




**Matchmaking for Interdisciplinary Collaboration Session I**

**Speaker Abstracts**

**Tuesday, October 10, 2017**

**2:30-5:00pm**

**Elson S. Floyd Cultural Center**

Presenter	Abstract
 <p><b>Dene Grigar</b> WSU Vancouver 360-546-9486 <a href="mailto:dgrigar@wsu.edu">dgrigar@wsu.edu</a> <a href="https://directory.vancouver.wsu.edu/people/dene-grigar">https://directory.vancouver.wsu.edu/people/dene-grigar</a></p>	<p>My presentation will highlight projects produced by faculty and students of The Creative Media &amp; Digital Culture Program at Washington State University Vancouver, including projects involving Virtual &amp; Augmented Reality, infographics, video, 2 &amp; 3D animation, app &amp; website development and design.</p>
 <p><b>Don McMahon</b> Teaching and Learning 509-335-1631 <a href="mailto:don.mcmahon@wsu.edu">don.mcmahon@wsu.edu</a> <a href="https://education.wsu.edu/don-mcmahon">https://education.wsu.edu/don-mcmahon</a></p>	<p>I will present examples of my previous and ongoing projects examining the potential of augmented reality to support academic and independent living needs of individuals with disabilities.</p>
 <p><b>Lav Khot</b> CPAAS/IAREC BSYSE 509-786-9302 <a href="mailto:lav.khot@wsu.edu">lav.khot@wsu.edu</a> <a href="https://bsyse.wsu.edu/people/faculty/khot">https://bsyse.wsu.edu/people/faculty/khot</a></p>	<p>My research involves sensing and automation technologies for site specific and precision management of production agriculture.</p>



**Kshitij Jerath**

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My research vision is to model, quantify, and influence self-organized behavior in complex dynamical systems. I will talk about my three primary research thrusts:

- (1) Transportation: How to influence global traffic patterns using local-level design and control of connected, autonomous, self-driving cars.
- (2) Robotics: How to model and control robotic swarms. How to test control strategies in virtual reality environments.
- (3) Social systems: How to model macroscopic patterns in human (and robotic) societies using sociological principles such as empathy.



**John Swensen**

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The primary focus of my research is to develop tunably compliant mechanisms and robotics systems in the area of medical robotics and biomedical systems. These same principles have the potential to be employed in manufacturing scenarios, space robotics, and home robotics. The M3 Robotics Lab focuses on:

- High degrees of freedom, actuation or underactuation, and/or high degrees of sensor information.
- Tunably compliant mechanisms: Using smart materials to actively control mechanism compliance, often coupled with traditional robotic actuation schemes.
- Applications in medical robotics: The goal of many medical devices is to deftly navigate to a location within the body and then interact with tissues at the target location. Travel to the treatment site requires dexterity and compliance, while interactions at the target site require higher levels of rigidity. Medical robotics provides an ideal testbed for validating the previous two principles.



**Michael Kern**

William D. Ruckelshaus Center  
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The mission of the William D. Ruckelshaus Center is to help parties involved in complex public policy challenges in the State of Washington and the Pacific Northwest tap university expertise to develop collaborative, durable and effective solutions. This includes applied research and fact finding by WSU and UW faculty, staff and students. Center Director and WSU Extension CED Associate Professor Michael Kern will present a brief overview of the Center, its services, and examples of several projects where university-based research helped establish a common information base upon which agreement could be reached on difficult public policy challenges.



**Brian Kraft**

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<https://research.wsu.edu/office-research/report/innovation-and-entrepreneurship-review>

I will present ongoing efforts across WSU to connect faculty around entrepreneurship. Including, how to design, develop, fund and implement efforts to transform research into products and services that benefit the public.



**Amrita Lahiri**

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I am interested in understanding the relationship between science and commercialization through the context of biotechnology. Typically, a technological innovation is conceptualized as an idea, patented and then commercialized as a product. However, our understanding of how firms navigate this translation from idea to commercialization is murky since the ability to link a firm's patents to the related product is negligible. Providing a mechanism to do so will enable researchers to understand and ask interesting questions about the creation of knowledge and its potential commercialization or lack thereof. My research focuses on patents in the Biotech industry, including product data from Pharmaprojects.



**Lisette Maddison**

Center for Reproductive Biology  
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[http://crb.wsu.edu/core-laboratories/gene-editing-reagent-core-\(gerc\)](http://crb.wsu.edu/core-laboratories/gene-editing-reagent-core-(gerc))

With the advent of CRISPR/Cas9, gene modification in a wide number of species is now a viable possibility. The mission of the Gene Editing Reagent Core (GERC) is to help investigators bring this cutting edge gene editing approach into their research. In conjunction with the Animal Production Core (APC), we are able to assist investigators in the development of new animal models to elevate life sciences research across the university.



**Senthil Natesan**

Pharmaceutical Sciences  
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My primary research interests are in the area of computational drug design including investigating drug action and disposition through mathematical modeling and simulation. I will present examples of projects in which ligand- and structure-based drug design techniques were used to investigate protein-ligand interactions as well as to design novel therapeutics.



**Zhiwu Zhang**

Crop and Soil Sciences

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The ultimate goal of genomic research is to effectively predict phenotypes from genotypes so that medical management can improve human health and molecular breeding can increase agricultural production. The majority of computing tools used to make these predictions are executed through a command-line interface (CLI), which requires programming skills. Non-programmers struggle to use them efficiently because of the steep learning curves and zero tolerance for data formats and mistakes when inputting keywords and parameters. To address these problems, we have developed a software package, named the Intelligent Prediction and Association Tool (iPat). With iPat, genome-wide association studies (GWAS), or Genomic selection (GS) can be performed using a pointing device to simply drag and/or click on graphical elements to specify input data files, choose input parameters, and select analytical models. Models available to users include those implemented in third party CLI packages such as GAPIT, PLINK, FarmCPU, BLINK, rrBLUP, and BGLR. iPat can be adapted to multiple operating systems including Windows, Mac, and Linux.



**Eric Lofgren**

Global Animal Health

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I will present on computational modeling of hospital acquired infections, antimicrobial resistance, and emerging infectious diseases.



**K. D. Joshi**

Management, Information Systems and Entrepreneurship  
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My research focuses on the role of information and communication technologies (ICTs) in the self-management (SM) of diabetes. Using value sensitive design (VSD) we can reveal the ICT design values that are important to diabetic patients and how these values influence the patients' abilities to self-manage their activities.



**Steven Saunders**

The Gene and Linda Voiland School of Chemical Engineering and Bioengineering  
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My primary research interests include tunable and switchable solvent technology (e.g., near-critical, supercritical, gas-expanded, and ionic liquids); nanoparticle synthesis, processing, and applications; fundamental thermodynamic and computational modeling; nanomaterial catalysis and reaction kinetics.



**Konstantin Matveev**

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Several brief examples of our reduced-order modeling and detailed simulations will be shown. Our projects span transportation, energy systems, biomedical processes, and sports engineering.





**Wes Dowd**

School of Biological Sciences

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The research goal of the Dowd laboratory is to understand the interactions between environmental variation and physiological variation. We focus on small-scale environmental variation and its relationship to physiological phenomena such as thermal tolerance, antioxidant capacity, and measures of performance (growth/fecundity). We are particularly interested in potential physiological and biochemical mechanisms of cross-talk between responses to multiple environmental stressors.



**Todd Murray**

Agriculture and Natural Resource Unit

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I will provide a brief overview of the Agricultural and Natural Resources Extension Program Unit. Faculty areas of expertise and programmatic highlights will be covered including stormwater management, tree fruit extension and applied research, organic agriculture, forestry, cropping systems, and animal sciences.



**Ofer Amram**

Nutrition and Exercise Physiology

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Spokane public elementary schools vary substantially in their socioeconomic profile. Here we quantified the social and environmental features of neighborhoods surrounding each school and measured the association with school-level socioeconomic characteristics. We used geographic information systems combined with data on food outlets, greenspace, street networks, and crime to characterize the neighborhood environments around 34 elementary schools in the Spokane Public School system. We ranked schools into three groups based on the percentage of children receiving free-and-reduced meals, and tested whether these groups differed in environmental indicators like crime rate, air and noise pollution, access to healthy food, and walkability within the surrounding neighborhoods. We found that crime rate, neighborhood walkability and air and noise pollution were all positively and significantly associated with the percentage of children receiving free-and-reduced meals.



**Karen Barale**

Extension Youth and Family Unit

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I will provide an overview of the development of a validated food pantry environment assessment tool and resources to support the emergency food system. This assessment tool can also be used to assess outcomes for food pantry research. Extension Youth and Family Unit faculty partner with various departments, as well as other universities, to support research and outreach in 39 Extension offices and on one tribal reservation.





**Patricia Glazebrook**

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I will present on the African crisis in food security, and a proposal for connecting researchers to farmers in order to develop agricultural extension solutions.



**Michelle Mann**

History

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I will discuss the culture and politics of Muslim women's work in francophone North Africa.



**Michael Cleveland**

Human Development

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I will present on two or three of my current and planned projects. Two of these involve adaptation of established preventive interventions to reduce high-risk alcohol use and substance use among young adults. These projects center on adapting the intervention to better meet the needs of underrepresented groups. The third project is a study that will use wearable devices to link real-time physiological measures (e.g., heart rate) and self-reported measures of cravings, mood, and stress among recently abstinent participants to understand the factors that protect against substance abuse relapse.



**Rachel Webber**

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A service of Washington State University, Ask Dr. Universe connects K-8 students with WSU researchers through question and answer sessions.



**Lena Le**

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All research has a human dimension. The SESRC offers services to faculty to help with this human component in their research, particularly when social science research methods are needed (e.g. survey research methods including questionnaire design and data collection). They can assist with each step of the research process, from generating ideas and proposal presentation to the very last stage of program assessment/evaluation.