Second Annual
University of the District of Columbia
Research Mini-Symposium

March 10, 2010 10:00am-5:00pm

Building 41, A-03

University of the District of Columbia

AGENDA

Time	Presenter	Title
10:00 AM	Beverly Hartline	Welcoming Remarks
10:20-10:40	Nian Zhang	Runoff Quantity Analysis of Urban Catchments Based on Neural Networks Method
10:40-11:00	Cherie Ann Turpin	Afrofuturism: Humanities, Technology, and Creating Intellectual Communities
11:00-11:20	William White	Procurement Professionalism: The Recognition of a Career
11:20-11:40	Pawan Tyagi	Nanoscale Devices for the Next Generation Computers and Bioengineering Applications
11:40-12:00 PM	Helene Krauthamer and Daniel Soodjinda	Assessing the UDC Pilot Online Writing Program
12:00-1:00	LUNCH/Poster Session	
	Sophia Parker	Correlations in the World of Online Dating
	Selvon Malcolm Waldron (w/Marketing Club)	EMBA in Global Leadership and Environmental Sustainability
	Thomas Bullock, LaVern Blagmon-Earl, Jeff Fleming, and Saundra Jowers	The Mathematics of Life: An Integrated Study of Music, Oral Histories, and Nutrition
	Pradeep Behera	Development of a Rainfall Statistical Analysis Tool for Urban Stormwater Management Analysis
1:00-1:20	Joshua Lasky and Shauna Brew	Vending Machine Energy Audit: Campus-Based Research for Operational Efficiency and Sustainability
1:20-1:40	Fredric D. Ratliff	The Effects of Using Video Technology and Video Websites to Aid in Enhancing Concepts Taught in Mathematics
1:40-2:00	Roland Kamden and Paul Cotae	On the Partial Ordering of Discrete Memoryless Channels
2:00-2:20	LaVern Blagmon-Earl, M.B. Racine, Helene Krauthamer and Christine Kroll	Assessing the SOAR[4] Program
2:20-2:40	Meena Srinivasan	Cloud Applications for Educational Institutions
2:40-3:00	Sasan Haghani	Performance of Selection Combining in Two Wave with Diffuse Power Fading
3:00-3:20	Break	
3:20-3:40	Paul Cotae	Underwater Wireless Senor Data Acquisition System
3:40-4:00	Rosie A. Sneed	The Effects of Water from the Anacostia River Watershed on the Survival and Regenerative Capacity of Dugesia Tigrina
4:00-4:20	Sandra Jowers-Barber	The Oral History Project at the University of the District of Columbia

4:20-4:40	Angelyn Flowers	Pilot Study Analyzing the Utility of a Model for Examination of the use of Social Media in Terrorist Recruitment and Radicalization
4:40-5:00	Closing Remarks and Reception	

PRESENTATION ABSTRACTS

10:20   **Runoff Quality analysis of Urban Catchments Based on Neural Networks Method**

Nian Zhang, Ph.D. Electrical and Computer Engineering

Stormwater from urban and suburban areas contributes a significant amount of pollutants to the Chesapeake Bay. In urban areas, the impervious surfaces created by buildings and pavement cause rainwater and snowmelt to flow quickly over the landscape, rather than soaking naturally into the soil or being absorbed by plants. Therefore, evaluations of stormwater runoff are imperative to enhance the performance of an assessment operation and develop better water resources management and plan. In order to accomplish the goal, a predictive model based on recurrent neural networks with the Levenberg-Marquardt backpropagation training algorithm is developed to forecast the runoff discharge using the gage height and the previous runoff discharge.

10:40   **Afrofuturism: Humanities, Technology, and Creating Intellectual Communities**

Cherie Ann Turpin, Ph.D., Department of English

Dr. Turpin will discuss her current research project including building a wiki along with discussing the current trends in Digital Humanities, especially within context of African Diasporic and American Popular Studies areas. She will also discuss how Humanities scholars have entered previously closed areas of technology and science to encourage interdisciplinary studies and careers for minority scholars; as well as, how the academic priorities of our collective Africana communities underline a need for our own manifestos and access to producing an abundance of information – with an emphasis on plurality and open doors between Humanities and Technology.

1:45   **Performance of Dual-Branch Decorrelator Receiver in Rician Fading**

Sasan Haghani, Ph.D., Department of Electrical Engineering

The performance of a new dual-branch decorrelator receiver is studied in correlated Rayleigh and Rician fading channels. It is shown that the new decorrelator receiver does not need any knowledge of channel statistics to perform decorrelation. The gain of the decorrelator receiver over a conventional receiver is shown to be as much as 2.8 dB in average SNR when switched combining is employed. It is also shown that the outage probability of the decorrelator receiver is one-sixth of the outage

probability of the conventional receiver in some scenarios.

2:00   **The Undergraduate Communications Disorders Program: Compulsory? A Study of Graduate Student Outcomes – Context and Substance for Program Review**

April Massey, Ph.D., Associate Dean, College of Arts and Sciences
Natalie Ottey, Ph.D., Department of Language and Communication Disorders
Michele C. Walker, Ph.D., Department of Language and Communication Disorders
Angela Brandford-Wainwright, Ph.D., Department of Language and Communication Disorders
Marisha Bourgeois, Department of Language and Communication Disorders

Since 1991, 48 undergraduate programs in communication sciences and disorders (CSD) have been discontinued across the nation. Notwithstanding, enrollments in and graduates from pre-professional programs have increased significantly across the same period. This presentation explores the relevance of undergraduate training in CSD to the success of students completing graduate speech-language pathology (SLP) programs and the potential impact of preservice program availability to the preparation of entry level clinicians. Random samples of two groups of graduate students in SLP at the University of the District of Columbia were profiled using 10 variables for students entering with and without undergraduate preparation. Outcomes will be shared and implications for a model of pre-professional preparation suggested in keeping with program review efforts.

2:15   **FM-GA and CM-GA for Gene Microarray Analysis**

Rommel Anthony Benites Palomino, Department of Computer Science

Nowadays, there is a dramatic increase of the demand for new algorithms or techniques that is capable to solve complex computing problems on very large datasets. Particularly of great significance in practice are algorithms for finding optimal solution for a given problem with a high number of attributes or variables, such as selecting the most representative human genes from a microarray dataset. In this paper, we propose a new approach, FM/CM-GA, to identify significant genes from microarray datasets. FM/CM-GA combines our innovative FM/CM-test with genetic algorithm and leverages the strengths of each of them. The result is a list of selected genes that contribute significantly to a particular disease. The performance of FM/CM-GA is evaluated by the classification accuracy achieved by using the selected genes as features. Experiments are conducted to demonstrate the superiority of the proposed method over other approaches.

2:30   **An Empirical Bayesian Approach for Estimating Uncertainty Associated with Storm Water Quality and Quality Model Analysis**

Valbona Bejleri, Ph.D., Department of Mathematics
Tolessa Deksissa, Ph.D., Water Resources Research Institute, UDC

This is an ongoing research project in collaboration with Dr. Tolessa Deksissa, UDC. The dynamic rainfall-runoff simulation models used for single event and long-term (continuous) simulation of runoff quantity and quality from primarily urban areas are investigated. Model output is an estimate of the real measurement, and therefore its reliability depends partly on the relevance of model parameters and data gathered. Our work aims the development of a new model that will adjust for both model and parameter uncertainties. We describe an empirical Bayesian approach combined with regression analysis that was used to estimate model' parameters. A real case study will be presented as an application. This research is supported by the Water Resource Research Institute at the University of the District of Columbia.

2:45 **Economic Empowerment of Culturally and Linguistically Diverse Youth with Disabilities**

Arlene King-Berry, MA, J.D., Department of Education

Despite their increasingly significant impact on buying and spending, youth in the U.S. have a distressingly low level of financial knowledge. Financial education and strategies that purport to develop financial literacy, while helpful, are insufficient to address the needs of youth. Rather, the need exists for *financial capability*. The concept of financial capability expands the notion of financial literacy by addressing more than increases in financial knowledge and changes in financial behavior. Financial capability also requires the ability to act on one's knowledge, as well as the *opportunity* to act. Thus, the capability approach takes into account an individual's internal capabilities and also the external conditions or environment (e.g., policies, laws, regulations, practices) that make up a person's combined capabilities. The concept of financial capability has particular relevance for culturally and linguistically diverse youth with disabilities whose overall capability has traditionally and historically been limited perhaps by their internal abilities and certainly by their external environment.

3:00 **Cultural Perspectives in Autism Spectrum Disorders: A Review of the Literature**

Michele C. Walker, Ph.D. Department of Language and Communication Disorders
Toni G. Walters, M.S., Department of Language and Communication Disorders

Autism Spectrum Disorders (ASDs) are a group of developmental disabilities characterized by significant impairment in communication and social interaction and the presence of unusual behaviors and interests (Centers for Disease Control, 2009). This group of disorders is the second most common disorder among children in the

United States. Although there is no apparent difference in the prevalence of the disorder due to race (Fombonne et. al, 2001), there is a reported difference in the rates of service delivery to ASD-diagnosed children and their families from culturally and linguistically diverse backgrounds (Dyches et. al., 2004). This session will provide a brief review of the available literature relevant to prevalence and incidence data, best practice service delivery options, and suggestions for future research directions.

3:15   **The Effects of Applying the Principles of Motor Learning to Treatment for Acquired Apraxia of Speech**

Alison Norwood, Department of Language and Communication Disorders
Natalie Ottey, Ph.D., Department of Language and Communication Disorders

Historically, there have been a variety of approaches which have been utilized for the treatment of acquired Apraxia of Speech (AOS); however, these approaches primarily aimed to address symptoms associated with AOS, rather than addressing the underlying etiology of the disorder at the level of motor programming. The application of the principles of motor learning and motor learning theory to the treatment outcomes of patients with speech and non-speech motor impairments have shown encouraging results, particularly in the treatment of persons with acquired AOS. This study investigates the effects of utilizing a Modified Motor Learning Guided approach in the treatment of an adult with acquired AOS. The results revealed that the participant demonstrated improved accuracy and automaticity of speech productions with limited maintenance of treatment outcomes over the course of the study. These findings provide preliminary evidence to support incorporating the principles of motor learning in speech rehabilitation programs and the necessity to expand future studies to the investigation of the retention and generalization of trained motor speech skills.

3:30   **Beyond the Soup Kitchen Model and Drive-by Volunteerism: Transformative Civic Engagement**

S. Suzan J. Harkness, Ph.D., Assistant Dean, Center for Academic Technology

As institutions expand their curriculum to include experiential, active, and community-based learning opportunities they struggle with models of practice that have deep and lasting impact. Civic engagement is both a popular activity and a hopeful outcome. As a curricular activity, faculty and institutions hypothesize that the experiential engagement in political process or social problem solving will generate affordances such as direct skills. As a cognitive outcome, there is optimism that students will gain an appetite toward civic obligation and responsibility to community, whereby advancing both internal and external levels of efficacy. It is progressive and ambitious in intention; although as an institutional requirement, the endeavors are often episodic volunteerism where pedagogical approaches

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rarely utilize reflection. As a result, educators lack evidence of the effectiveness and we know little about the affordances. This paper will discuss the outcomes of a civic engagement model embedded within a Washington, D.C., internship program. The study used the Council for Academic Standards (CAS) assessment rubrics to examine outcomes. The findings when plotted on a linear model demonstrate promise and evidence that students shifted toward an awareness of social responsibility and increased efficacy as a result of frequent and sustained participation.

3:45 Evidence-based Social Work in End-State Renal Disease (ESRD)

Jessica Cabness, Ph.D. LCSW, Department of Urban Affairs, Social Sciences, and Social Work

The extant literature on social factors affecting adherence to hemodialysis treatment for patients living with end-stage renal disease (ESRD) reveals a high rate of depression and anxiety. However, a paucity of research exists on interventions to reduce mental health conditions associated with ESRD. Evidentiary findings suggest the effectiveness of a social work intervention for improving depression and quality of life in patients with ESRD. The project was funded by the National Kidney Foundation (NKF). The research findings were published in the *Journal of Nephrology Social Work*.

4:00 A Qualitative Study of Essential Qualities, Social Emotional Experiences and Best Practices of K-12 Educators in Urban Public Schools

Doris Peters, Ph.D., Department of Education
Emily Chiariello, Department of Education

This qualitative research sought to gain deeper understanding of the essential qualities of successful urban K-12 teachers, social–emotional aspects of development that impact teaching and learning, and effective teaching strategies for urban K-12 students through the lens of their classroom teachers. The purpose of the study was to add to the body of knowledge that informs the professional community of best practices for teaching in urban environments. Participants were four urban K-12 teachers, three of whom had previously been designated by their state as "Teacher of the Year" or "Finalist." A fourth teacher was selected by the researcher on the basis of outstanding teaching ability as observed by the researcher. Using the case study method, the researcher conducted tape-recorded interviews and observations of classroom instruction. Using the hermeneutic phenomenological approach to data collection, the researcher developed themes with spiraling questions and each data set was analyzed based on the researcher's interpretations (e.g., background, experience, knowledge base, skills). Thick descriptions and triangulation were used for collecting, analyzing and interpreting data. The collection of data endured a period of 4 weeks.

Findings from both the literature and collected data placed heavy emphasis upon understanding, valuing and validating the cultural diversity of urban students and families, particularly those from the culture of poverty. Validation was viewed as quintessential in the learning process as students must feel that their teacher acknowledges their struggles, emphasizes with their particular situation, and believes in their potential. Significant to this study were suggestions provided to guide and inform teacher education faculty with the process of restructuring and developing new and existing programs at the University of the District of Columbia.

4:15   Opening Child Welfare Proceedings in the District of Columbia: Sunshine is Good for Children

Matthew Fraidin, J.D., David A. Clarke School of Law

Child welfare proceedings take place in closed courtrooms, and all records pertaining to those proceedings are kept secret. Caseworkers, lawyers, and judges operate without transparency in the lives of vulnerable children. As a result, D.C.'s child welfare system, which is widely understood to be broken on an institutional level (such as with respect to significant staff turn over, delays in adoption, etc.) also harms individual children and families, instead of helping them. That harm is done to children is evidenced by results of cases handled by the UDC-DCSL legal clinic, in which 60% of the children were returned home and never found to be abused or neglected. I argue that the solution is "sunshine." Child welfare court hearings and records should be opened in order to protect and empower individual children, destigmatize child welfare involvement, enhance political accountability, and permit system change. The D.C. Code should be amended as follows: Family Court proceedings and records shall be open to the public, unless the court finds, by clear and convincing evidence, that closure is required to avoid substantial harm to the child, in which event the Court shall order closed or sealed that portion of a hearing or record required to avoid harm.

4:30   Reception and Poster Session

Excellent Teaching of Literacy in an Urban School: Including New Literacies and Youth Development

Heidi Oliver-O'Gilvie, Ph.D., Department of Education

This poster examines the reading pedagogy of an urban fifth-grade educator who teaches his students how to "read the word and the world" by infusing hip-hop into the reading curriculum. I will begin with an overview of literature that theorizes literacy pedagogy as a hybrid space for hip-hop and critical literacy within urban classrooms. After describing the case study methodology I employed, I turn to the findings of the study. I will conclude with practical implications for literacy teachers in urban schools.

The Association Between Online Courses and Pursuing a Master's Degree

Fredric D. Ratliff, Department of Mathematics
Sophie Parker, Department of Mathematics
Niraj Sapkota, Department of Computer Science

This project focuses on some of the questions asked by the survey conducted by the Office of the Graduate School, at the University of the District of Columbia in the Fall of 2009. We investigate the relationship between **taking online courses** and **pursuing a Master's degree.** The relationship between pursuing a graduate Master's degree and the declared **bachelor's degree** major (intended and/or obtained) were also studied. We performed statistical tests to support our data analysis. SAS programming was utilized for statistical analysis.

ARTSI Advancing Robotics Technology for Societal Impact

LaVonne Manning, Ph.D., Department of Computer Science

The ARTSI (Advancing Robotics Technology for Societal Impact) Alliance is a collaborative education and research project centered around robotics for healthcare, the arts, and entrepreneurship. At UDC ARTSI programs have encouraged students to participate in several competitions, symposia and peer group activity.