



## Research in Progress - Abstracts

### April 4th, 2017

*"Towards the use of Augmented Reality, Virtual Reality, and Cell Phone-Based Applications to Address (Population) Health Issues"*

**Pierre Mourad, PhD, Professor, School of STEM - Engineering & Mathematics**

**Jody Early, PhD, Associate Professor, School of Educational Studies**

**Rafael M.L. Silva, MS, Research Engineer, UW Bothell**

Advances in augmented reality (AR), virtual reality (VR) and cell-phone based applications (apps) have generated substantial excitement in a variety of applications. Here we first review the application of these technologies to a range of health issues. We then review our nascent efforts using AR to support the rehabilitation of patients with stroke and using apps to address health disparities in our region.

### April 11th, 2017

*"Living in Dose: Nuclear Work and the Politics of Permissible Exposure"*

**Shannon Cram, PhD, Assistant Professor, School of Interdisciplinary Arts & Sciences**

This talk explores the complex politics of "permissible exposure" for U.S. nuclear workers. I argue that despite notable efforts toward regulatory reform, the federal government has been unable to solve a fundamental paradox of nuclear safety: that some level of exposure is unavoidable when working with nuclear materials, and that any level of exposure comes with an associated biological risk. In short: injury is an operational necessity of nuclear industry. Thus, nuclear safety can never mean total protection for workers—it can only ever be the level of exposure that has been deemed acceptable relative to the benefits of nuclear development. For workers, this begs a very practical question: How do you stay safe in a system that requires your exposure in order to function? I consider this problem by first examining the federal policy recommendation that radiogenic exposure be "As Low As Reasonably Achievable" (ALARA). Detailing the specific development and application of this concept, I discuss how ALARA uses reason to manage the inherent impossibilities of radiation protection. Next, I use in-depth interviews with nuclear workers to explore how exposure standards are translated into the embodied practice of "dose"—a calculated dispensation of exposure over time that seeks to forestall the inevitability of harm. Finally, I consider how the cost-benefit calculus of acceptable risk frames exposure as integral to economic development and national security, normalizing nuclear injury as an unfortunately, yet necessary, part of modern life and work.

### April 25th, 2017

*"Trans-Generational Epigenetic Memory of Environmental Stress: Lessons from Plants"*

**Thelma Madzima, PhD, Assistant Professor, School of STEM - Biological Sciences**

As sessile organisms, plants must rapidly adapt to fluctuating and often extreme environmental conditions. At the cellular level, these adaptations can be epigenetic; modifications superimposed onto DNA that are not caused by changes in DNA sequence. Epigenetic modifications are heritable, yet reversible, and have phenotypic consequences. Several human diseases are a result of epigenetic changes influenced by environmental factors. Likewise, in plants epigenetic changes influence normal plant growth and development, as well as plant responses to environmental stress. In many agriculturally important crop plants such as Zea

mays (corn/maize), environmental stress can have devastating outcomes on plant productivity, crop yield and the U.S. economy. In my research program, we aim to understand the mechanisms of epigenetic responses to abiotic stress in plants, and the impact of epigenetic 'memory' on the offspring.

## May 2nd, 2017

*"School-to-Community Transition: How Places and Spaces Structure Opportunity in the Lives of Youth with Disabilities"*

**Jason Naranjo, PhD, Assistant Professor, School of Educational Studies**

The purpose of this seminar is to describe how geography functions to structure opportunity for youth with disabilities in the transition from school-to-community. This research assumes an interdisciplinary orientation and draws on the work of scholars from the fields of disability studies, disability studies in education, sociology of education, cultural and human geography, geography of children and families, and special education. This approach has been taken in order to highlight the nuanced and complex physical and socio-political places and spaces where youth with disabilities are situated as they exit the public school system and advocate for economic, social, and political access in places where they live.

## May 9th, 2017

*"First, Do No Harm: Analyzing Narrative Along the Pro-/Anti-Vaccination Spectrum to Foster Better Understanding and Dialogue"*

**Dan Bustillos, PhD, Assistant Professor, School of Nursing & Health Studies**

Vaccination has proven controversial in public discourses and communities despite conclusive scientific evidence of immunization's preventive public health benefits and the low risks that modern vaccines pose. In these polarized times, the controversy has become emotionally fraught and increasingly vitriolic, making beneficial dialogue and mutual understanding elusive.

Interviewing people throughout the spectrum of attitudes and beliefs about vaccines, we elicit the stories people construct to make sense of the practice of vaccination. These stories illustrate the complex reasoning involved in vaccine decisions, and challenge the simplistic way in which the vaccine debate is typically depicted. Using qualitative, narrative analyses to examine the structures, tropes and themes of these often moving stories, we hope to aid in a richer understanding of human reason surrounding vaccination, which may then foster a healthier conversation to emerge.

## May 16th, 2017

*"Floods and Climate Change"*

**Eric Salethe, PhD, Associate Professor, School of Nursing & Health Studies**

Current flood risk management, including flood control structures, land use regulations, and insurance markets, is adapted to historic flood risks, often using data from the past 100 years. In many regions, including the coastal Pacific Northwest of the United States, the future climate could produce substantial increases in flood risk. As a result, existing management practices may not be adequate, and losses could become increasingly catastrophic. To plan for and mitigate these risks, communities require scenarios of likely future flood inundation based on the best available science. Developing future flood risk scenarios requires modeling the combined effects of sea level rise and peak flows along rivers. This talk will discuss the latest scientific understanding of the connections between climate change and flood risk and how information can be produced to guide planning efforts.

## May 23, 2017

*"Aging, Ethics, and Care in the Era of Mass Incarceration"*

**Johanna Crane, PhD, Assistant Professor, School of Interdisciplinary Arts & Sciences**

The number of older prisoners in the U.S. has ballooned in recent years, increasing more than 5-fold between 1990 and 2012. Prisons are now significant sites of geriatric, nursing home-level, and palliative care, yet health care for elderly prisoners is an understudied issue. In this talk, I will outline some of the bioethical challenges related to aging and incarceration, and describe my research-in-progress on this topic. In the context of national conversations about mass incarceration, the aging population, and, most recently, the likely dismantling of the Affordable Care Act, I aim to understand what constitutes ethical care in a context where basic technologies of accommodation (such as a walker or an extra pillow) may be interpreted as evidence of favoritism, manipulation, or as potential weapons, and where "compassionate release" may entail the loss of health care coverage.

**May 30th, 2017**

*"Mistreated: The Political Ramifications of HIV Treatment Programs"*

**Nora Kenworthy, PhD, Assistant Professor, School of Nursing & Health Studies**

Beginning in the mid-2000s, as global health institutions and aid donors expanded HIV treatment throughout Africa, they rapidly "scaled up" programs, projects, and organizations meant to address HIV and AIDS. Yet these efforts did not simply have biological effects: in addition to extending lives and preventing further infections, treatment scale-up initiated remarkable political and social shifts. In Lesotho, a southern African country with the world's second highest HIV prevalence, HIV treatment has had unintentional but pervasive political costs. It has distanced citizens from the government, fostered distrust of health programs, and disrupted the social contract. Despite the good intentions of policymakers, donors, and workers in the field of global health, the unintended consequences of their work in Lesotho has had far-reaching effects, including contributing to the violence and political instability that have gripped Lesotho since 2014. While global health programs repeatedly assert the value of biological life—of bodies that can be diagnosed, treated, and thus saved—they can simultaneously, and unintentionally, reinforce the idea that the citizenship, identity, subjectivity, and social rights of people living in those bodies are worth very little. It is incumbent upon those in global health to consider political impacts of programs in much the way that they would other biological or ethical ramifications. Based on ethnographic research conducted in Lesotho between 2008 and 2014, this talk will highlight key findings from my forthcoming book, *Mistreated: The Political Consequences of the Fight Against AIDS in Lesotho* (Vanderbilt University Press, June 2017).

**January 10th, 2017**

*"Hypochlorous Acid: A Solution for Dementia?"*

**Lori Robins, PhD, Associate Professor, School of STEM - Physical Sciences**

Infectious prion proteins are responsible for a variety of neurodegenerative diseases in humans and animals. For many, the most familiar infectious prion disease is Bovine Spongiform Encephalopathy or Mad Cow disease. Infectious prions are deadly pathogens that are difficult to inactivate by standard disinfection protocols. We tested hypochlorous acid (HOCl) as a novel disinfectant against infectious prion proteins. The composition of HOCl was studied by analytical methods and was tested in real-time quaking-induced conversion (RT-QuIC) assays and with mouse bioassays. HOCl was effective at eliminating all detectable infectivity in both studies. The inactivation of infectious prions by HOCl may prevent transmission of other possible prion-like diseases such as Alzheimer's and Parkinson's disease.

**January 17th, 2017**

*"Security in Emerging Environments"*

**Brent Lagesse, PhD, Assistant Professor, School of STEM-Computing and Software Systems**

Computational systems have become increasingly pervasive in our world. These systems exhibit properties such as resource constraints, mobility, cyber-physical interaction, and heterogeneity. As these systems become increasingly more critical, attackers have an opportunity to exploit the unique computational capabilities and security requirements that are not addressed by traditional security mechanisms. In this talk we discuss our current security research in emerging environments including work in crowd sensing, adversarial machine learning, and the Internet of Things.

**January 24th, 2017**

*"Diversity Increases Productivity"*

**Cynthia Chang, PhD, Assistant Professor, School of STEM - Biological Sciences and Erica Qiao and Anita Higgins, UW Bothell Undergraduate Students**

Diversity within a community is thought to promote productivity in ecological communities and buffer against natural disturbances. This same concept can be applied to undergraduate research programs. Undergraduate researchers are a diverse group of individuals, with unique perspectives, insights, abilities, and goals. Harnessing this diversity can strengthen your research program and has the potential to lead to higher productivity. Furthermore, diversifying your research program to incorporate a variety of projects with different courses and research teams can buffer against inevitable research pitfalls. Together, my students and I tackle big questions in ecology and evolution, one small piece of the puzzle at a time.

**January 31st, 2017**

*"Story Time STEM: Exploring Math and Science through Children's Literature"*

**Antony Smith, PhD, Associate Professor and Allison Hintz, PhD, Associate Professor, School of Educational Studies**

High percentages of young children are underprepared for learning in STEM; the achievement gap in these disciplines does not narrow over time, and educators are concerned with how to close this gap in young children's educational experiences.

Engaging children in discussion about STEM ideas plays an essential role in supporting their development of knowledge, skills, and identities. The goal of Story Time STEM, a research partnership between the UWB School of Educational Studies and the King County Library System, is to develop a set of toolkits to support learning among young children through reading aloud and discussing children's literature. Toolkits are currently being implemented in classroom as well as library story time settings. Undergraduate researchers are assisting with data collection, including field notes, audio recordings, and conversational interviews with educators. Initial findings suggest librarians find Story Time STEM expands the range of concepts they think about when sharing books with children and their families, and that children's engagement with stories and willingness to explore STEM ideas increases through discussion and extension activities. Story Time STEM aims to support educator professional learning and young children's conceptual understanding of literacy and STEM concepts. This work is funded by the Boeing Foundation.

## February 7th, 2017

### *"Exploring AR and VR in the Ultra Reality Sandbox"*

**Kelvin Sung, PhD, Professor, School of STEM - Computing and Software Systems**

This talk presents the Ultra Reality (UR) Framework, an attempt in an early stage at unifying the understanding and discussion of Augmented Reality (AR) and Virtual Reality (VR) applications in the context of fostering collaborations. Analysis based on the UR Framework identifies the importance of extending the traditional Virtual Space to support collaborations which involve physical locations. Equally significant is the need to balance the immersive per-person experience with the capability of simultaneously engaging a crowd in collaborative endeavors. Initial attempts at addressing these issues will be presented accompanied with embarrassingly low quality demos which require significant imaginations from the audience.

## February 14th, 2017

### *"One Tile at a Time: Making Progress on a 100-year-old Geometry Problem"*

**Jennifer McLoud-Mann, PhD, Division Chair & Professor, School of STEM-Engineering and Mathematics and David Von Derau, UW Bothell Alumni**

Surprisingly, objects as simple and innocent as 2-dimensional convex polygons (i.e. polygons whose corners point outward) present us with a mathematical mystery that remains unsolved after a century of study. Most convex polygons are completely understood in terms of their ability to tessellate a flat surface; all triangles and quadrilaterals tessellate the plane, and we know that there are exactly 3 kinds of convex hexagons that tile the plane. We even know that if a convex shape has 7 or more sides, it cannot tessellate the plane. Only pentagons have resisted our efforts to understand them. We will discuss the mystery of the convex pentagon and our own efforts to partially solve this mystery.

## February 21st, 2017

### *"Understanding the Health Status of Justice Involved Youth: Knowledge Generation Through Systematic Review"*

**Wadiya Udell, PhD, Associate Professor, School of Interdisciplinary Arts & Sciences and Moriah Boggs, UW Bothell Undergraduate Student**

Youth in the juvenile justice system have been found to suffer from significant health disparities, and to lack consistent treatment and care when not detained. However, the majority of studies on adjudicated youth's health have focused on either sexual/reproductive health, mental health, or substance use. While some research on access to health care, health care utilization, and epidemiology of other areas of physical health problems (besides sexual/reproductive, substance use) exist, studies are limited and conducted across various fields. This dispersion of limited research findings makes it difficult to have a comprehensive and clear understanding of adjudicated youth's health. A systematic review on the health status of justice involved youth will help researchers identify what is currently known, and what questions remain unanswered. In this presentation, we will discuss the process of conducting a systematic review on adjudicated youth's health status. We will review the general problems associated with adjudicated youth's health (answering the "why is this important?" question), and the process of conducting a systematic review (from both faculty and student perspectives).

## February 28th, 2017

### *"Learning-by-Doing: Business Students Engage with Local Retailers"*

**Sri Duvvuri, PhD, Assistant Professor, School of Business**

Community Engagement via the classroom is a very valuable natural experiment: "Learning-By-Doing" occurs on both sides of the coin. For the students, it is a valid opportunity to put their learning to practical use, hone their skills-set, and expand their business network. For the retailer, it is a feasible way to garner new and actionable managerial insights, confirm their business practices and policies are on track, and identify potential gaps in their business model.

For over a year, Business students have been engaging with Molbak's, the highly-reputed, stand-alone, garden-home retailer, located in Woodinville. Students designed and conducted marketing research studies based on problem statements from

Molbak's. Results from studies were presented to Molbak's at the end of each engagement-quarter.  
Undergraduate Student Studies:

Study 1: Design customer-survey and generate results.

Study 2: Comparing and contrasting new store formats.

Study 3: Design and analyze community-survey to gain insight into millennial's attitudes toward gardening.

Graduate (MBA) Student Studies:

Study 1: Using customer-survey data and sales data to gain managerial insights.

Study 2: Comparing and contrasting new store formats.

Study 3: Combining customer-survey, community-survey, and customer panel data to investigate attitudes and purchasing behavior.

The focus of this presentation is on student engagement and the endeavor is to bring forth and highlight students' learning and experiences.

## 2016 Research in Progress Abstracts

### October 11th, 2016

#### *"Socially Just Pedagogy: Bridging Classrooms and Communities through Publicly Engaged Research - The Case of Real Change"*

**Charlie Collins, PhD, Assistant Professor, School of Interdisciplinary Arts & Sciences**

Community-based learning is a pedagogical approach assuming the richest learning environments are those that bridge classroom concepts with a related community context. In other words, students learn best when they can apply information outside of the classroom and in the community. Paired with values of social justice, community-based learning can be a powerful tool in which to pair classroom concepts with community needs. Socially just community-based learning bridges the gap between university actors (e.g. faculty and students) and the communities in which they are situated with the goal of creating a symbiotic relationship. This approach has the potential to enrich students' knowledge domains and raise consciousness about larger social issues in addition to providing communities with additional resources to address social issues. The purpose of this presentation is to discuss how socially just pedagogy was utilized in partnership with a social justice organization - Real Change - a newspaper organization with the goal of empowering homeless and underemployed individuals. This presentation will first outline the partnership with Real Change. Second, I will briefly present findings from a survey conducted by the class on behalf of Real Change. I will conclude with lessons learned from the partnership.

### October 18th, 2016

#### *"Seeking Community in College: Identity Formation as a First Generation Student through Digital Storytelling"*

**Jane Van Galen, PhD, Professor, School of Educational Studies**

The First in our Families project invites First Generation College students across the country to create multi-media first-person stories about pride, growth, resilience, anger, tenacity, doubt, shame, and discovery as they navigate economic, cultural and social barriers to higher education. In spite of inclusive rhetoric, the odds are against these students. Before they get to college, poor and working-class children have less access to experienced teachers, extracurricular activities, college counselors, and AP courses than more privileged peers. First Generation students are four times more likely than peers to leave after their first year; half never graduate. Middle-class students may attend college because "that's what people do", but First Generation students instead aspire to amorphous dreams of becoming someone very different from the people they love, even while remaining loyal to family, friends, and home communities. In this presentation, I'll screen several stories and report on my analysis of core themes of the stories and of follow-up interviews conducted with the storytellers. Community is a central theme in these stories, as students explore isolation from supportive family and friends, as they feel responsibility for representing their home communities that may be invisible in courses and on campus, and as they begin build community around newly-formed identities as first-generation students.

### October 25th, 2016

#### *"When Are We Ever Gonna Use This? Engaging Rural Math and Science Educators in Mathematical Modeling"*

**Rejoice Mudzimiri, PhD, Assistant Professor, Joint: School of Educational Studies and School of STEM - Engineering and Mathematics**

**Robin Angotti, PhD, Associate Professor, School of STEM - Engineering and Mathematics**

Renewed curricular emphasis on conceptual understanding makes it imperative that ALL students be exposed to problems that are more complex than can be learned through rote memorization. For many educators, engaging students in such rich mathematical tasks with high cognitive demand can be a daunting task that they are ill-prepared for. They fall back on the way

they were taught using demonstration and lecture. Studies show that students feel alienated and peripheral to these traditional classroom instructional methods and as well as the abstract dialogue contained in classroom interactions. The use of mathematical modeling may help promote engagement as it offers the opportunity to tackle "big, messy, realistic problems, helps students connect mathematics to life and empowers them to use their mathematics to solve relevant problems" (GAIMME Report, 2016, p. 23). However, mathematical modeling by nature does not happen in isolation. It requires collaboration, making groupwork an important part of mathematical modeling activities. Thus, facilitating mathematical modeling in classrooms requires educators to focus both on mathematical content and innovative pedagogical strategies. The research project featured in this presentation was funded by the Washington Student Achievement Council and the US Department of Education and served a dual purpose: 1) to introduce educators to mathematical modeling and 2) to introduce educators to effective pedagogical strategies for enacting mathematical modeling. We will discuss the background of the project, give examples of the types of professional development activities educators were engaged in, and discuss data on how their conceptions of mathematical modeling and innovative pedagogical practices are emerging.

## November 8th, 2016

### *"Authentic Course-Based Interactions for Community Engagement with Science Centers"*

#### **Charity Lovitt, Lecturer, School STEM - Physical Sciences**

When engaging with museums and science centers, the tendency is focus on ways to enrich the science center with student knowledge and expertise. However, science centers and museums offer experiential knowledge that can benefit the students in meaningful ways. This talk will provide examples of two course projects that were designed so the student- science center interaction was mutually beneficial to both. In one course, students produced videos that were evaluated by high school interns at the science center for their ability to communicate science clearly. The high school interns then had then opportunity to participate in a panel about the high-school to college transition. In another class, students produced documents about common myths associated with climate scientists, which were then used to help science center staff communicate the science behind those myths when communicating with the public. These authentic interactions between students and staff at the science center enrich the classroom and connect students to valuable community resources like science centers, which can lead to sustained life-long interest in science.

## November 15th, 2016

### *"Si Se Puede! Participatory Action Research with Latinx Students"*

#### **Victoria Breckwich Vasquez, PhD, Assistant Professor, School of Nursing & Health Studies**

The Latinx Community Assessment Project is a participatory, research-to-action collaboration with 11 students during the summer of 2016. This was part of the UW Bothell School of Nursing & Health Studies Latina Health Equity Initiative, and was in partnership with the Latino Education Training Institute (LETI). Four of the Latinx students were from local community colleges and seven were UWB Latinx and students of color/allies. The internship included 3 components: Research Skills (including Library research training), Reflection/narrative inquiry, and Cultural Heritage/Spanish immersion. Students received either course credit or stipends. We developed a community assessment of our campus climate for Latinx students. Methods: We had 4 research questions: 1) In what ways is UW Bothell welcoming to (prospective/new) Latinx students? 2) In what ways is UW Bothell supportive of Latinx students (already enrolled)? 3) How could UW Bothell become more welcoming of Latinx students? and 4) How could UW Bothell become more supportive of Latinx students? Students collected quantitative (online survey) and qualitative data (key stakeholder interviews -- administrators, faculty, staff, alumni and students; and focus group interviews with Latinx students). They also conducted research on strategies used on other campuses. Finally, students visited local campuses to learn about their diversity and inclusion initiatives. Results: Findings from this research will be shared at this seminar. Conclusion: The Project culminates in several presentations of their findings and recommendations, one in Spanish at the Latino EXPO in Lynnwood on August 13, and another in Fall on the UWB campus for students, faculty and staff. Poster presentations are planned for the Sea Mar Latino Health Forum and at the UWB Gender, Women and Sexuality Studies Opening Event.

## November 18th, 2016

### *"Community-Based Participatory Research: How does it add Value to Achieve Health Equity?"*

#### **Meredith Minkler, Dr.PH, Professor, University of California, Berkeley, School of Public Health**

This presentation will draw on examples of community-based participatory research (CBPR) in areas including immigrant worker health, food insecurity, asthma and diabetes, and improving global prevention/response to the next Ebola outbreak. Dr. Minkler will illustrate the power and promise of CBPR for improving the public's health and reducing health inequities. Challenges involved in CBPR also will be discussed, as well as promising new developments. Community-based participatory research is a "collaborative approach to research that equitably involves all partners in the research process and recognizes the unique strengths that each brings. CBPR begins with a research topic of importance to the community, has the aim of combining knowledge with action and achieving social change to improve health outcomes and eliminate health disparities.

## November 22nd, 2016

### *"Engaging Young Scholars in Conservation and Environmental Justice: The Doris Duke Conservation Scholars Program"*

**Martha Groom, PhD, Professor, School of Interdisciplinary Arts & Sciences and Carrie Tzou, PhD, Associate Professor, School of Education Studies**

Conservation of biodiversity is of great importance to all of humanity, but the diversity of individuals engaged in conservation remains mostly limited to whites. The Doris Duke Conservation Scholars Program (DDCSP) seeks to increase involvement of a broad diversity of individuals in conservation through a two-summer immersive study program for undergraduates. One of five programs, the DDCSP@UW approaches this effort by connecting conservation explicitly with environmental justice, and making study of the influences of power, privilege and identity in conservation and society at large to a central place in the curriculum. We report on impacts of the DDCSP@UW approach for identity formation in our students, and in broadening the conceptualization of how we can and should approach conservation as a practice. We also discuss probable next steps for further studies into the impacts of this pedagogical approach for student learning, engagement, and future impacts on the field.

## November 29, 2016

### *"Community-Engaged Health Promotion as Transnational Feminist Activism"*

**Jody Early, PhD, Associate Professor, School of Nursing and Health Studies**

Improving the health of communities most disproportionately experiencing disease, injury and health disparities often requires a grass-roots, capacity centered approach in addition to systems level change. Empirical research has shown that involving community members as lay health promoters helps to reduce inequities by disrupting power relationships, bridging cultural divides, and improving health outcomes. Women are at the heart of both lay health promotion and health advocacy. Using feminist framework, Jody will highlight her recent research and community work which explores the benefits of lay health promotion models and their role in transforming and preparing individuals and groups to take action for social change. Panel members will share examples from the field and ways in which promoting health within their communities has led to a shift in individual and collective efficacy. Presenters will also provide insight on challenges women face in participating in and leading community-engaged health promotion and research.

## April 12th, 2016

### *"Understanding the Pricing of Audit Services: Opportunities and Challenges"*

**Rajib Doogar, PhD, Associate Professor, School of Business**

Auditing ensures that financial information available to capital markets is reliable. The competitiveness of the audit market has, therefore, attracted policy attention at the highest levels since the late 1970s. Several features of this market depart from the textbook model of perfect and frictionless markets: the demand for audits is indivisible, heterogeneous in "size" and inelastic for a subset of customers, audit quality is inherently unverifiable and audit production requires experienced professional labor, the aggregate supply of which cannot be varied in the short run. Auditing technology exhibits economies of scale and scope and provides opportunities for product differentiation, permitting "specialist" auditors to compete based either on price or quality or both. Last but not the least, the supply side is comprised of a steadily-decreasing number of very large, and a numerous fringe of much-smaller, auditors. Despite these "frictions", four decades of extensive research generally supports the conclusion that the audit market is competitive both in terms of aggregate market shares of the dominant auditors and of prices. I will sketch out the principal theories and frameworks used in current research, identify some open problems, outline key challenges to their resolution and flag promising inter-disciplinary research opportunities in this area.

## April 19th, 2016

### *"Equal Treatment of Equals"*

**Camelia Bejan, PhD, Assistant Professor, School of Business**

The expectation that equals would be treated equally is founded on a very basic notion of fairness and, as such, it is a desirable feature for any solution concept in economics. Yet, one of the most widely used solution concepts for cooperative games, the core, does not satisfy this property. We identify the reason for its failure and provide a necessary and sufficient condition under which the equal treatment holds at a core allocation. The condition underlines the importance of outside options: equal treatment is satisfied if and only if no player needs the participation of all of her substitutes to attain her core payoffs. We show how this condition unifies other sufficient conditions proposed in the literature in the context of large games and show how it can be applied to derive new results for particular classes of games.

## April 26th, 2016

### ***"The Role of Social Networks in Creative and Learning Success"***

**Denis Trapido, PhD, Assistant Professor, School of Business**

Lone geniuses rarely succeed. Creativity and learning are inherently social processes. I will present two studies that use social network analysis to understand what helps us successfully create and absorb knowledge. The first study demonstrates how mentoring relations help people win over skeptical audiences when presenting highly novel ideas. The second study shows that learning from socially popular peers damages the learning outcomes; by contrast, learning is more successful when the learner seeks advice from peers who s/he highly respects. I will discuss the implications of these findings and solicit the audience's help in interpreting them.

### **May 10th, 2016**

#### ***"Interruptions: Exploring the Impact on Attention and Performance"***

**Sophie Leroy, PhD, Assistant Professor, School of Business**

Interruptions have become a part of everyday life in today's organizations and society at large. But how do interruptions affect our ability to have focused attention and does it have implications for the quality of our work? My research shows that when people are interrupted in their work, they often find it difficult to fully switch their attention to the interrupting demand. Instead, they experience what I call Attention Residue: they keep thinking about the interrupted work while trying to address the interrupting demand. In this talk, I will present results from studies investigating when people are especially at risk of experiencing attention residue in the context of interruptions and how it affects their task performance.

### **May 17th, 2016**

#### ***"Asymmetric Information and Learning in Economics"***

**Alejandro Francetich, PhD, Assistant Professor, School of Business**

Economic problems involve allocating scarce resources in the most profitable or efficient way. For instance, a manager has to figure out the most profitable way to put the firm's resources to work. Similarly, an auctioneer is interested in finding the highest bidders for her product. However, managers do not always have a complete picture of employees' skills, and auctioneers do not know exactly how much potential bidders would be willing to pay. Moreover, they cannot expect a truthful answer if they ask: Employees may want to overestimate how long a given task takes, so that they can enjoy some leisure time; and potential bidders may want to understate their interest in the product, in the hope of procuring it at a lower price. Nonetheless, choices and actions may signal at least part of this hidden information. My research studies the impact of asymmetric information and signaling in economic problems such as managing your time between multiple research projects, designing mineral-right auctions and government procurements, and forming and dissolving partnerships.

### **May 24th, 2016**

#### ***"A New Approach to Evaluate Merger and Acquisition Prices and to Predict Goodwill Impairments"***

**Hyung Il Oh, PhD, Assistant Professor, School of Business**

This study introduces a new method for evaluating mergers and acquisitions (M&As) and goodwill impairments associated with them. With the new method which utilizes the residual-earnings model, I estimate the steady-state stand-alone value of a target and argue that the remainder of the purchase price is paid for the expectations on a target's earnings growth. Then, I document that the expectations on a target's earnings growth in M&A purchase prices are (1) negatively related to the acquirer's long-term returns, (2) positively associated with future goodwill impairments, and (3) superior to event-date market reactions and premiums in predicting long-term returns and goodwill impairments. These findings imply that the new method provides an ex-ante useful measure to evaluate M&A deals.

### **May 31st, 2016**

#### ***"Incomes, Consumption and Earnings Forecasts"***

**PK Sen, PhD, Professor and Associate Dean, School of Business**

A major objective of accounting is to calculate income as a reliable measure of wealth creation. However, dividends as a wealth distribution mechanism, also impacts the ability to create future wealth. While the mechanical relationship between the two actions can be easily understood in a simple setting, such as in a savings bank, it is less than obvious for a more complex business operation. Yet, earnings forecast for such complex business operations must grapple with this relationship because the investors need to arrive at a reasonable expectation of future earnings and earnings distribution from the firms in which they invest. Because investors may rely on the financial analysts for providing the earnings forecasts, it is expected that the analysts would factor in such relationship between earnings and dividends in their forecasts. The talk will discuss these relationships and present some evidence that suggests that analysts' forecast may not fully capture these relationships.

## January 12th, 2016

### *"Washington State's Community College Pipeline for Diversity"*

**Terryl Ross, Office of the Chancellor**

Much has happened since Washington State started its first junior college in 1915. What started out as a single institution has transformed into a robust system of 32 community colleges and two technical colleges. Sixty percent of the full-time students in the Washington's public higher education system come from the community colleges. Forty-two percent of Washington community or technical college students are students of color. This research provides a case study of the Washington community and technical college pipeline for race and ethnicity and what this pipeline means for University of Washington Bothell. Specifically, it will address state demographics, the community and technical college system, and the opportunities and challenges of collaborating with this system to expand the pipeline for more students of color at University of Washington Bothell.

## January 19th, 2016

### *"Neoliberal Multiculturalism, Inequality, and High-Stakes Testing"*

**Wayne Au, School of Educational Studies**

High-stakes, standardized testing is regularly used within in accountability narratives as a tool for achieving racial equality in schools. Using the frameworks of "racial projects" and "neoliberal multiculturalism," and drawing on historical and empirical research, this article argues that not only does high-stakes, standardized testing serve to further racial inequality in education, it does so under the guise of forms of anti-racism that have been reconstituted as part of a larger neoliberal project for education reform. This mix of neoliberalism, high-stakes testing, and official anti-racisms that are used to deny structural, radicalized inequalities are a manifestation of what the author calls, "Meritocracy 2.0."

## January 26th, 2016

### *"Women of Color and Leadership"*

**Annette Anderson, Academic Affairs**

*Abstract N/A*

## February 9th, 2016

### *"Why Trans Women of Color Should be at the Center of Movements for Social Justice"*

**Kari Lerum, School of Interdisciplinary Arts and Sciences**

Violence against transgender individuals, especially trans women of color, is endemic. This violence is both literal (assaults against the body) and structural (assaults against the ability to live). Systemic structural assaults accumulate over time, with transgender individuals facing severe discrimination and hostility from their families, schools, health care providers, potential employers, and policing agencies. Due to the structural and physical violence committed by state and social institutions, trans individuals are disproportionately impoverished, unhoused, and reliant on alternative economies such as sex work for survival – where they then face additional violent punishment at the hands of law enforcement. Drawing from my ongoing research, scholarship, and advocacy with trans and sex worker communities, I will argue that U.S. based movements for social justice and institutional transformation should place the needs, experiences, and leadership of trans women of color at their center. The advantages of doing so are many, including illuminating social justice visions that resist structures of abandonment & punishment and embrace structures & practices of inclusion, care, and (re)humanization.

## February 16th, 2016

### *"English as an Additional Language"*

**Karen Gourd, School of Educational Studies**

The number of students for whom English is an additional language (EAL) has been rapidly increasing for decades. Classroom teachers are in a prime position to ensure the academic and social success of students with EAL. However, most teachers have had little preparation to understand the significance of their role in the education of students with EAL. The result is many missed opportunities for students with EAL, their native English-speaking peers, and their teachers. In response to survey data collected at UWB in the spring of 2015, the session will provide an inclusive framework applicable to any level of education that teachers can use to support students with EAL in discipline-specific classes.

## February 23rd, 2016

### *"Creating the World We Want to Live In: Lessons From the Intergroup Education Movement"*

**Cherry Banks, School of Educational Studies**

Can we learn from the past? It has been said that to ignore history is to doom oneself to repeat its mistakes. As our nation grapples with diversity on an unprecedented scale, we have much to learn from intergroup educators who faced similar issues in the late nineteenth century as they worked to reduce prejudice and discrimination directed at immigrants. This presentation will be grounded in a historical context that can help contemporary educators gain a better understanding of how debates about immigration were shaped and sustained in the past. Moreover it can provide enough distance for insights on contemporary issues related to immigration that are often too emotional and personally situated for a dispassionate analysis. Most importantly, it will provide a departure point for thinking more deeply about curriculum content, teaching approaches, and the process of resistance and change as teachers work with students to help them develop the skills, knowledge, and habits of the heart to create the world they want to live in.

## 2015 Research in Progress Abstracts

## January 12th, 2015

### *Session #1: Framing Inclusion*

**Jason Naranjo, School of Educational Studies**

The purpose of this presentation is to examine the following question: *What is inclusive practice and why does it matter in public schools?* Participants will learn about the history and practice of inclusive education with a focus on research in the area of special education. The presentation will also describe how the School of Educational Studies is establishing preparation programs for professional educators that are designed to foster inclusive practice.

### *Session #2: Leadership for Inclusive Schools*

**Tom Bellamy, Pam Hopkins, & Brad Portin, School of Educational Studies**

Inclusion in schools is tied to changes in who has traditionally led and participated in key decisions. More and more, school and district leaders rightly pay attention to the various communities and constituents whose interests are served by our K12 schools. In this session, we examine what an inclusive learning improvement agenda looks like for school and district leaders. We look at two of our leadership programs at UW Bothell for principals and leaders of special education and locate this in a larger national effort to widen participation and preparation for key leaders.

## January 26th, 2015

### *Session #3: Migration, Diversity & Schooling: Historical & Contemporary Perspectives*

**Cherry Banks, School of Educational Studies**

Abstract N/A

### *Session #4: Integrating Mathematics & Literacy Discussion in Inclusive Classrooms*

**Antony Smith & Allison Hintz, School of Educational Studies**

Discussing and exploring concepts is an important element of literacy and mathematics teaching and learning. Our research in this area examined the impact of math-literacy integrated shared reading experiences, called *mathematizing*, on teaching and learning in four kindergarten classrooms. Results of this qualitative case study suggest these experiences encouraged teachers to engage diverse students in meaningful discussion integrating mathematics and literacy content, increased student engagement, and helped students make connections between mathematical concepts and life experiences. These results informed our current work, which is to develop and implement a resource, the *Mathematizing Picture Books Toolkit*, that may be used by adults (parents, teachers, librarians) to engage children in mathematical discussion through shared reading experiences with diverse groups of children in a variety of settings including classrooms and public library story time settings. Case study methodology will be used to examine toolkit use and efficacy as well as to examine ways in which the toolkit impacts how adults and children discuss mathematics. Findings will provide greater understanding of effective supports for facilitating mathematical discussion amongst adults and young children and will provide a resource for parents, teachers, librarians, and teacher educators to use in fostering such discussions.

## February 9th, 2015

**Session #5: Peace Education's Inclusive Classrooms & Schools**

### **Pamela Joseph, School of Educational Studies**

Too often the nature of schooling reflects an individualistic and mechanistic worldview emphasizing competition and fragmentation; consequently, children and adolescents feel alienated from each other, the community, and the environment. In response, peace educators see their roles not only to nurture and care for students but to demonstrate how conflicts can be resolved justly and without anger; in peaceful classrooms and schools, adults model supportive, noncompetitive relationships and form structures that foster respectful relationships and connections- not just halting conflict but creating cultures of peace by encouraging living in harmony with other peoples, cultures, and the natural world. Through conceptual analysis of the scholarship of peace education, I will explore the worldview and ethical values of peace educators and the meaning of inclusion in peaceful classrooms and schools.

### ***Session #6: What Does it Mean to Include Students Acquiring English?***

#### **Karen Gourd, School of Educational Studies**

Students acquiring English as an additional language is the fastest growing population in K-12 schools, and this trend can be seen in the student body at UWB. This session will focus on including English Language learners in discipline-specific courses in ways that benefit them and their peers, It is easier to be inclusive once we have some tools, and the tools can be easily available.

## **February 23rd, 2015**

### ***Session #7: Colors of Nature: Designing Inclusive STEAM Education to Promote Science Identity Work in Middle School Girls***

#### **Carrie Tzou, School of Educational Studies**

Research suggests that girls who gravitate towards art may have strong visual-spatial abilities that would also serve them well in science careers. However, in contrast to boys, most girls with such ability do not go on to enter STEM careers (Wai, et al, 2009). Research has repeatedly described how girls lose interest in science starting in middle school, (Baram-Tsabari & Yarden, 2010). In formal education settings, little time is devoted to explicit instruction on how visual-spatial reasoning and other artistic practices can overlap with science in significant ways, though scientists utilize artistic practices to further their work (Root-Bernstein, 2003). In fact, Root-Bernstein (2003) argues that “the ways in which artists and scientists discover and invent problems, experiment with ways to come to grips with them, and generate and test possible solutions is universal” (p. 268). Given the transdisciplinary nature of art/science work—sometimes called ArtScience (Root-Bernstein, 2004), this study hypothesizes that arts-based science instruction can deeply connect emerging arts-based identities with STEM-linked identities in middle school girls. This becomes especially important when designing learning environments for the Next Generation Science Standards (NRC, 2013), which focus on integration of science and engineering practices with disciplinary core ideas with an aim towards more inclusive science education.

We will focus on and document *shifts* in identity work (Holland, et al, 1998; Calabrese Barton, et al, 2013); the ways in which youth engage in science- and art-related practices more deeply as a result of a STEAM-based approach to science instruction. Specifically, we focus on middle school girls who strongly identify with art in our research questions: (1) in what ways can ArtScience “design challenges” engage girls in transdisciplinary practices that “mangle” (Pickering, 1995) the disciplinary boundaries between art and science? (2) how does this approach to science instruction support STEM-related identity shifts in middle school girls?

### ***Session #8: Serving All Children?: Inclusion, Exclusion, & Education Reform***

#### **Wayne Au, School of Educational Studies**

Education reform is often framed as a Civil Rights issue where increased forms of test-based accountability and a reliance on mechanisms of market competition are promoted as keys to achieving educational, social, and economic equality. This presentation critically analyzes the equity claims of proponents of market-based educational reforms relative to educational research, paying particular attention to whether or not these reforms are inclusive and attend to the needs of all children.

## **2014 Research in Progress Abstracts**

## **October 28th, 2014**

### ***"Panel Discussion: Key Issues Surrounding Veterans Health"***

#### **Andrea Kovalesky, Nursing & Health Studies**

This overview will address veteran's health issues from multiple perspectives. Clinical psychologist Matthew Jakupcak, PhD, will review recent psychosocial research at the Seattle Veteran's Medical Center. UWB student, veteran, and Vet Corps Navigator Dave Hudson, along with Rosa Lundborg, Manager of UWB's Veterans Services, will discuss strategies to promote the health of veterans on our campus and in the classroom. Moderator Andrea Kovalesky, NHS Faculty member and veteran, will briefly review a course on veteran's health now offered at UWB.

## November 12th, 2014

*"Communities, Culture & Health"*

Campus Library and Office of Community Based Learning & Research

Abstract N/A

## November 18th, 2014

*"Citizens, Consumers, Recipients: Communities and Global Health"*

Nora Kenworthy, Nursing & Health Studies

The rapid expansion of HIV and global health programs throughout the global South has introduced dramatic changes to social and political systems as well as health systems. In the midst of these changes, citizens and communities are trying to negotiate survival, learning new strategies for engaging with the state and non-governmental organizations. In this talk, I ask what impacts these changes have on how communities and citizens perceive themselves, the state, and their rights. Data is drawn from a multi-year ethnographic project studying HIV and global health initiatives in Lesotho. The research findings underscore why we should be paying more attention to how health initiatives – both at home and abroad – are transforming citizens into consumers or recipients of services who have minimal rights protections.

## November 25th, 2014

*"Are Technologies Cultural? A Case Study of HIV Drugs and Diagnostics"*

Johanna Crane, Interdisciplinary Arts & Sciences

This presentation delves deep into the laboratory science of HIV in order to show how our scientific knowledge about the virus and its treatment cannot be separated from the culture and politics of global medicine. I describe how it came to be that nearly all laboratory knowledge about HIV—including the development of HIV drugs and diagnostics—has relied upon the viral subtype found most often in North American and European patients. Given that the vast majority of the world's infections are attributable to other subtypes of HIV, the use of a 'Euro-American virus' as the universal laboratory reference strain for HIV knowledge production raises important clinical, political, and epistemological questions for a global epidemic centered in sub-Saharan Africa. In addition, I argue that the story of these HIV technologies provides us with an excellent case study of the ways in which science is never "value-free", but is always inherently social and cultural.

## December 4th, 2014

*"Engineering a Better Health Care System"*

Heather Young, UC Davis

Millions more Americans now have health insurance and therefore access to the health care system as a result of the Affordable Care Act (ACA). With expanded access placing greater demands on the health-care system, strategic measures must be taken not only to increase efficiency, but also to improve the quality and affordability of care. In the recent report *"Better Health Care and Lower Costs: Accelerating Improvement through Systems Engineering,"* a working group comprised of member of the President's Council of Advisors on Science & Technology (PCAST) and prominent health-care and systems-engineering experts, identified a comprehensive set of actions for enhancing health care across the Nation through greater use of systems-engineering principles. Dr. Heather M. Young is a member of the PCAST working group.

Systems engineering, widely used in manufacturing and aviation, is an interdisciplinary approach to analyze, design, manage, and measure a complex system in order to improve its efficiency, reliability, productivity, quality, and safety. Dr. Young will present the report recommendations regarding payment models; health data infrastructure and use; the application of systems methods in provider practices; community engagement to improve healthcare delivery; and building a health-care workforce equipped with essential systems engineering knowhow to enable system redesign. She will discuss emerging opportunities from this report for health-care systems, higher education and community engagement. A panel of respondents will discuss implications of this work for our region: (name the panel respondents).

## April 8th, 2014

*"History of the Wetlands"*

Warren Gold, School of Interdisciplinary Arts and Sciences

The University of Washington, Bothell- Cascadia Community College campus is home to a vibrant 58-acre restored freshwater wetland and stream ecosystem. At the outset of the project in 1998, this was one of the largest and most complex floodplain

restorations ever undertaken in the Pacific Northwest. It is a bold attempt to transform highly altered pastureland to a sustainable, functioning floodplain ecosystem within the rapidly urbanizing landscape of the North Creek Watershed. The project is unique in the degree to which fundamental theories of ecosystem and restoration ecology were utilized in the design and are being employed in the management of the site. This presentation will review the history of our campus site, the design and the implementation of the wetland restoration, and its management, use, and ecological development since the completion of the initial installation in 2002.

## April 15th, 2014

### *"The UWB/CCC Wetlands Geo-Database: Mapping Boundaries, Hydrological Features and Plant Communities"*

**Hazel Asuncion, CSS; Warren Gold, SIAS; Santiago Lopez, SIAS; Charlotte Rasmussen, CUSP; Rob Turner, SIAS and students**

The Geo-Database Working Group is developing a comprehensive UWB/CCC Geo-Database for research and teaching purposes that students, staff and faculty can use for independent, class and community-based projects that utilize the campus wetlands. Using Geographic Information Systems (GIS) technology and protocols, we are developing the initial layer by mapping baseline boundaries of plant (vegetation communities), topographic and geomorphologic characteristics, and hydrological features of the UWB/CCC Wetlands. With the assistance of undergraduate research students, we have completed vegetation community mapping in the southwestern portion of the wetlands and are currently extending the mapping to other regions of the wetlands. Development of a comprehensive UWB/CCC Wetlands Geo-database will increase understanding of past, present and future change in the wetlands. The Geo-Database will allow students and faculty to better plan and execute investigations and analyze collected data spatially and temporally.

## April 22nd, 2014

### *"Place-Based Pedagogy: Teaching and Learning in the Wetlands"*

**TIPS/RIP Roundtable**

Join Gary Carpenter (SIAS, CUSP), Ursula Valdez (CUSP) and Douglas Wacker (STEM) as they discuss how and why they have incorporated the wetlands into their teaching. Each instructor will present a brief overview of their wetlands-related pedagogy as well as resources and suggestions for instructors looking to integrate their course material with the wetlands. Facilitated by Erin Hill and Karen Rosenberg, Associate Directors of UW Bothell's Teaching and Learning Center.

## April 29th, 2014

### *"Vancomycin Resistant Enterococci from Crows and their Environment"*

**Marilyn Roberts, School of Public Health**

Population growth has meant significant encroachment on shrinking wildlife habitat and increased interactions between wildlife and humans in their human-dominated environments. Birds are known to be reservoirs and vectors for transmission of viral diseases like bird flu but their role as potential reservoirs and vectors of bacterial disease (transmission to man is less understood). We selected crows (as a study animal) because they are found throughout the world and live both in urban and rural human environments. Vancomycin-resistant enterococci [VRE] is considered to be a serious (disease) hazard by CDC. The development of VRE took different paths in different parts of the world because of differing uses of antibiotics. Antibiotic use in food animals in Europe selected for VRE in their animals which then spread to humans in the local farm community, then to the general human population and more recently to hospitalized patients. VRE has been isolated from wastewater, farm settings and the surrounding communities, and general populations and wild animals in variety of EU countries. VRE developed in North America in the hospital setting because of antibiotic use in hospitalized patients rather than in food animals. However, VRE's spread from the hospital to wildlife, food animals and the human community in the North America has not been well documented and recently has been found in the environment. In our study, [VRE] has been the most commonly isolated bacterial pathogen found in the American crows (*Corvus brachyrhynchos*) feces taken from birds feeding at Discovery Park wastewater treatment plant [WWTP], feeding at small dairy farms in Monroe WA, or present at night at a major roost in the wetland on the UW Bothell campus. VRE was also isolated in the corresponding environments (primary and secondary waste water, cow feces and water from UW Bothell wetland). We have cultured 96 crows; farms (n=23); UWB wetlands (44) and WWTP (n=35) and 47 environmental samples; farms (n=11); UWB wetlands (n=19) and WWTP (n=17). We found VRE positive crows in all three environments ranging from 9-22% and in the environments (32-76%) with most carrying bird type enterococci. However some birds from the WWTP and farms and both UW Bothell stream and WWTP water carried human *vanA* positive *E. faecium*.

## May 13th, 2014

### *"Fecal Coliform and Nutrient Dynamics in North Creek, the Wetlands and Campus Runoff"*

**Rob Turner, School of Interdisciplinary Arts and Sciences**

Throughout the past year UWB environmental science students have been monitoring the coliform bacteria levels on the UWB/CCC campus, in our wetland, and in our reach of North Creek. This monitoring was motivated by the discovery last year of

unusually high fecal coliform counts in North Creek within the campus boundaries. The objectives of our study are to: 1) assess variability in coliform bacteria counts in North Creek as it flows onto and across our campus; 2) quantify coliform bacteria counts in the ponds, streams, depressions and bioswales of the wetland; 3) assess inputs of coliform bacteria from the campus uplands to the wetland; 4) identify sources of the coliform bacteria; and 5) evaluate the potential for the campus and its wetland to act as a source of fecal coliform bacteria to North Creek. Our working hypothesis is that the presence of a major crow roost on campus, with as many as 15,000 crows roosting overnight in the winter months, is a primary source of elevated coliform levels on campus, in the wetland, and in our reach of North Creek. This presentation will provide an overview of the methods of our team research and our findings to date.

## May 20th, 2014

### *"Temporal and Spatial Dynamics of a Seasonally Changing Crow Roost: Effects on Soil Mesofauna and Plant Communities"*

**Doug Wacker, Science, Technology, Engineering and Mathematics**

A portion of the North Creek Wetlands on the University of Washington Bothell campus is home to a large nocturnal crow roost. Urban crow roosts have become more common over the last century, but this roost is unique in that it is both adjacent to areas of significant foot and vehicle traffic and is on a restored, managed wetland. Through this research, we aimed to both better understand the temporal and spatial dynamics of this roost and determine whether the crows were affecting wetland health. Through mapping of crow waste trails and direct observation, we determined that the roost has changed seasonally in area, and in the density and number of crows. Soil under the crow roost had significantly higher levels of nitrates and lower pH, consistent with a large input of nitrogenous waste. We examined both wetland plants and soil mesofauna on and off the roost to determine whether the crows were negatively affecting these potential bioindicators of ecosystem health. Both the abundance and species richness of non-woody plants were reduced on the roost, but this disparity may be due to differences in soil moisture. Soil mesofauna were largely not impacted by the crow roost, but differences detected in Coleopteran and Dipteran larvae abundances will help guide future research. These projects, completed by undergraduates, have served to promote student research at the University of Washington Bothell and will facilitate sound evidence-based crow management decisions in the future.

## May 27th, 2014

### *"Crow Impact on Invasive Species Proliferation"*

**Warren Gold & Students Ian Barlow, School of Interdisciplinary Arts and Sciences & Holly Zox, Edmonds CC**

Crows maintain a diverse diet that includes fruits of berry-producing shrubs and trees in the Pacific Northwest. With the large population of crows on campus there is a reasonable chance that they could be consuming fruits of non-native plants in the regional landscape and depositing their seeds in our wetland during the nightly crow roost in the wetlands. Preliminary observations in the crow roost area revealed seedlings of non-native plant species that are typically dispersed by birds. Our study is investigating the potential role of crows in facilitating non-native plant species invasion into the campus wetlands using both field and greenhouse studies.

In the field we are examining seedlings emerging in different vegetation communities, comparing plots within the most active winter crow roost to those outside of the winter crow roost. We are also collecting soil samples from these communities and locations and tracking the species germinating from these samples over time in the greenhouse. These data will help us understand the pattern of non-native plant species incursion into the campus wetlands and whether crows might be playing a significant role such as invasions.

## January 14, 2014

### *"Mash-ups and Mishaps: Viral Data and Digital Transmission Vectors"*

**Jason Pace, Digital Futures Lab**

Our lives are increasingly quantified and digitized - from performance capture in cinema to trending topics on Twitter to the omnipresent cameras that capture and post every unfortunate decision we make, the data output of our species continues to double every two years. Partnering with data generation, of course, are its typical cohorts storage, retrieval, manipulation and presentation. As access speeds increase and tools for manipulation and presentation become more accessible to a wide audience, the rise of maker culture, flash memes, global mobile device proliferation and real-time processing for the masses creates a daily experience where the fuzzy distinction between fantasy and reality isn't just a philosophical debate, but rather a daily gauntlet that can be exhausting to navigate. In a world of fat data pipes feeding terabytes of data to end users 24x7, curated consumption is a requirement for us to maintain sanity. This introductory session to our winter Data in the Digital Age Research in Progress series frames questions around some of the unique opportunities and challenges presented by endless streams of micro and macro data.

## January 21, 2014

### *"Data Processing and Display in the Context of Medical Devices: An Instructive Example"*

**Pierre Mourad, Science, Technology, Engineering and Mathematics**

Medical devices represent a specialized example of a human/device interface that involves use of digital data. In addition to technical issues that inform the construction, processing and display of information to a practicing physician, regulatory concerns also come into play, in sometimes surprising ways. In this talk I'll highlight a recent medical device invention constructed here at UW. I'll pay particular attention to its data flow, then concentrate on the various forces that constrain how we can optimally display the medical information this device can offer to the working physician. It will turn out likely that 'less is more' in this context.

## January 28, 2014

### *"Sponsors of Policy: A Network Analysis of Wealthy Elites, their Affiliated Philanthropies and Charter School Reform in Washington State"*

**Wayne Au, Education**

Charter school policy has evolved into a major component of the current education reform movement in the United States. Using social network analysis, this study maps relations of individuals and organizations connected to the successful campaign to pass Initiative 1240, which legalized charter schools in Washington State. The primary finding of this study is that wealthy elites, through both individual contributions and the funding streams provided by their affiliated philanthropies, exerted a disproportionate influence over charter school law compared to average citizens in Washington State, raising important questions with regards to the relationship between wealth, power, democracy and education reform.

## February 11, 2014

### *"Distributed Trust in Pervasive Systems"*

**Brent Legesse, Computing and Software Systems**

Providing seamless and transparent access to computing resources in pervasive systems heavily depends on secure access to those resources. Pervasive environments often result in challenges such as openness, intermittent connectivity, heterogeneous systems, and resource constrained devices that cause many traditional security mechanisms to fail. As a result, many researchers have utilized distributed trust mechanisms to overcome these obstacles. This talk will provide an overview of distributed trust and discuss challenges and opportunities in securing pervasive systems.

## February 18, 2014

### *"Telling the Story of Environmental Inequities: A GIS Approach to TRI Data"*

**Gwen Ottinger, David Headrich and Chris Wright, School of Interdisciplinary Arts and Sciences**

The national Toxics Release Inventory (TRI) makes available copious data about the quantities of toxic chemicals released to the air, land, and water by the industrial facilities across the United States, and websites linked to TRI data make it easy for the average person to know what toxins are in her neighborhood. But pollution is not equally distributed across the country - a fact that is lost in the place-by-place approach of existing tools for accessing TRI data. In this project, part of the EPA's TRI University Challenge, we aim to visualize data in a way that shows the inequitable distribution of toxic releases. We explain how we are using Geographic Information Systems (GIS) to identify the most striking patterns of inequitable distribution along the lines of race, class, and region, and how finding these patterns in the data will enable us to create a visually and emotionally engaging multimedia experience that tells the story of environmental inequity in the U.S.

## February 25, 2014

### *"Understanding the Impact of Economic Geography on U.S. Audit Markets: Promises and Challenges"*

**Rajib Doogar, Business**

The analysis of local audit markets, primarily at the level of Metropolitan Statistical Areas (MSAs) has been one of the most exciting innovations in auditing scholarship over the past decade. By formally incorporating into the analysis economic characteristics of local markets, this literature has drawn attention to impact of market micro-structure on audit market outcomes (audit fees, auditor opinions or various proxies for audit quality). As a result, the use of city-level measures of auditor market presence and measures of audit market concentration and competition is now fairly ubiquitous in accounting and auditing research. Reflecting the explosive but somewhat piecemeal growth of the related literature, there is at present very little scholarly work that takes a big picture view of the economic geography of U.S. public company audit markets over the past decade and presents in one place some basic results that future research can build upon. The primary objective of our study is to fill this gap.

## March 11, 2014

### *"Abracadata: Artists' Books in the Digital Age"*

**Amaranth Borsuk, School of Interdisciplinary Arts and Sciences**

Many contemporary book artists and writers rely on the availability of textual "data." Whether plucking eerily distorted images from Google Street View, generating alphabetized indices to Shakespeare's sonnets, or redacting the 9/11 Commission Report to generate a book-length poem, these creators are mining data for aesthetic ends. Given that artists' books have historically relied on the words and images of others, what makes this situation novel? My current project *Abra* takes part in this conversation by exploring and celebrating the potentials of the book in the 21st century. A collaboration with Kate Durbin, Ian Hatcher, and a potentially infinite number of readers, the project merges physical and digital media, integrating a hand-made artist's book with an interactive iPad app to play with the notion of the "illuminated" manuscript. Funded by an Expanded Artists' Books Grant from the Center for Book and Paper Arts at Columbia College Chicago, the project will launch in the late spring.

## 2013 Research in Progress Abstracts

## April 30, 2013

### *"The Double Bind of Dharun Ravi: Homophobia, Xenophobia, and the Work of Gayatri Chakravorty Spivak"*

**Rahul K. Gairola, Ph.D.**

Gayatri Chakravorty Spivak's essay "Can the Subaltern Speak?" (1988) famously engaged a critique of a number of white, Western male theorists including Marx, Foucault, and Deleuze. The essay critically placed the woman of color in the role of sati where her sexuality was positioned as "white men saving brown women from brown men." The essay examined the figure of sati as a fatal alibi for upper class, patriarchy to silence and obliterate articulations of subaltern subjects while problematically acknowledging that that very subject transcends subalternity at the moment of utterance. Jumping forward almost a quarter of a century, Spivak's newest work titled *An Aesthetic Education in the Era of Globalization* (2012) illuminates the dismal plight of the humanities as teachers and students alike negotiate the vicissitudes of the double bind, or the static positioning of being caught in an identificatory binary from moment to moment. How does this divergent work, separated by 24 years of history and scholarship production, come together in the context of race and the South Asian diaspora in the US? This paper argues that Spivak's work condenses on the figure of Dharun Ravi, a former Rutgers University freshman who was recently tried for the invasion of privacy when he used his web cam to view Clementi and a male partner in an intimate moment.

The knowledge of this intrusion drove Tyler Clementi, his roommate, to commit suicide by jumping off the George Washington Bridge in New York City, and was one of many tragedies that inaugurated a national movement against teen bullying. While Clementi would not live to experience the popular aphorism "it just gets better" that has been made famous the past few years by Dan Savage of the "It Gets Better Project," the court case of Dharun Ravi produced a media spectacle of sorts. It ranged from a complete condemnation of bullying against gay, suicidal teens to an online movement to "Deport Dharun Ravi." This paper reads Ravi as the quintessential media spectacle of Spivak's double bind in the context of twenty-first century racism as the global economy constricts: both immigrant and emigrant at the same time under neoliberal homonormativity – itself caught in a double bind that pulls on two ends of a knot that tighten yet brings closer together homophobia and xenophobia. Finally, the paper unearths the "white men saving white men from brown men" media discourse that attended the racist xenophobia against Ravi and his family to demonstrate that two lives would be ruined from the fatal mistake made by one. These range from media caricatures of Ravi as cold, to his father as a "slight man" and his mother's over-zealous concern of her son's lack of appetite.

**Rahul K. Gairola** teaches at Seattle University and the University of Washington (UW), where he completed a joint PhD in English Literature and Critical Theory in December 2009. He has held research fellowships at Pembroke College, Cambridge, the School of Criticism and Theory at Cornell University, the Humboldt University of Berlin, the UW Department of English, and the Simpson Center for the Humanities. He has published and delivered papers widely at home and abroad, and is revising a book manuscript titled *Homelandings: Diasporic Genealogies of (Be)longing and Nation* along with a few other pieces. He sits on the Executive Committee of the South Asian Literary Association (SALA), and served as Co-Chair of its annual conference in Seattle in January 2012.

**May 13, 2013**

*Title: "Cognitive Radio: Its Promises and Challenges"*

**Tad Ghirmai, Ph.D.**

**Abstract:** Cognitive Radio is a technology that aims to address the spectrum scarcity problem facing many countries. Traditional spectrum assignment has been based on fixed spectrum access policy in which licensed users are allocated a dedicated bandwidth. The explosion of new wireless services in the last two decades has resulted in spectrum scarcity because most of the available spectrum has been allocated. However, recent studies showed that a large portion of the licensed spectrum is underutilized, and the spectrum scarcity problem is mainly a result of inefficient spectrum allocation policy. To address the problem, therefore, a dynamic spectrum access policy (DSA) is proposed. DSA allows access to a spectrum by unlicensed (secondary) users in a manner that would not compromise the operations of the licensed (primary) user. Cognitive radio promises to realize dynamic spectrum access policy by designing radios that intelligently detect unused spectrum and change their transmission parameters to adapt to the new environment. However, designing a truly cognitive radio is challenging. This presentation provides an overview of the challenges in the design of cognitive radio from signal processing perspective.

**May 21, 2013**

*Desperate Women and Lonely Hearts: Moving from the Study of Interventions for, to the Study of Discourses about Women with Incarcerated Partners*

**Cheryl Cooke, Ph.D.**

**Abstract:** Some of the historical discourses about nurses were that we were witches and whores, discrediting us as healers. While social understanding about who nurses are and what we do has changed over time, there are other populations of women about whom we can learn based on the social discourses about them. Understanding these discourses can offer important information about a group's assigned place in society, and the people who assign them. In my research, I study the population of women who are in relationships with incarcerated men. The majority of these women and men are low income, poorly educated, and many are of Color. My prior work was focused on studying this population of women in order to design appropriate interventions. However, I have come to realize that looking for specific interventions cannot occur outside the set of social discourses about these women that shape their experiences, behaviors, and abilities to act in their own best interest. Working from a critical, feminist perspective, my research is now moving away from developing specialized interventions and towards a more nuanced understanding the broader social discourses that impact these women's abilities to act. I believe that prior to developing any comprehensive intervention, as researchers our understanding needs to take into account the broader social contexts that are at play. In this talk, I will describe both the micro level, individual experiences among this population, as well as the macro, group level at which these women's experiences and identities are presented in society.

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