/or encrypted network traffic? The pilot studies on this research project have recently led two papers published and one paper to be published and presented in the 2018 International Conference on Intelligent, Secure and Dependable Systems in Distributed and Cloud Environments (ISDDC-2018), and this grant would allow me to present my paper on this prestigious conference.

**Project Title:** Deep Learning model for brain stroke classification from MRI images  
**Faculty Investigator Name:** Meenalosini Vimal Cruz, Computer Science

**Abstract:** In recent decades, numerous investigations concentrated on early detection of skin cancer with non-invasive or negligibly intrusive strategies in lieu of conventional excisional biopsy. The early, fast and effective detection of skin cancer is very crucial as it makes treatment easier and increasingly successful. Researchers are proficient in pre-processing the skin images but failed in identifying efficient classifiers for classifying the skin cancer due to complexity with variety of lesion sizes, colors, and shapes. No single classifier is sufficient for classifying the skin cancer.

Recently, convolutional neural networks have played an important role in deep learning. However, CNN suffers from not taking important spatial relations between features into consideration. Also, they lack rotational invariance. The lack of rotational invariance assigns an object to other classes, leading false negatives.

The capsule network is designed to overcome the problems associated with the CNN's. Capsule networks uses modules or capsules other than pooling as an alternative to translational invariance. The capsule network uses layer-based squashing and dynamic routing. The Capsule network uses vector-output capsules and max pooling with routing by agreement unlike scale-output feature detectors of CNNs. This assist in avoiding the false positives and false negatives. The capsule network architecture is created with many convolution layers and one capsule layer as the final layer.

Hence, the proposed work in the skin cancer classification is proposed based on the capsule network architecture, which can work well with high dimensional hyperspectral images of skin.

**Project Title:** Conference presentation: Implementation to Dissemination of Workplace Lactation Accommodations

**Faculty Investigator Name:** Margaret Henning, Public Health

**Abstract:** This work focuses on the translating evidence-based practices and policies into “real world” settings; specifically implementing the federal Break Time for Nursing Mothers Law and incorporating lactation accommodations into worksites as part of a worksite wellness model.

Only 25% of all employers in the US offer support for mothers after retuning to work.

Breastfeeding-friendly worksites have been associated with health and economic benefits for both mothers and employers. Prior research on nursing mothers and incorporating lactation accommodations into worksites has primarily focused on the breastfeeding-work interface, however, this work aimed to capture specific research on implementing practice and policy change to support lactation laws within worksites. Methods: We used evidence-based research specific to lactation accommodations to guide the process of data collection, implementation and dissemination of the federal Break Time for Nursing Mothers Law. We developed worksite selection criteria and collected pre/post implementation data from 10 worksites throughout NH using the CDC worksite scorecard. Results: Results provide evaluation of the CDC scorecard, insight into differences by industry, and how to best disseminate and package information on incorporating lactation accommodations into the workplace. This research is based on research from sixteen lactation spaces that were updated and/or developed at the 10 different worksites. Based on the CDC scorecard assessment, average pre-test score was 6. 5 and post-test score after was 11. 2 (73. 2% increase). We developed an in person training, training tool kit and identified methods for encouraging adoption and sustainability of the lactation program within the worksite.

**Project Title:** Physiological differences in motor planning and execution in practitioners of the Alexander Technique

**Faculty Investigator Name:** Harlan Fichtenholtz, Psychology

**Abstract:** Alexander Technique (AT) is a somatic practice aimed at increasing awareness of one's movement habits in order to undo inefficient neuromuscular patterns that people learn in response to environmental shifts or stressors over time. Research has shown that practicing AT has therapeutic effects for people with Parkinson's Disease and chronic back pain, but there is no basic research regarding the underlying physiological shifts that AT practice may correlate with. The goal of the current study was to determine the changes in electrophysiological measures of motor preparation and their relationship to motor output in people with AT exposure.

**Project Title:** Managing Relationship with Customers Who Do Not Respond

**Faculty Investigator Name:** Ke Li, Business Management

**Abstract:** Even though firms make enormous efforts to maintain relationship with customers so that they can profit from customers' lifetime value, many customers just do not respond to firms' marketing messages. In this paper, we examine the mechanism of customer's selective inattention to firms' marketing communications by applying the information theory of rational inattention. By constructing utility-maximizing information structure, we explore what communication channels that customers pay attention to, what information they choose to process, what indicator to look at, as well as what the optimal information flow is. Our study helps companies to enhance their marketing communication effectiveness so as to better their relationship with customers.

**Project Title:** Hispanic Pacific Rim in Santiago

**Faculty Investigator Name:** Marie Christine Duggan, Economics

**Abstract:** To present at symposium in Santiago which I have organized with Dr. Trejo in Mexico and Dr. Mazzeo in Lima on Hispanic Commerce in the Pacific Rim, 1600 to 1900, at which 15 scholars from the US, Mexico, Colombia, Peru, and Chile will present. The intent of this gathering is to promote an informal network of scholars of Pacific Rim commerce, see <https://redespacificos.wordpress.com>. This meeting sets us on the path to meet the request by the Pacific Historical Review to coordinate an edited volume on Hispanic scholarship of the Pacific Rim for 2021. In addition to organizing this group, I will present a paper myself at the symposium entitled, "Noriega's Otter Trade in the Pacific Rim, 1796 to 1816": Conventional wisdom has it that Spain squandered its opportunity to engage in the otter trade off the California coast. However, recent evidence has come to light which suggests that Commander De la Guerra y Noriega of Presidio Santa Barbara had come to California specifically in order to collect otter hides for export to Manila, and that Rancho Refugio, which he nominally granted to his eargent, Ortega, was the Noriega family outpost on the Pacific. The implication of the Noriega mercantile interest in California is that Spain's strategic reasons for colonizing California in the late 18<sup>th</sup> century should be supplemented by understanding what New Spain's mercantile community in Mexico City viewed as commercial benefits of the Pacific Rim.

**Project Title:** Design of efficient ventilation systems

**Faculty Investigator Name:** Dr. Christopher Rennix, SOHAS

**Abstract:** The Faculty Development Grant will be used to fund SOHAS students to build and develop performance specifications for a local exhaust ventilation system research platform for third- and fourth-year SOHAS students. When assessing the risk of injury in a workplace, a hierarchy of controls is used to design and implement measures to reduce the risk. The Occupational Safety and Health Administration requires those measures consider engineering controls, like local exhaust ventilation. Typical undergraduate and graduate occupational safety and health (OSH) programs provide exposure to the instrumentation used to assess the workplace, but not to explore the mechanical nature of engineering controls. By understanding how engineering controls actually work, assessments can be tailored to provide the most cost-effective and energy-efficient solutions. This platform, built using parts available from online and local hardware stores, will be designed to allow various configurations to be assembled and tested to address specific research needs. SOHAS students typically have at least one internship during which they are exposed to numerous work environments, some in small businesses that lack funds to buy engineering controls. By using their experience from the internship, they will be able to build and evaluate the performance of a practical solution to an exposure problem and provide information back to their employer.