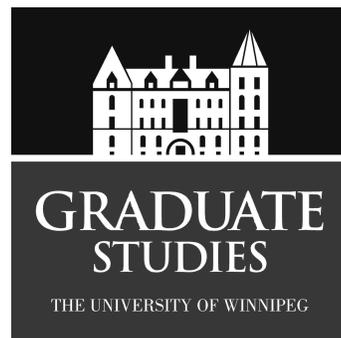


THE UNIVERSITY OF
WINNIPEG



8th Annual Graduate Students Research Colloquium

University of Winnipeg

APRIL 22ND, 2016
ROOM 1L06

DISCOVER · ACHIEVE · BELONG

SCHEDULE

8:45 – 9:15:	Registration and Coffee
9:15:	Opening and Welcome, Dr. Mavis Reimer, Dean of Graduate Studies
9:20:	Greetings, Dr. Jino Distasio, Vice- President, Research and Innovation
9:30 – 11:30:	Oral Presentations
11:30 – 11:50:	Poster Presentations
11:50 – 12:30:	Lunch Break
12:30:	Keynote Speaker Introduction, Dr. Jane Barter, Chair, Department of Religion and Culture
12:35 – 13:05:	Keynote Speaker, Adel Compton, STM Alumna, 2015
13:05 – 15:25:	Oral Presentations
15:45:	Prize Presentations and Closing, Dr. Mavis Reimer, Dean of Graduate Studies

Morning Presentations

9:30	Julie Lawler
9:50	Gagandeep Singh
10:10	Stephen Penner
10:30	Yujia Wu
10:50	Rachel Epp
11:10	Waarengeye Vikram
11:30	Majing Oloko

Afternoon Presentations

13:05	Jiajie Yu
13:25	Aditya Bharadwaj
13:45	Kate Burns
14:05	Parth Brahmbhatt
14:25	Jenny Rathinagopal
14:45	Orlando Simpson
15:05	Nicholas Palaschuk

JUDGES

- ♦ Jeff Martin, Canada Research Chair in Fundamental Symmetries in Subatomic Physics, Department of Physics
- ♦ Dawn Sutherland, Canada Research Chair in Science Education in Cultural Contexts, Faculty of Education
- ♦ Kevin Walby, Chancellor's Research Chair 2015, Department of Criminal Justice

KEYNOTE SPEAKER

Adel Compton, Master of Sacred Theology, 2015

All presentations will take place
in room 1L06.

Special thanks to our Colloquium Committee: Jennifer Meixner, Gagandeep Singh, Gabriela Jimenez, Belle Jarniewski, Jesse Rodgers, Yujia Wu

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ABSTRACTS

9:30 Julia Lawler - Bioscience, Technology, & Public Policy
Evaluating Timber Allocations for Community Control and Benefits

Public forest licensing agreements can be a tool for increasing community access to decision-making control and forest-derived benefits. In Manitoba, Community Timber Allocations (CTA) are granted to First Nation, Métis, and northern communities. This research examines the implementation and outcomes of the CTA program and its possible significance in elevating com-

munity involvement in forestry between 2005-2015. Perspectives from Indigenous communities, industry, and the provincial government were explored through semi-structured interviews, site visits, and document review. While this allocation offers flexible access to timber, as well as employment, training and business opportunities, the design structure provides little decision-

making control for communities to implement traditional values or objectives on the landscape. This evaluation advances understanding of the control and benefits available through the CTA program and can inform practice regarding community-based forestry and other forms of local resource development in similar settings.

9:50 Gagandeep Singh - Applied Computer Science
Label Constraint reachability queries in graph databases

Given a directed edge labeled graph database G , to check whether vertex u is reachable to vertex v under a label set S is referred to as a labeled constrained reachability (LCR) query. Practical applications of LCR are finding relations among people in social network or defining the pathway of

conversion from one compound to another in bioinformatics, etc. In our research, we present a technique to store reachability information in the form of intervals over spanning trees. The basic idea is to divide the whole G into a number of spanning trees and then calculate tree

intervals over vertices, as well as labels for edges, in every spanning tree. Extensive experiments have been done, which shows that our method is much better than all the previous approaches.

conversion from one com-

DISCOVER · ACHIEVE · BELONG

ABSTRACTS

10:10

Stephen Penner - Master's in Development Practice in Indigenous Development

Gathering Circles Farm to Table Co-op- A case study in small scale Indigenous economic development

The concept is an Indigenous business aimed at strengthening Indigenous economic activity on reserve through the promotion of the food co-op as the choice of chefs, diners and consumers who appreciate local food. The competitive advantage outlined for the Gathering Circle Co-operative involves a custom software platform for the efficient cost management of the

integrated short market supply chain (farm to table). The custom software platform allows for the further integration of the social component of the co-operative model, which acts as a comparative advantage for the co-op providing a positive brand image through food donations. Finally, the Gathering Circle Co-operative provides for community resource

management ensuring effective use of local resources. The case study will present an income assessment, capital funding requirements, organizational structure, marketing strategy, cash flow and breakeven analysis. The conclusion of the paper presents an optimistic assessment of the Co-op model's potential as an economic driver.

10:30

Yujia Wu - Applied Computer Science and Society

An efficient algorithm for mapping massive biological data from next-generation sequencing

The recent development of Next-generation sequencing technology has broadened the way of DNA research and greatly increased the scale of sequencing datasets. The core step to take advantage of the new sequencing technology is to map biological data (termed as short reads) generated by sequencing instruments to

reference genomes. However, sequencing techniques are now able to produce billions of short reads from single experiment making the mapping step a time expensive work. In our research, we provide a novel approach to support mapping massive short reads. The main idea behind it is to construct a trie structure

over all the reads and search the trie against FM-indexes created for genomes. Extensive experiments have been conducted to compare with existing methods, which show that our method is promising for mapping a big set of short reads against mammalian-sized genomes.

ABSTRACTS

10:50 Rachel Epp - Cultural Studies
***Felt* and Foucault: Rape, Bodies, and Power**

I put the 2016 film *Felt* in conversation with Michel Foucault's controversial statements about rape in order to explore how women's bodies are socially constructed and how society, including the legal system and feminism, treats and talks about women's bodies in the context of rape. Foucault argued that rape

should be prosecuted no differently than assault, effectively desexualising rape. Given the explicit and graphic commentary on sexualized existence in *Felt* and the longevity of Foucault's comments, these cultural objects serve as touchstones for a discussion of rape culture that includes

privilege, power, social constructions of femininity, a history of rape laws and the theories that informed them, feminist attitudes toward rape, and gender performance.

11:10 Waarengeye Varun Vikram - Applied Computer Science and Society
GPU Implementation of Image Inpainting through Rough PDE

The focus of this research is to develop new and faster approaches for restoring the occluded and/or missing parts of the images using existing information contained in the digital image. In this work, the image restoration called image inpainting will follow the established approach given by the application of a

partial differential equation used to describe the transfer of heat in objects. In performing inpainting using heat equation, the key idea is to propagate the available image information into the region to be inpainted, where grayscale intensity values replace temperature. The contribution of this research will be the definition

of a new form of rough partial derivative based on rough set theory, and rough calculus, and its implementation for inpainting using Graphics Processing Units. The GPU's are well suited for solving problems that are inherently parallel, meaning the same calculations are performed over and over again on different data.

ABSTRACTS

11:30 Maging Oloko - MA Indigenous Governance.
A Case Study of the Irigwe Indigenous People of Kwall, in Bassa.

Despite the central role that indigenous foods can potentially play in meeting people's food security needs in Nigeria, it has continually been ignored by Government and policy makers. In order to encourage the recognition of indigenous food and knowledge, this study focused on indigenous foods utilized by the Irigwe people of North-

Central Nigeria, their uses and how they contribute to meeting the people's food security needs. Data was collected from 30 participants through Interviews and talking circles. Participants identified 23 indigenous species they utilize for nutritional and medicinal purposes. Insecurity and lack of access to farm input were some of the challenges

faced by participants in their efforts to access their food. Participants emphasised the need for cultural revitalization, youth engagement and access to modern farming equipments, as ways to remedy challenges and strengthen the community's food security.

13:05 Jiajie Yu - Applied Computer Science
Descriptive Topological Spaces for Performing Visual Search

The focus of this work is on simulating human visual search in automated systems. Human visual attention can be simulated using either bottom-up or top-down models. The bottom-up approach directs attention based on salient objects in the visual field determined by low level visual features. Further, it can be used to identify candidate

salient objects, which form a basis for making high-level comparisons regarding the presence of objects of interest. Similarly, the top-down model assumes some a-prior information is present that is necessary to rule out salient regions of the visual field that are not similar to the object of interest. This research investigates the

use of descriptive topological spaces for generating patterns from salient regions in order to make decisions on the whether a digital image contains the desired object. Further, the tolerance-based descriptive set intersection operator between patterns is the main mechanism used to determine similarity.

ABSTRACTS

13:25 Aditya Bharadwaj - Applied Computer Science

A fuzzy-rough set approach for labeling categorical instances

There is infinite amount of data on web but it is amorphous and increasing day by day. A major problem when learning from the web is labelling of the data. There is a need of automated systems which can not only extract the data but also structure (label) it in a meaningful way. The research focuses on idea of integrating

rough and fuzzy set based theories to create algorithm to label categorical instances for predefined categories. The fuzzy set offers the degree of belonging (membership) for each noun-context relationship within the set, the rough set defines the class boundaries. This work is inspired by tolerance rough set approach

but instead of tolerance we are using fuzzy set. The objective is to create an algorithm to structure noun phrase instances from the web and compare its results with the existing rough tolerance approach.

13:45 Kate Burns - Environmental, Resource, and Development Economics

Estimating the cost of obesity in Canada

In the past thirty years the number of individuals suffering from excess weight and obesity in Canada has increased dramatically. Excess weight can be associated with countless additional health problems, treatment of which account for 17% of Manitoba's total annual healthcare budget. More troubling yet, the current

youth population has an even more severe rate of obesity than the youth of previous generations suggesting that we can expect the proportion of the healthcare budget spent treating obesity to increase with time. My research attempts to project how we can expect this cost to increase in the coming years,

what populations will cause the most problems and how this progression can potentially be mitigated.

ABSTRACTS

14:05 Parth Brahmhatt - Applied Computer Science
Global Challenges for Point-of-Care Technologies at Emergency Care Systems in Countries with Different Income Levels

This study describes the current state of Emergency Care Systems (ECS) in 12 different countries that are classified in four different income groups by the World Health Organization (WHO). A variety of sources have been studied about the status of healthcare, access to ECS, delivery of ECS and level of

training and research in those countries. The study looks at common patterns and characteristics in countries of the same income group. These patterns can be taken as a reference to understand global challenges for the implementation of Point-of-Care (PoC) technologies in these settings. The study takes the ECS

from high-income countries as the gold-standard reference for lower income countries.

14:25 Jenny Rathinagopal - Department of Biology
Role of N-MYRISTOYLTRANSFERASE in T Cell Function

Colorectal cancer (CRC) is the third leading cause of cancer deaths in Canada. Therefore, there is an urgent need for a convenient, more accurate and cost-effective screening test that could triage patients for more intensive procedures such as colonoscopies. Current CRC screening tests have

several limitations including limited efficacy, invasiveness, and poor acceptability by patients. We have recently discovered two novel protein markers BM1 and BM2 in the peripheral blood mononuclear cells (PBMC) of colorectal cancer, which could be used for the diagnosis of CRC. The aim of

my research work is to elucidate the role of these biomarkers in the function of PBMC in CRC patients.

ABSTRACTS

14:45 Orlando Simpson - Applied Computer Science
Agent Based Modeling of Cardiovascular Diseases

This study describes a methodology for creating a Complex Adaptive System (CAS) computer model that supports assessments of Cardiovascular Diseases (CVDs) over a period of time. The Agent Based Model (ABM) was implemented in NetLogo and allowed for the complex interdependency of the risk factors and feedback loops from the

health interventions at different levels. The 10 year World Health Organization/ International Society of Hypertension (WHO/ISH) risk score charts are particularly important because they are calibrated for low and middle income countries unlike the popular Framingham Risk Score and the Systematic Coronary Risk Evaluation (SCORE). WHO/ISH

charts contain risk factors that are easier to maintain as a part of medical records of persons in low and middle income countries. Steps to create the model based on WHO/ISH prediction charts are described. The model is applicable to low and middle income countries which account for 80% of CVD related deaths globally.

15:05 Nicholas Palaschuk - Bioscience Technology & Public Policy
Achievements in Aboriginal forestry research

The concept of Aboriginal forestry has emerged as a model for acknowledging Aboriginal Traditional Knowledge in forest management and establishing a platform for equitable decision making and benefit sharing. We performed a bibliometric analysis to survey the current state of Aboriginal Forestry research, illustrate trends in research

output, identify gaps, and provide additional data to guide future research. In particular three claims made by multiple authors regarding trends in past research were analyzed using a set of core metrics. 1) Growth in the use of the term 'Aboriginal forestry', 2) growth of collaborative research "with" versus "on" Aboriginal peoples, and 3) the growing interest in and

awareness of Aboriginal issues in natural resource management were tested across a sample of literature. Our analysis establishes characteristic themes and trends that define Aboriginal forestry research as an evolving field in Canada and provide direction for future researchers.

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