

Summer Faculty Fellowship Awards Awarded in FY 2016

Adya, Monica

Associate Professor, Management

Cotton, John

Associate Professor, Management

SFF Award Amount: \$5,500

Mentoring Among IT Professionals: Understanding Process and Outcomes

One of the most influential methods of worker development is the mentoring relationship.

Workplace mentoring can be beneficial to protégés in the form of career related and psychosocial support and positively impacts career progression, satisfaction, and commitment. Although mentoring has been examined in the general management literature, it has received passing attention in information technology (IT) research in spite of the above findings. Mentoring may be particularly beneficial for improving participation in the IT workforce, especially as recruitment and retention of IT professionals continues to remain volatile. Mentoring may provide a solution for mitigating the effects of a high-pressure, masculine work environment. Further, mentoring across generations of IT professionals can support exchange of critical business and technical knowledge. These unique demands of the IS profession and increasing trends toward offshoring warrant an IT-specific examination of mentoring behaviors, preferences, and influences. With this in mind, the study has the following broad objectives:

- a. To empirically examine the process and outcomes of mentoring on IT professionals,
- b. To empirically determine how these mentoring processes and practices differ among IT professionals with regards to personal and professional demographics and orientations.

An online survey of professionals will provide insights into most questions above. The survey has been designed and includes items related to personal and professional demographics, mentoring practices at work, career orientation, existing mentoring relationships and perceived benefits from the same, and a set of outcome measures such as job satisfaction and turnover intentions.

Afinoguenova, Eugenia

Professor of Spanish, Foreign Languages and Literatures

SFF Award Amount: \$5,500

Socialist Non-Realism: Picasso's Guernica and the Artistic Experiments of the Popular Front, 1936-1939

The project contributes a new approach to Pablo Picasso's mural Guernica commissioned for the Spanish Republic's Pavilion at the 1937 International Exhibition in Paris and painted between late April and early June 1937. The present SFF/RRG application seeks support to complete research for, and write an article addressing one neglected aspect in the history of Guernica: the fact that Picasso produced his work in communication with a tightly-knit group of French and Spanish intellectuals who at the time advocated for a de-individualized, collective mode of artistic production. Tracing connections between these little-studied ideas and the ideologies of the Popular Front shared by the majority of Picasso's friends and bringing in new archival sources, my article will tell an unknown story of how Guernica was made and what it meant for the Popular Front quest for a political art beyond Stalin's "socialist realism." This project, furthermore, provides an important step-stone for my next monograph, dedicated to Picasso and the art of the Popular Front.

Andeen, Karen

Assistant Professor, Physics

SFF Award Amount: \$5,500

Air Shower Simulation Framework for the IceCube Neutrino Observatory

I propose to develop a software framework to generate simulation of cosmic ray air showers for use with the IceCube collaboration. I will use the summer faculty fellowship award to set the groundwork for the long-term success of, and student participation in, an enduring research relationship with the IceCube collaboration. By the end of the summer term, I will have successfully simulated cosmic ray air showers that are directly comparable to data taken at the IceCube Neutrino Observatory at the South Pole. Over time, these simulations will lead to new insights into the nature of high energy cosmic rays originating from our galaxy and beyond.

Andrews, Craig

Professor/Charles H. Kellstadt Chair, Marketing

SFF Award Amount: \$5,500

The Effects of Modified Risk Tobacco Product Claims and Graphic Health Warnings on Adolescent Smoking Beliefs and Intentions

Tobacco use is the single most preventable cause of death in the U.S. today, accounting for an estimated 483,000 deaths each year. Currently, 88% of all adult smokers begin smoking in their teens or younger. The 2009 Family Smoking Prevention and Tobacco Control Act provides the FDA with the regulatory authority over modified risk tobacco products (MRTPs) – i.e., products used to reduce harm or the risk of tobacco-related disease. One key provision in the Act is that consumers are not misled into believing that a reduced exposure product is less harmful than other commercially marketed tobacco products. Yet, little is known about exposure modification (e.g., “fewer chemicals”) and risk modification claims (e.g., “fewer cancer-causing chemicals”) for MRTPs, even though these have appeared in advertising over the years. For example, can different types of warnings adequately communicate safety risks with MRTP claims? Can graphic health warnings (GHWs) better convey the risks of tobacco/nicotine use versus text warnings when viewing MRTP claims? Our study focuses on a key population – adolescent experimenters -- and for different MRTP claims and warning types in e-cigarette advertising, an outlet that has shown a tremendous increase in youth exposure and product use in the last years. To date, there have been no studies of MRTP claims and warnings for adolescent experimenters exposed to e-cigarette ads.

Birren, Jill

Assistant Professor, Educational Policy and Leadership

Hristova, Krassimira

Assistant Professor, Biological Sciences

SFF Award Amount: \$5,500

Science, Policy, and Public Engagement in Kewaunee County Water Quality Concerns Over Local Contamination Due to Concentrated Agricultural Feeding Operations

The proposed study explores intersections between science, policy, and public engagement in Kewaunee County, Wisconsin, where high numbers of Concentrated Animal Feeding Operations (CAFOs) combined with a uniquely susceptible geology have threatened the quality and safety of well-sourced drinking water in local communities. Recent activity on the part of citizens and environmental activist groups have placed water contamination issues in Kewaunee County at the

forefront of regulatory and public concern over the implications of CAFOs for local communities and the environment. Our proposed collaborative research project will examine public engagement in policy negotiations and link local groundwater quality with human health. The partnership will provide unique perspectives into public understanding of science and the influence of science on policy in controversy over CAFO sourced water contamination. This work will lay foundations for our ongoing research at the intersection of science and policy related to agricultural waste management, water quality, water policy and environmental justice. As Milwaukee seeks to become a leader in water-related science, technology and development, research frameworks that are able to consider the technical aspects of such initiatives within contexts of socio-scientific controversy and policy processes will be increasingly important for pursuing and protecting interests of environmental justice.

Brigden, Noelle

Assistant Professor, Political Science

SFF Award Amount: \$5,500* (*Funded by the Center for Transnational Justice)

Surviving the Passage: Clandestine Journeys from Central America

The proposed project is a final stage of fieldwork for the completion of a book manuscript, titled *Surviving the Passage: Clandestine Journeys from Central America*. The book manuscript is a study of violence and survival along unauthorized migratory routes from Central America through Mexico and into the United States. It examines what migrants know about this violence, how they come to know it, and the broader implications of that knowledge. In so doing, the book argues that migrants negotiate clandestine journeys through improvisation, rather than planning, and it traces how these improvisations complicate the social and territorial boundaries that constitute nation-states. The argument draws upon more than two years of ethnographic fieldwork in El Salvador and Mexico, as well as targeted visits to migrant destination communities in the United States. If awarded, the SFF grant will facilitate a period of follow-up fieldwork for an epilogue that explores recent, dramatic policy changes in Mexico. In response to the sudden arrival of thousands of unaccompanied Central American children at the U.S. border, in 2014, Mexico intensified its efforts to apprehend U.S.-bound migrants crossing its territory. As Central Americans adapt to this new policing environment, hiding deeper in the shadows of the clandestine route, the 'humanitarian crisis' at the U.S. border now unfolds in southern Mexico. The SFF will permit me to explore the impact of this intensification of border policing in southern Mexico on the migration route, violence, and migrant survival strategies. I will submit the manuscript to Cornell University Press for review in September 2016.

Canavan, Gerry

Assistant Professor, English

SFF Award Amount: \$5,500

The Science Fiction of Clifford D. Simak

This project takes up the work of Wisconsin-born science fiction writer Clifford D. Simak (1904-1988) towards the production of two related articles. The first article will explore Simak's attempts to integrate science fiction and religion, which stand in marked contrast to the well-known atheism of contemporaries like Isaac Asimov, Robert Heinlein, and Arthur C. Clarke. A lifelong Catholic, Simak deployed science fictional tropes in the service of his spiritual speculations, seeking to produce a positive vision of the science fiction genre that is compatible with religious thought rather than permanently or endemically opposed to it. The second article focuses specifically on Simak's 1952 inventive novel *City*, which describes the emergence of a species of intelligent Dogs (*Canis*

sapiens) and the subsequent total disappearance of human beings from Planet Earth. I consider City in the context of related works, in particular Olaf Stapledon's Sirius (1944)—also about a dog that has been raised to human intelligence—and David Brin's "Uplift" series of novels (1980s-1990s), which concerns the creation by scientists of sentient dolphin and chimpanzee "persons." This article in turn will feed into my third book project, which traces the relationship between science fictional figurations of animal and alien "personhood" and the rhetoric of contemporary animal rights movements. I plan to apply for an NEH fellowship in spring 2016 to support this project in academic year 2016-2017.

The significance of this project is thus to revive critical interest in Simak's fiction at a time when his thematic interests in philosophy, ecology, and animal rights make him increasingly relevant to contemporary debates in the humanities, as well as demonstrate important links between science fictional speculations and animal rights struggle.

Ganz, Melissa

Assistant Professor, English

SFF Award Amount: \$5,500

The Outlaw and the Magistrate: Imagining Justice in the British Enlightenment

Eighteenth-century Britons found themselves in the midst of a crime wave. According to contemporaries, England was plagued by pickpockets, prostitutes, murderers, and frauds. Legislators responded to the problem by passing a draconian set of laws known as the "Bloody Code," sparking heated debates about the nature and goals of criminal justice. "The Outlaw and the Magistrate" reads novels by authors including Daniel Defoe, Henry Fielding, Tobias Smollett, William Godwin, and Walter Scott alongside criminal biographies, trial narratives, broadsides, treatises, and pamphlets in order to probe the intertwined histories of criminal law and fiction. Challenging the idea that eighteenth-century novels either rigidly police or subtly celebrate illicit behavior, the book argues that writers from Defoe to Scott attempt at once to shore up and to reform the law. Novelists look to legal justice as opposed to private vengeance to counter the perceived rise in crime, I show, even as they imagine ways to reconstruct an outmoded and inhumane penal system. In uncovering novelists' complex engagements with the penal controversies of the Enlightenment, this book reveals the centrality of criminal law to early fiction and of novels to penal reform, while offering a new model of law and literature.

Gilmartin, Marieke

Assistant Professor, Biomedical Sciences

SFF Award Amount: \$5,500

The Role of Estradiol in Mediating the Effects on Fear Memory by the Stress Peptide PACAP

Women are over twice as likely to develop PTSD as men following a traumatic experience.

Recently, a genetic polymorphism was identified that is correlated with symptom severity in women, but not men (Ressler et al., 2011). This single nucleotide polymorphism is in the gene encoding the PAC1 receptor which is activated by PACAP (pituitary adenylate cyclase-activating polypeptide), a highly conserved signaling peptide that is integral in adaptive stress responses. This finding suggests that PACAP signaling may contribute to maladaptive stress responses in fearful situations, but how PACAP contributes to fear and anxiety is not known. We have recently found that PACAP signaling the PAC1 receptor in the prefrontal cortex of female rats is necessary for fear learning in most, but not all, of the rats tested. This suggests that individual differences in PACAP

signaling may contribute to adaptive responding to fear cues. One potential source of individual variability affecting PACAP signaling is circulating ovarian hormone levels at the time of learning about threat. In fact, the promoter for the PAC1 receptor contains an estrogen response element, which means that estrogen has the potential to modulate transcription of the gene. This project will test the contribution of estrogen in female rates to the memory-impairing effects of PAC1 receptor blockade. Our results will provide insight into the neurobiological mechanisms of normal PACAP signaling that, when disrupted in women with the polymorphism, may confer susceptibility to PTSD in this higher-risk population.

Guttormson, Jill

Assistant Professor, Nursing

SFF Award Amount: \$5,500

Enhancing Nurses' Utilization of Alternative Communication Strategies with Mechanically Ventilated Patients

Background and Significance: Mechanically ventilated (MV) patients are unable to speak due to the breathing tube. Inability to effectively communicate during mechanical ventilation increases patients' stress, impacts symptom management, and limits patients' ability to participate in care decisions. Nurses play an integral role in supporting patients' communication yet often lack formal training in alternative communication (AC) strategies that would facilitate effective communication for these nonverbal patients. **Purpose:** This feasibility study will evaluate the impact of training on nurses' utilization of AC strategies and develop processes that enhance nurses' utilization of AC strategies with MV patients. **Methods:** The proposed study is a mixed methods, prospective pre/post design with data collected for four months prior to and four months after initiation of the intervention. The intervention consists of an online training program that includes nurse training in AC strategies, an algorithm to guide AC choices, provision of communication supplies, and communication care plans to increase consistency of communication strategies with individual patients. Barriers and processes that support adoption of AC strategies will be identified from nurse focus groups and nurse survey data. A Daily Communication Survey will collect data on AC utilization before and after implementation of the intervention. **Conclusion:** The proposed study will provide guidance for successful implementation of communication training programs. Results from this study will be used to support a larger multi-site grant application investigating the impact of increased use of AC strategies on patient level outcomes of: patient reported ease of communication, patient satisfaction, and patient anxiety.

Heinrich, Stephen

Professor; Director of Graduate Studies, Civil, Construction, and Environmental Engineering

Lee, Chung Hoon

Associate Professor, Electrical and Computer Engineering

SFF Award Amount: \$11,000

Toward Higher-Order Micro/Nanobeam-Based Mass Detection Methods in Biological and Chemical Sensing

The feasibility of a new paradigm for micro/nanoscale mass detection will be examined in detail through a collaborative project aimed at developing inexpensive, portable, resonant-beam devices that will detect the presence of small "particles" (e.g., cells, molecules, small organisms), differentiate between particles of different weight and/or dimension, and monitor changes in a particle's attributes in real-time. The successful operation of the device (a small, vibrating structural

beam excited via an electrical signal) is based on the principle that the device's resonant frequencies at which it is predisposed to vibrate are influenced by the mass characteristics of any attached particle – provided that the device is small enough to "feel" the particle. Electrically measured shifts in the resonant frequencies may be correlated to particle characteristics such as mass, size, shape, adherence, and position on the beam, but only if the underlying mechanics of the beam/particle system are fully understood. This knowledge may then be utilized to design optimized devices for which the particle attributes of interest will be reflected in the device's measurable vibration response. In this project an appropriate theory, building on a recent preliminary model, will be formulated, and its validity tested via experimentation. The collaborative, interdepartmental project will mesh theoretical expertise in structural mechanics and experimental expertise in fabricating and testing micro/nano devices. The results of this fundamental study will have important practical implications in biosensing (e.g., monitoring cell response to drug exposure) and chemical sensing (e.g., identifying environmental toxins at very small, but dangerous, concentration levels).

Iuzzini-Seigel, Jenya

Assistant Professor, Speech Pathology and Audiology

SFF Award Amount: \$5,500

Implicit Learning Ability and its Relation to Speech, Language, and Motor Deficits in Preschool-aged Children

Imagine being a child on a playground during recess. Now imagine being a child with severe communication and physical disabilities whose speech cannot be understood, who is clumsy and uncoordinated.

Childhood apraxia of speech (CAS) is a neurological speech disorder that often requires speech therapy well into adolescence. Some children with CAS show severe speech problems only, whereas others require therapy for learning and physical disabilities too. It is unknown if the physical disabilities have the same underlying cause as the speech impairment in CAS, or if they result from a different factor that exacerbates speech. The proposed project will investigate implicit learning impairment as one potential factor contributing to the breadth of disabilities impacting these children.

Implicit learning is the process by which fine/gross motor skills (e.g., bike-riding) and grammatical rules are acquired; once learned, rules and motor acts occur quickly and automatically.

Consequently, implicit learning deficits can have effects on systems throughout the body and could contribute to the variation in symptoms and performance prevalent among children with CAS.

The proposed work uses custom computer games to test implicit learning in children with CAS; speech, grammar, and fine/gross motor skills will also be assessed. We hypothesize children with poor implicit learning will have more severe speech and physical disabilities than those with good implicit learning ability. We expect this research will identify implicit learning as a significant factor in the disabilities that affect children with CAS, which will help us develop much-needed assessments and treatments for this population

Kelly, Conor

Assistant Professor, Theology

SFF Award Amount: \$5,500

The Nature and Operation of Structural Sin: Insights from Theology and Moral Psychology

In the 1960s, liberation theologians proposed the idea of “structural sin” as a way of acknowledging that collective actions and institutions can frustrate the common good at least as much as individual choices. Since then, the Term has gained traction, appearing not only in theological works and papal encyclicals but also in Paul Farmer’s analysis of public health. Despite its popularity, there is surprisingly little detail about what structural sin is and how it operates.

For the SFF, I will address this persistent lacuna, producing a journal article that specifies the nature and operation of structural sin. Placing contemporary Catholic theology in dialogue with non-Catholic ethicists, the article will develop a novel definition of structural sin as a social or economic incentive that promotes exclusive self-interest(s) at the expense of the common good. The article will defend this definition by demonstrating its resonances with existing theological notions of sin in general and structural sin in particular. Finally, the article will use new insights from the field of moral psychology to explain how structural sin’s perverse incentives influence moral choices and human behavior.

This research has evident implications for the field of theological ethics, where the revised definition will clarify an ambiguous academic discourse. This work also has practical significance, for a more precise understanding of the nature of structural sin helps to highlight the problematic social structures currently undermining the common good, and a better grasp of its operation aids in efforts to confront these social injustices.

Lodh, Nilanjan

Assistant Professor, Clinical Laboratory Science

SFF Award Amount: \$5,500

Point of Care Diagnosis for Schistosomiasis: Parasite DNA Detection in Urine by LAMP

Schistosomiasis is second only to malaria as a major parasitic disease in its deprecating effects on humankind. Differential diagnosis of two major concurrent human schistosomes namely *Schistosoma mansoni* and *S. haematobium*, is an involved process requiring both urine and stool and the standard procedures are low in sensitivity. The diagnostic challenges are important because this chronic parasitic disease infects 200 million people and causes estimated worldwide death of over 200,000 people every year. The success of control strategies based on Mass Drug Administration (MDA) depends on accurate and highly sensitive diagnostic test, and one that can differentiate between the species. Due to effectiveness of control programs the issue of diagnostic sensitivity has become more critical in the assessment of program effectiveness. It will be important to identify lightly infected people as they can still infect snail (parasite carrier) and keep the transmission going. World Health Organization (WHO) also has drawn attention to / the need for field applicable tests with high specificity and improved sensitivity. We have detected *S. mansoni* and *S. haematobium* parasite specific DNA from urine by Polymerase Chain Reaction (PCR) on filter paper. We also demonstrated that mixed infection by above mentioned schistosome species can be detected by the same method from a single source of urine. I am proposing to use urine samples from endemic areas and a common sample preparation procedure with isothermal DNA amplification technology (LAMP) to optimize parasite specific DNA detection in field laboratories for integrated diagnosis of Schistosomiasis.

Peressini, Anthony

Associate Professor, Philosophy

SFF Award Amount: \$5,500

Extending Nonlinear Symbolic Dynamic Analysis via Orbital Decomposition to Take fMRI Analysis to the Next Level

I propose to develop software to convert fMRI data to a format appropriate for analysis by our ORBDE (orbital decomposition) computer program (Peressini and Guastello, 2014), thereby allowing ORBDE's analysis to be applied to fMRI studies of the brain.

ORBDE "decomposes" complex sequences of observations into patterns that reveal its under-lying structure. Its effectiveness for many kinds of problems has been demonstrated. ORBDE requires that the observations be given nominal codes, that is, each kind of observation is coded as a symbol (e.g., upper case letter): a typical coded sequence might be {A C B A C B A...}. ORBDE was a breakthrough because it automated the analysis of such nominally coded data, allowing realistically large/complex sequences to be analyzed. But fMRI data are sequences of quadruples of the form (x, y, z, a). And while fMRI data have been fruitfully analyzed by ORBDE (Guastello et al., 2002; Nathan et al., 2012), the time and effort required to manually transform fMRI data to nominally coded data for analysis by ORBDE is prohibitive.

The significance of this program will be to reduce by orders of magnitude the effort required to use ORBDE with fMRI data, thereby opening it to the very large, vibrant body of researchers working with fMRI data.

The benefit for my work will be to (a) enhance funding prospects for a resubmission of our unfunded NIH proposal (Guastello et al., 2014), (b) help me combine my philosophical research with my scientific research, and (c) revitalize my philosophical work on neurodynamics, free action, and fMRI issues.

Perouli, Debbie

Assistant Professor, Mathematics, Statistics, and Computer Science

SFF Award Amount: \$5,500

Towards a Realistic Evaluation of the Effectiveness of Partial Origin Validation Deployment in the Internet

The rapid speed through which the Internet entered the life of billions of people coupled with the complexity of the technology that makes the Internet operate did not leave much time for the general public to consider the challenges and limitations of this technology. News reports remind us at increasing frequency that security incidents can even affect well-established tech companies such as Google. A malicious or accidental action of China Telecom may force US data to travel through China's network although that was never the expected path. Such incidents raise public awareness, but experts in the field have not found them surprising; it is a well-known fact that the Internet was not designed with security as one of its major objectives.

Responding to the need, the Internet Engineering Task Force (IETF) has been developing and testing standards that will provide more security guarantees regarding the selection of the paths on which data travels. The efforts have focused on ensuring that when a network announces the availability of a path, the network has the right to do so either because it is the valid origin or a valid intermediate node in that path. It is also expected that these proposals will be deployed incrementally. In this project, we propose to create the necessary models to measure the

effectiveness of origin validation assuming its partial deployment in the Internet. Compared to related work, we propose to use more realistic models of networks and business policies among them.

Plested, Marcus

Associate Professor, Theology

SFF Award Amount: \$5,500

Analyzing the Character of the Light of the Transfiguration According to Thomas Aquinas

While the analysis of the character of the light of Christ's transfiguration on Mount Thabor (Matthew 17:1-9; Mark 9:2-8; Luke 9:28-36) may seem a rather abstruse question it in fact brings us to the very heart of the theological differences between Greek East and Latin West, between the Eastern Orthodox and Roman Catholic/Protestant traditions. This event in the life of Christ (when he was seen shining with light) is somewhat marginal in many Western Church traditions but remains firmly at the center of Eastern Christian theology and spirituality. This project proposes a thorough analysis of the various treatments of theme in the pre-eminent theologian of the medieval West (in his *Summa theologiae* and elsewhere). It promises to shed new light on Aquinas' reception of Eastern theological sources and also highlight potential areas of contact and reconciliation between the divided Churches of East and West. Consideration of this topic raises big questions about the nature of this mysterious light (created or uncreated, material or intellectual) and, more concretely, the nature of human vision and experience of God. Historically, East and West have construed these questions very differently – the West speaking of the light as created and reserving the vision of God to heaven, the East treating it as uncreated and upholding the possibility of the vision of God here on earth. I intend to demonstrate in the form of a journal article that, in Aquinas at least, the situation is much more subtle and complex than is commonly assumed.

Rich, Kevin

Assistant Professor, Accounting

SFF Award Amount: \$5,500

Municipal Accounting Outcomes and Accounting Manipulation

Local government plays an important role in the lives of citizens (Gordon 2009). One important oversight mechanism over the actions of local officials involves elections, where citizens have the opportunity to critique a candidate's job performance (Lau and Redlawsk 2006), or decide whether a locality is able to raise additional debt. These assessments are often based on reported financial information published by municipalities (Ingram and Copeland 1981; Brusca and Montesinos 2006), which is often directed by the same managers running for re-election or leading a bond initiative.

Prior corporate studies suggest that managers are willing to opportunistically manipulate reported financial information in a variety of settings, one of which involves inflating reported profits in advance of stock offerings (DuCharme et al. 2004). The purpose of this study to extend this stream of research to the municipal managers opportunistically manipulate financial reporting information in advance of elections.

The study will involve collection of election data to isolate distinct events where a) elected officials are running for re-election, and b) where a locality is looking to get citizen approval to issue debt. We will use multivariate analysis to test for differences in reported fiscal performance in the pre- and post-election time periods. These findings should contribute to the literatures in accounting,

political science, and public administration by providing guidance to voters looking to make informed decisions, and to regulators seeking to design rules that help facilitate optimal financial reporting outcomes.

Rindfleisch, Bryan

Assistant Professor, History

Award Amount: \$5,500 (*Funded by the Center for Transnational Justice)

"Possessed of the Most Extensive Trade, Connexions & Influence" The Atlantic Intimacies of an 18th Century Indian Trader

This project examines the life of George Galphin, a Scots-Irish trader who immigrated to South Carolina in 1737, where he emerged as one of the most influential cultural intermediaries in the American south. Specifically, Galphin provides a window into the many personal and spatial connections that existed between the American colonies, Native America, Europe, and the Atlantic commercial system. Through Galphin, we see how the lives of countless people from disparate worlds intersected with Galphin's own - often in very intimate ways - which included Irish immigrants, Creek and Cherokee Indians, European merchants, imperial administrators, African slaves, and others. With such an intimate look at Galphin's considerable and dissimilar cast of characters, then, I reframe the larger narrative of Early American history according to the relationships that these individuals used to understand, navigate, and structure the broader worlds that they were a part of. In short, Galphin reveals to us the very personal and local contours of the eighteenth-century.

I am applying for both the Summer Faculty Fellowship and Regular Research Grant, which will facilitate travel, living expenses, and research costs in Northern Ireland during the summer of 2016. I will spend four weeks in Belfast at the Public Records Office and Presbyterian Historical Society, in addition to a week at the Armagh Public Library. While I am in the beginning stages of transforming my dissertation into a book manuscript, this trip will be critical to completing my research, after which I can begin the revision process.

Robinson, Karen

Assistant Professor, Nursing

SFF Award Amount: \$5,500

In-home Peer Counseling to Increase Breastfeeding Rates Among African American Women Who Participate in WIC

Purpose: The purpose of this feasibility study is to examine the probability of success in implementing an in-home postpartum breastfeeding support program using breastfeeding peer counselors (BPC) among African American Women (AAW) participating in WIC. **Problem:**

Breastfeeding is the ideal infant feeding practice. Despite increasing breastfeeding initiation rates nationally, women who participate in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) do not meet national breastfeeding objectives. Various WIC programs connect AAW, with breastfeeding intentions, with peers who have successfully breastfed. These programs have shown to be effective in increasing breastfeeding rates. Yet, few programs provide consistent in-home postpartum counseling; a time when mothers are more likely to abandon breastfeeding. **Methods:** In this feasibility study, 20 AAW will be recruited from a WIC clinic in Southeastern Wisconsin. Consented participants will receive routine' WICBPC support during pregnancy. In addition, participants will receive scheduled postpartum BPC support including in-

home visits. Breastfeeding practices will be recorded at hospital discharge, each home visit, and every 2 weeks post discharge for 12 weeks or until breastfeeding cessation. Feasibility will be measured based on ability to recruit and consent participants, participant retention, intervention adherence, and the overall study management. **Relevance:** It is expected that this study will demonstrate the feasibility in implementing a scheduled postpartum BPC support program for women who, historically, are least likely to initiate and continue breastfeeding. This study will provide the foundation needed for securing federal funding (R21) to test the intervention in a large randomized clinical trial.

Scheidt, Robert

Professor, Biomedical Engineering

SFF Award Amount: \$5,500

Control of Arm Posture and Movement Following Stroke

This project will obtain preliminary neuroimaging data needed to maximize competitiveness of an upcoming NIH R01 renewal application. Specifically, we seek to use robotics-enhanced functional MR imaging (re-fMRI) to advance understanding of the neural mechanisms contributing to sensorimotor control of limb posture and movement and the extent to which these control actions are differentially impacted by stroke. Our previous studies have shown that distributed networks of brain regions are actively engaged in the control of separate limb trajectory and limb posture tasks. The upcoming R01 project will explore how activities within those networks are normally coordinated during the control of limb trajectory and posture, and how stroke-related lesions of the central nervous system disrupt those networks. Such knowledge will be critically important for determining how best to provide lesion-specific rehabilitation to future stroke survivors.

Here, we propose to pilot a new set of experiments wherein we combine wrist stabilization and movement tasks into a single scanning session, thus identifying the neural networks mediating the two control actions within the same subjects, and quantifying the extent to which the two neural networks do or do not overlap. We will also extend the subject population to include survivors of middle cerebral artery stroke, allowing us to determine how lesions of the left and right hemisphere impact control of wrist posture and movement after stroke. We expect that the proposed activities will demonstrate that our approach is both feasible and well-tolerated by stroke survivors, thereby strengthening the renewal R01 application.

Singer, Simcha

Assistant Professor, Mechanical Engineering

SFF Award Amount: \$5,500

Hybrid Models to Reduce the Computational Cost of Simulating Energy Conversion Processes

Concerns about the effects of the increasing carbon dioxide concentration in the atmosphere have led to proposals to utilize fossil fuels like coal and natural gas in a more environmentally-friendly manner. Oxy-combustion and chemical looping combustion are promising technologies that enable carbon dioxide to be captured from energy conversion processes at a reduced cost compared to current technologies. The proposed research aims to develop and validate a numerical stimulation tool that can accurately stimulate certain oxy-combustion and chemical looping combustion processes with reduced computational expense. The method to be developed will take a hybrid approach to reducing the computational cost. In particular regions where simplifying assumptions

about the geometry are invalid, the geometry will be faithfully reproduced, and in all other regions, the stimulation will be simplified. The two regions which are treated with differing levels of complexity will be coupled together within a single hybrid simulation. It is hypothesized that the hybrid approach will improve predictions of process-scale variables of interest while maintaining a reasonable computation cost.

Strakhov, Yelizaveta

Assistant Professor, English

SFF Award Amount: \$5,500

**Politics in Translation: Lyric Form and the Francophone Author in Late Medieval Europe
(chapter two)**

For this project I will be conducting archival research on fourteenth- and fifteenth-century poetic and musical manuscripts in the UK, the Netherlands, Northern Italy, and the Czech Republic. This research will allow me to complete the second chapter of my book project. This chapter investigates the cross-European transmission and circulation of a crucial, but little-studied late medieval lyric genre, known as the *formes fixes*, by recovering a lost network of manuscripts which contain this genre. My research will focus on understanding the complex textual relationship between these scattered manuscripts. By investigating this relationship, my chapter will set up the rest of my argument concerning the fundamental importance of the *formes fixes* genre to late medieval poetic discourse surrounding the proto-nationalist identity politics in a period of major conflict for Western Europe, known as the Hundred Years War (1337-1454).

My overall book project argues that the medieval field of the Anglo-French studies has been, in its nationalist emphasis on the “Anglo” and the “French,” overly reductive. My critique is suggested to me by the Hundred Years War, which simultaneously promoted and complicated protonationalist sentiments. I offer *cross-Channel studies* and *the Francophone* as alternative categories. The project demonstrates the need for these categories by uncovering a previously unknown discourse, conducted in the *formes fixes* genre that meditated on the fracturing of cross-European Francophone identity by newfound wartime political and protonationalist faction. I thus offer a new approach towards understanding the effects of literary exchange on wartime communities.

Van Hecke, Amy

Van Hecke, Psychology

SFF Award Amount: \$5,500

Neural Change due to Intervention in Autism: Pilot MRI Data Collection

Autism spectrum disorder (ASD) is a life-long neurodevelopment condition with effects on language, social functioning, and behavior. Although there is agreement that neurological disturbance is seminal to ASD, there is no consensus as to the etiologies of those disturbances. Further, little is known about the range of individual differences in responsiveness to treatments, and whether interventions later in life can have a positive impact. However, recent research including my own EEG study, seeks to determine the potential for interventional neural rehabilitation in ASD, finding evidence of neuroplasticity in adult and adolescents with ASD in response to clinical interventions. *This proposal aims to extend my previous work by examining, with a higher-resolution imaging technique, whether the function and structure of neural systems supporting social behavior in adolescents with ASD are affected by an empirically validated relationship-development intervention.* The methods utilized in this proposal consist of 1) functional Magnetic Resonance Imaging (MRI) to measure brain activity, and 2) Diffusion Tensor Imaging (DTI) to measure brain

structure. The experimental manipulation utilized in this proposal consists of a randomized controlled trial (RCT) of the Program for the Education and Enrichment of Relational Skills (PEERS) intervention for adolescents with ASD. This outpatient treatment is specifically tailored for adolescents with ASD, and improves social skills and friendships. The overarching goal of the research program is to understand how the remediation of chronic isolation, via the development of social relationships, affects the course of brain development in individuals with ASD.

Webster, Jennica

Assistant Professor, Management

SFF Award Amount: \$5,500

Policies, Perceptions, & People: A Meta-Analytic Investigation of Diversity Management Program Features for LGBTQ Employees

The purpose of this study is to test prevailing yet untested assumption that certain voluntary diversity management (DM) efforts undertaken by organizations to foster greater inclusion of lesbian, gay, bisexual, transgender, and queer (LGBTQ) employees effectively 1) reduce discrimination and harassment, 2) increase physical and mental well-being, 3) enhance work-related attitudes such as satisfaction, and 4) enable LGBTQ employees to behave authentically at work. While DM efforts have been shown to be effective for other groups, rigorous empirical evidence of their effectiveness for LGBTQ employees is far from conclusive. As a result researchers are faced with a literature that presents fragmented and conflicting empirical studies and lack a coherent framework that could advance theory in this area. Practitioners find themselves investing resources in DM programs with little guidance on how to best deploy those resources and even less evidence to make either the 'human' or 'business case' for those programs. To address this gap in the literature and thereby inform and advance research and practice within the field, this study examine the relationships among three DM program features: 1) adopting formal organizational policies that proscribe discriminatory actions toward LGBTQ employees, 2) fostering perceptions of an inclusive and supportive organizational climate, and 3) creating the presence of allies that support and advocate LGBTQ employees and the four effectiveness criteria described above. To accomplish this I will use a statistical procedures to synthesize data across multiple studies (meta-analysis) and then examine the relationships among the study variables (structural equation modeling).

Woda, Amiee

Assistant Professor, Nursing

SFF Award Amount: \$5,500

The Impact of High Fidelity Human Simulation on Newly Licensed Registered Nurses Perception of Competency, Work Stress, and Job Satisfaction

Challenges exist for nursing students as they transition to their role as newly licensed registered nurses (NLRN) due to a mismatch between their perceived readiness and role competency, and the demands of the practice environment. The addition of simulation learning experiences (SLE) using high fidelity simulations (HFS) within nursing curricula may be one teaching strategy to better prepare students for the transition to the role of a practicing nurse. There is a need to determine how to best integrate SLE with traditional hospital-based learning experiences in nursing curricula. The National Council of State Boards of Nursing identified that 50% of traditional hospital based practicums (HBP) can be substituted with SLE rendering no statistically significant difference in clinical competency or readiness for practice (Hayden et al., 2014). However, it is unknown whether the use of HFS practicums to supplement HBP produces additional effects on clinical competency, which may decrease work stress, and increase job satisfaction among the NLRN in the workplace.

The optimal amount of HFS needed in coordination with HBP experiences has yet to be determined.

The purpose of this study is to determine if supplementing HBP with SLE, vs substituting HBP with SLE has an impact on NLRN perception of competence, work stress, and job satisfaction. A quasi-experimental design will be utilized to compare two groups of NLRN at six months of practice; In Group 1, SLE were substituted for HBP; in Group 2, SLE were used to supplement HBP.