9th Annual Science, Technology, Engineering, Arts, Math & Education Conference

Prince Waikiki, Honolulu, Hawaii
June 5, 6, & 7 2019

Welcome Address

Aloha and welcome to the annual Science, Technology & Engineering, Arts, Mathematics and Education Conference held at the Prince Waikiki Hotel on the island of Oahu. We trust that you will gain new experiences and new insights in your field of study while interacting with your peers. This is an exciting opportunity to meet with educators from different universities throughout the nation and throughout the world. They bring with them a wealth of knowledge and experience in their particular disciplines to share with each and every one.

We hope you enjoy your stay with our host, the Prince Waikiki Hotel, located a block from the Ala Moana Shopping Center offering a wide variety of shops and attractions. The famous Waikiki Beach and prime restaurants are close by for your convenience. Be sure to check with the hotel's activity desk for all the latest adventures and tours to make your trip to the Hawaiian Islands a memorable experience.

The Islands of Hawaii offer a very unique experience for all people who visit to gain a better understanding of the Hawaiian culture and its spirit only found in these islands. Enjoy some of the best weather and beaches found anywhere in the world, and take your experiences home with you to return another day.

E' Komo Mai!

(All are welcome!)

ISSN 2162-917X (Online)
Please visit our website for more details on the next conference.
www.huichawaii.org
stem@huichawaii.org; education@huichawaii.org
Contact Number: 1-808-537-6500

Conference Schedule

Registration Hours

June 04 - Tuesday	Lobby	12:00 pm - 5:00 pm
June 05 - Wednesday	3rd Floor	6:30 am - 5:30 pm
June 06 - Thursday	3rd Floor	6:30 am - 5:30 pm
June 07 - Friday	3rd Floor	11:00 am - 1:30 pm

Hawaiian Steel Guitar Opening Presentation (Music)

June 05, Wednesday: 6:30 am - 8:00 am, Naio Room

Keynote Speaker Address

by Mrs. Teresa Janowski, Faculty of Engineering,
Computer and Mathematical Sciences (ECMS),
The University of Adelaide, Adelaide,South Australia.
June 06, Thursday: 7:30 am - 8:00 am, Naio Room

Concurrent Session Times

8:15 - 9:45am * 10:00am - 12:00pm * 12:45 - 2:15pm * 2:30 - 4:00pm * 4:15 - 5:45pm

Poster Exhibits

June 05, Wednesday: 11:00 am - 12:30 pm, Naio Room
June 06, Thursday: 11:00 am - 12:30 pm, Naio Room

Breakfast - Naio Room

(Complimentary for registered participants)

June 05 - Wednersday	Naio Room	6:30 am - 8:30 am
June 06 - Thursday	Naio Room	6:30 am - 8:30 am

Tea Break

Wednesday and Thursday - 10:00am - 12:30pm / 2:00pm - 4:30pm

Lunch Break

11:30am - 12:30pm (**Lunch is not provided on Wednesday and Thursday**)

Appreciation Lunch - Naio Room (Complimentary for Registered Participants)

January 07, Friday: 11:30 am - 1:30 pm

Session Chairs (Instructions)

- Introduction of Participants.
- Start and complete sessions on time.
- Chair leads the discussions and holds question and answer period at the end of each session.

DAY 1

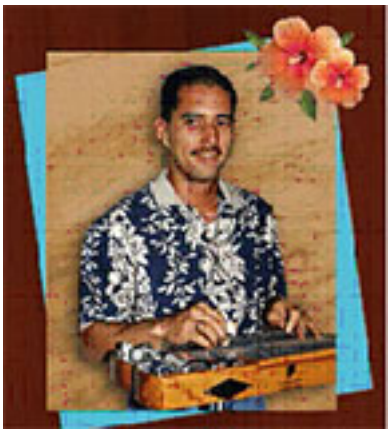
Wednesday - June 05, 2019

Hawaiian Steel Guitar Performance

Wednesday - June 05, 2019
Naio Room
6:30 - 8:00am

HSGA

Hawaiian Steel Guitar Association



Mr. Paul Kim
Hawaii, President

Official Sponsor

The Hawaiian Steel Guitar Association is a worldwide organization promoting traditional Hawaiian music and the signature sound of the Hawaiian steel guitar.

Our site contains information for HSGA members and for non-members who wish to learn about and listen to the beautiful music of the Hawaiian steel guitar.

We welcome you and encourage you to explore HSGA. If you enjoy your experience here, please let us know. We are always looking for new friends and new members.

Wednesday - June 05, 2019

Room: **Palolo 1**
Time: **8:15 - 9:45am**
Session: **Grading equity; Adult Education, Higher Education, Distance Education, Education Technology, Education Policy and Leadership; Partnership between Academia and the Corporate World; Math and Science Education; Inter-disciplinary Areas of Mathematics**
Session Chair: **Prof. Leo Stocco**

I. A Software Solution to High-Enrolment Grading Equity Challenges

In open-ended project-based learning courses, large class sizes make equitable grading a challenge. A software tool is developed to remedy this. It displays a sorted list of photos and grades to ensure that subsequent projects grades conform to the precedent. The tool is developed to improve grading equity in a 3rd year Electrical Engineering Design Studio course with an enrolment of 136 students divided into 34 teams. Initial results demonstrate significant reductions in the deliberation time.

Q: *Can you provide me a copy of this tool so I can use it myself?*

A: *Yes.*

Authors/Presenters: **Prof. Leo Stocco**
Mr. Matthew Winship
Electrical & Computer Engineering Department
University of British Columbia
Vancouver, British Columbia
Canada

Prof. Leo Stocco

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Wednesday - June 05, 2019

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Session Chair: **Prof. Leo Stocco**

II. STEM for Adult Learners: A Review of Initiatives and Opportunities in Workforce Development and Continuing Education

Adults need to stay current on STEAM topics in order to stay competitive in the workforce; some also want to explore STEAM for personal fulfillment or leisure. To fill this need, many communities and organizations are exploring and offering low-cost and free STEAM learning experiences for adults. A review of the literature shows a wide variety of creative initiatives, funding options, and activities that interested communities and organizations can explore as well as challenges to be addressed.

Q: *How can adult learners gain STEAM knowledge and experience inside and outside of traditional educational settings?*

A: *Some current trends and opportunities for adult learners to engage with STEAM include trade association demonstrations, makerspaces, museum exhibits, library workshops, hospital trainings, open educational resources, and workforce development center trainings.*

Author/Presenter:

Dr. Kathryn Wozniak
Department of Education Technology
Concordia University Chicago
Westchester, Illinois

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Session Chair: **Prof. Leo Stocco**

III. Students in ACTION: The Great Icosahedron Challenge

This presentation illustrates with pictures and words the trials and tribulations of a group of six freshman math and science education majors at Bowling Green State University as they embarked on attempting to build a 3D no-sew icosahedron quilt. Starting with an ill-defined idea and particular constraints, the students had to investigate the necessary mathematics, develop appropriate mathematical models and translate the mathematics into an actual 3D mathematical art piece.

Q: *Can art be used to leverage mathematical investigations?*

A: *In this presentation, we illustrate that, by being open to explore mathematics in new and visual ways, three-dimensional no-sew mathematical quilts can enliven the mathematics classroom while providing unique opportunities for prospective teachers to engage with mathematics by applying mathematical concepts and spatial thinking while enlisting their artistic aptitude.*

Author/Presenter:

Dr. David Meel
Department of Mathematics and Statistics
Bowling Green State University
Bowling Green, Ohio

Wednesday - June 05, 2019

Room: **Palolo 2**
Time: **8:15 - 9:45am**
Session: **Academic Self-efficacy; Positive Psychology; Use of Online Learning Communities and their Effectiveness; Teaching & Learning of Computing Related Concepts; Environmental Health Science; Public Health Science**
Session Chair: **Dr. Danielle Richards**

I. Academic Self-regulation, GRIT, Happiness and Gratitude

This research was part of a National Research Study through Psi Beta Psychology Honor Society. Our sample consisted of 1,920 college students representing eleven states and 31 community college campuses across the United States. The study explored the relationship between academic self-regulation and GRIT, happiness and gratitude. Findings and recommendations will be shared.

Q: *Does academic success have a relationship to positive psychology?*

A: *Yes.*

Author/Presenter: **Dr. Danielle Richards**
Department of Human Behavior
College of Southern Nevada
Las Vegas, Nevada

II. Traffic Related Air Pollution in Bladensburg, MD

Emissions from industrial and commuter traffic negatively impact air quality and long-term health for individuals who are consistently exposed to traffic related air pollution (TRAP). The purpose of this project is to analyze the PM2.5 within heavily trafficked areas, in the Bladensburg community, in order to address gaps in knowledge about pollution levels in populated neighborhoods.

Q: *Why can traffic related air pollution cause environmental justice issues?*

A: *Increased exposure to traffic related air pollution can result in chronic adverse health effects.*

Authors/Presenters: **Mr. Jair Sinisterra**
Dr. Sacoby Wilson
Maryland Institute of Environmental Health
University of Maryland
College Park, Maryland

Wednesday - June 05, 2019

Room: **Palolo 3**
Time: **8:15 - 9:45am**
Session: **Curriculum Research and Development**

WORKSHOP

I. A Critical Decolonised Aotearoa New Zealand Curriculum in Action

I will share a cross Curriculum Programme Resource (CPR) I have developed that takes Aotearoa New Zealand's unique histories from the Mâori origin story, it deliberately unpacks the two Treaty of Waitangi texts and what happened until the 2000s. It is for all level educators, with critical and decolonised teaching pedagogies to meet 21st C student needs in action based in research and evidence. The CPR is a model curriculum for other countries that have attempted to be colonised.

Q: *What is one critical factor necessary to include in a decolonised educational curriculum for a country that has tried to be colonised?*

A: *A critque of the "standard story".*

Author/Presenter:

Ms. Tamsin Hanly
Education and Mâori Departments
University Of Auckland
Epsom, Auckland
New Zealamd

Wednesday - June 05, 2019

Room: **Palolo 1**
Time: **10:00 - 12:00pm**
Session: **K-12 STEM Education; Mathematical Modeling; Experiential Learning; eLearning; Self-efficacy, Motivation; Early Childhood Education/ Elementary Education; Information and Computer Sciences; Education Technology; Art; Inter-disciplinary areas of Science (STEM); Inter-disciplinary and other areas of Technology and Engineering**
Session Chair: **Dr. Jason Clark**

I. STEMulate-K12: Computer-Aided Model-Eliciting Activities

We present a computational framework for the virtual implementation of model-eliciting activities (MEAs). MEAs are thought-revealing tasks that require students to mathematize real-world situations by creating a model as a solution. Modeling with mathematics is a Common Core State Standard in the U.S. (Standards for Mathematical Practice - SMP4). MEAs provide an environment for interactive student engagement, develop systems thinking, for representing concepts using different representations.

Q: *What are the benefits of computer-aided model-eliciting activities?*

A: *Facilitates assessment, eliminates cost, reduces teacher training, etc.*

Authors/Presenters: **Mrs. Quintana Clark**
Agricultural Sciences Educationi and Communication
Purdue University
West Lafayette, Indiana
Dr. Jason Clark
Department of Electrical and Computer Engineering
Auburn University
Auburn, Alabama

Mrs. Quintana Clark

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Session Chair: **Dr. Jason Clark**

II. Internet of Play – Testing Augmented Playful Learning through the Flipped Classroom Approach

This study explores the relation between learning experiences of preschool children and an augmented reality application used in connection to a geocaching trail. We have created a game-based learning environment based on the treasure hunt of the geocaching game that utilizes Augmented Reality (AR) technology. By using this game-based learning environment and the flipped classroom approach as a conceptual framework for understanding the emerging role of augmented learning experiences.

Q: *How do you define the term Internet of Play?*

A: *In this case study we have used Internet of Play term, to describe Internet connectedness artworks through the geocaching game, which we see as a new playground to engage participants to play with others. We are presented with new opportunities of seeing the viewing and spectatorship of art turn to more participatory experiences through the Internet of play, from which new types of interactivity arise. Such arts are an example of the building blocks of the Internet of Things and enable novel computing applications (Kortuem et al. 2010). Internet of play purpose, as a place for ritual and play vs. as a place for transmission of information.*

Authors/Presenters:

Dr. Pirita Ihamäki
Dr. Katriina Heljakka
Prizztech Ltd.
Pori, Satakunta
Finland

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Session Chair: **Dr. Jason Clark**

III. Embedding High Quality Assessment Practices with Pre-K-12 Classroom Assessments

Teachers (Pre-K-12) are rarely trained with any depth and prepared to develop high quality assessments or determine if the assessments they are using are of high quality (Stiggins, 2014). Therefore, investing time training and preparing Pre-K-12 teachers to conduct quality assessment of student learning is needed. A case study will highlight the need for teacher professional learning to be implemented and monitored to improve student learning outcomes.

Q: *What are examples of research based formative assessment strategies to improve student learning?*

A: *The seven strategies of assessment for learning: Provide students with a clear understanding and vision of the learning target(s) at the beginning of the learning; Provide examples or models of student work at different performance levels in order to promote deeper understanding of the learning target(s); Offer students regular access to descriptive feedback aligned to learning target(s) focused on specific qualities of their work and inform them on ways to improve; Teach students to self-assess so they can monitor their own academic development and set goals by learning target(s) in order to determine what comes next in their learning; Design lessons focused on learning target(s) aligned with student needs; Teach students focused revision of their work; and Teach students to track, communicate, and reflect on their work.*

Author/Presenter:

Dr. Natalie Bolton
Education Sciences and Professional Programs
University of Missouri
St. Louis, Missouri

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Wednesday - June 05, 2019

Room: **Palolo 1**
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Session: **K-12 STEM Education; Mathematical Modeling; Experiential Learning; eLearning; Self-efficacy, Motivation; Early Childhood Education/ Elementary Education; Information and Computer Sciences; Education Technology; Art; Inter-disciplinary areas of Science (STEM); Inter-disciplinary and other areas of Technology and Engineering**
Session Chair: **Mrs. Quintana Clark**

IV. A Framework for Developing Agricultural Life Sciences Model-Eliciting Activities (AgLS-MEAs): A Work in Progress

The purpose of this NSF funded work in progress is to describe the design and development of model-eliciting activities (MEAs) for middle school grade levels using agricultural life sciences (AgLS) contexts. Compared to traditional MEAs, AgLS MEAs ease the learning of STEM by using AgLS, which is a widely-familiar context for young learners. AgLS contexts (i.e., health, energy, environment, food) are interdisciplinary areas that have primarily been underexplored as learning contexts for K-12 MEA.

Q: *How to make modeling with mathematics more amenable to elementary school students?*

A: *Agricultural Life Sciences modeling-eliciting activities.*

Authors/Presenters: **Mrs. Quintana Clark**
Dr. Levon T. Esters
Dr. Neil A. Knobloch
Agricultural Sciences Educationi and Communication
Purdue University
West Lafayette, Indiana
Dr. Jonathan D. Bostic
College of Education & Human Development
School of Teaching & Learning
Bowling Green State University
Bowling Green, Ohio

Mrs. Quintana Clark

Wednesday - June 05, 2019

Room: **Palolo 2**
Time: **10:00 - 11:30am**
Session: **Teaching Methods to Improve the Learning of Students in a Large Lecture Class; Interdisciplinary Learning; Mathematical Modeling, Statistics; Food Systems**
Session Chair: **Dr. Zeny Mateo**

I. A Group Cooperative Method : An Active Learning Approach in Teaching Statistics

Different strategies have been developed to energize the teaching and learning of statistics. A cooperative learning is an activity involving small group of learners who work together as a team to solve a problem, complete a task, or to accomplish a common goal. In this study we will evaluate the effectiveness of cooperative instructional method in improving student learning of statistical concepts in a lecture class. We will also discuss the different challenges in implementing this method.

Q: *How do you implement Cooperative learning in a large lecture Statistics class?*

A: *I developed some learning activities in some topics of Statsitics which were used by students per group.*

Author/Presenter:

Dr. Zeny Mateo
Department of Statistics
University of Manitoba
Winnipeg, Manitoba
Canada

II. Do Non-Traditional Banking Activities Affect Bank Financial Reporting Quality?

In this study, we examine whether and how non-traditional banking activities affect the quality of banks' financial reporting. Based on a panel of U.S. banks during the 1993–2012 period, we find that a bank's ratio of non-interest income (derived from non-traditional activities) to total operating income is positively and significantly associated with the magnitude of discretionary loan loss provisions, our main proxy for financial reporting quality.

Q: *Do Non-Traditional Banking Activities Affect Bank Financial Reporting Quality?*

A: *Non-Traditional Banking Activities Affect Bank Financial Reporting Quality.*

Author/Presenter:

Dr. Justin Yiqiang Jin
Accounting Department
McMaster University
Hamilton, Ontario
Canada

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Wednesday - June 05, 2019

Room: **Palolo 2**
Time: **10:00 - 11:30am**
Session: **Teaching Methods to Improve the Learning of Students in a Large Lecture Class; Interdisciplinary Learning; Mathematical Modeling, Statistics; Food Systems**
Session Chair: **Dr. Zeny Mateo**

III. A Simulation Study of Statistical Power to Detect Statistical Interaction in Cox Regression Model in the Case of Non-proportional Hazards in One of the Covariates Involved in the Interaction Effect

We investigated the diagnostic of statistical interaction in the case of non-proportionality in hazards in one of the covariates involved in the interaction effect during the Cox regression model development process. We evaluated the power of Therneau-Grambsch non-proportionality test. We recommend more rigorous regression analysis while following already established regression modeling steps.

Author/Presenter: **Dr. Kristina Vatcheva**
School of Mathematical and Statistical Sciences
University of Texas, Rio Grande Valley
Brownsville, Texas

Wednesday - June 05, 2019

Room: **Palolo 3**
Time: **10:00 - 11:30am**
Session: **Education Technology / AI - Assisted Grading**

WORKSHOP

I. Assessment Made Easy with Technology!

Grading is essential part of assessment that is historically known to be a time and effort consuming process. It needs attention to be consistent, accurate, provide a significant and timely feedback so that it can lead a meaningful analysis of student understanding. With the emerging Artificial Intelligence (AI) assisted grading technologies, all of these aspects can be managed successfully. Participants will experience the use of technology assisted grading and assessment tools.

Q: *What kind of technology tools will be presented?*

A: *Gradescope.com. This grading tool allows the teacher to quickly and flexibly grade any paper assignment regardless of the question contents and then analyze the results. It allows for adaptive rubric where you can make rubric changes to previously graded work. You can simply grade any paper assignment using your PC, laptop, tablet or even smartphone. You can use it for in-class quiz, take home exam, or any other assignment.*

Author/Presenter:

Dr. Ahmad Fayed
Department of Industrial and Engineering Technology
Southeastern Louisiana University
Hammond, Louisiana

Poster Session

Wednesday - June 05, 2019
11:00 am - 12:30 pm
Naio Room

Wednesday - June 05, 2019

Room: **Naio Room**
Time: **11:00am - 12:30pm**
Session: **Posters**

1. 7,10-Epoxy Octadeca 7,9-Dienoic Acid : Potential Synergistic Antibacterial Agent against Multidrug-resistant Staphylococcus aureus

We produced a furan fatty acid 7,10-epoxy octadeca 7,9-dienoic acid(EODA) from a dihydroxy fatty acid via heat treatment. EODA showed strong antimbacterial activity against multidrug-resistant Staphylococcus aureus. In addition, EODA revived the original activity of the commercial antibiotics penicilin through synergistic activation aganist multidrug-resistant Staphylococcus aureus.

Q: *Able to kill multidrug-resistant Staphylococcus aureus efficiently?*

A: *Yes we can, using our compound.*

Authors/Presenters: **Prof. Hak-Ryul Kim**
Ms. Yeon-Jung Lee
Ms. Ji-Sun Moon
School of Food Science and Biotechnology
Kyungpook National University
North Gyeongsang Province
South Korea

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Wednesday - June 05, 2019

Room: **Naio Room**
Time: **11:00am - 12:30pm**
Session: **Posters**

2. Utilizing a Nanotechnology Theme to Expand Research and Inquiry into the STEM Curriculum

The presentation discusses the revision of the STEM undergraduate laboratory curriculum to a research-based format using a nanotechnology theme. Modules were developed for the freshman to senior level courses, including, general chemistry, biology, physics, organic, quantitative, physical and biochemistry laboratories. The efforts to date on implementation and the impact on students learning and behavioral changes toward conducting science will be discussed.

Q: *Was each course implementation developed independently of the other course revisions?*

A: *No. A concerted effort was made to build on knowledge and skills as students moved from freshman to senior level.*

Authors/Presenters: **Dr. Louise Wrensford**
Dr. Brian Kim
Dr. Arun Saha
Dr. Yixuan Wang
Office of Research and Sponsored Programs
Albany State University
Albany, Georgia

3. Current Issues in Supervision: Cultivating Adjunct Nursing Faculty for Clinical Supervision

A common practice in nursing programs is the use of expert clinical practicing nurses in the clinical setting to educate and prepare future novice nurses for entry into professional nursing practice. Nursing programs struggle to maintain consistent clinical adjunct nursing faculty members to instruct nursing students in the clinical environment to support program goals. Nursing programs can utilize a number of strategies to cultivate clinical adjunct nursing faculty in nursing education.

Q: *What strategies can programs used to maintain clinical adjunct nursing faculty?*

A: *Orientation, on-going mentorship, continuing education and professional development.*

Author/Presenter: **Ms. Sedonna Brown**
School of Nursing College of Health and Human Services
Salisbury University
Salisbury, Maryland

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Wednesday - June 05, 2019

Room: **Naio Room**
Time: **11:00am - 12:30pm**
Session: **Posters**

4. Integrating Health Humanities into the Curriculum

With the move in healthcare toward a patient-centered model of care, there's a need to understand the human dimensions of health and illness, as they relate to practice of healthcare. The Health Humanities is a growing field of interprofessional collaboration that focuses on human experience and dignity related to the practice of medicine and healthcare. By emphasizing the role of the humanities in the practice of health and medicine, the health humanities brings together the dimensions of care.

Q: *What do humanities have to do with health education? History, mediated, interpersonal communication & Psychological models? But Religion, Philosophy and Spirituality?*

A: *As with any new field, it is full of enthusiastic advocates who are not afraid of thinking outside the box. Educators who succeed at this do so because they are sensitive and thoughtful people who care passionately about medical education. Health humanities may assist students in resisting these negative forces by opening their hearts to empathy, respect, genuineness, self-awareness, and reflective practice. The arts and humanities can be good preparation for a health care career because a bachelor's degree in the arts and humanities usually gives you practical skills in communication, creative expression and analytical thinking, among other strengths.*

Authors/Presenters: **Dr. Tina Reid**
Dr. Vinita Agarwal
Ms. Yujia Song
Mr. Eun-Jeong Han
Ms. Heidi Fritz
School of Nursing
Salisbury University
Salisbury, Maryland

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Wednesday - June 05, 2019

Room: **Naio Room**
Time: **11:00am - 12:30pm**
Session: **Posters**

5. Integrating Public Health Within an Interdepartmental Collaboration Between Dance and Exercise Science Classes

At many colleges and universities, research in exercise science has transitioned to focus on how movement impacts human health and well-being. This poster provides an overview of how St. Olaf College integrated various public health strategies into their exercise science instruction, research, and outreach efforts. One particular area that emerged was the development of a program in dance education through the lens of exercise science students in a directed undergraduate research project.

Q: *Is disease prevention, health promotion, and rehabilitative medicine an important pedagogy for undergraduate researchers?*

A: *The department of exercise science is critical in capitalizing in creative ways to offer public and human health well-being through research focus and in collaboration with other related disciplines.*

Authors/Presenters: **Ms. Lainie Baldwin**
Ms. Makenna Ash
Mrs. Jennifer Holbein
Department of Exercise Science
St. Olaf College
Northfield, Minnesota

Ms. Lainie Baldwin

Mrs. Jennifer Holbein

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Wednesday - June 05, 2019

Room: **Naio Room**
Time: **11:00am - 12:30pm**
Session: **Posters**

6. Increasing Preservice Teachers' Science and Reflective Practice by Hosting a Maker Faire

Preservice Elementary Science Methods students create and host a Maker Faire for a local elementary school. A Maker Faire is a relatively current trend, part of the Maker movement, in education. It highlights innovation and creativity through "activities focused on designing, building, modifying, and/or repurposing material objects, for playful or useful ends, oriented toward making a 'product' of some sort that can be used, interacted with, or demonstrated" (Martin 2015, p. 31).

Q: *Why are elementary students interested in a Maker Faire?*

A: *Maker Faires take the best of STEM. They are constructivist, hands-on, and authentic.*

Author/Presenter:

Dr. Patricia Boatwright
School of Education
Francis Marion University
Florence, South Carolina

7. Resilience Assessment of Stormwater Best Management Practices (BMPs) in Washington D.C. Using the Reliability Tool

We argue to be able to estimate the resilience of the urban area against flooding, we can use the reliability concept which can assist quantifying the failure of the urban combined sewer system and stormwater best management practices. Reliability assessment of the network of BMPs in Washington D.C. was done as an alternative to control stormwater and combine sewer overflow.

Q: *How to estimate the resilience against flooding using the reliability?*

A: *Reliability gives quantitative estimation of stormwater facilities failure that can be connected to resilience concept.*

Authors/Presenters:

Mr. Mohammadreza Jabehdari
Mrs. Leila Mosleh
Dr. Guangming Chen
Department of Industrial and System Engineering
Morgan State University
Baltimore, Maryland

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Wednesday - June 05, 2019

Room: **Naio Room**
Time: **11:00am - 12:30pm**
Session: **Posters**

8. Bacterial Analysis of New York African Burial Ground Soil Samples Suggests Causes of Death

The New York African Burial Ground is a mass archaeological site that is estimated to house over 10,000 burials of enslaved and freed Africans from the 17th and 19th centuries. Using bacterial DNA extracted from these 400 year old soil samples, we aim to identify causes of death of enslaved Africans by bacterial epidemics such as Scarlet Fever, Diphtheria, and Tetanus that were prevalent in the 17th and 18th centuries.

Q: *What is the impact of determining bacterial epidemics to be the causes of death of enslaved Africans from 400 years ago?*

A: *You can postulate the virulence of the epidemics as they relate to Africans, compared to Europeans, and even postulate their effect on other ethnic groups that lived in similar or vastly different conditions during that time period.*

Authors/Presenters: **Ms. Shyan Organ**
Mr. Carter Clinton
Dr. Fatimah Jackson
Department of Biology
Howard University
Washington, DC

9. In-Silico Analysis of SIRT1 Genetic Polymorphisms And Its Potential Role in Inflammatory Response

This research project aims to investigate how genetic polymorphisms within African Americans predispose them to inflammatory diseases such as cancer when coupled with a violent/traumatic environment.

Authors/Presenters: **Mr. Emanuel Demissie**
Ms. Ashley Miller
Ms. Courtney Dalton
Dr. Georgia Dunston Ph.D
Dr. Clarence Lee
Dr. Muneer Abbas
National Human Genome Center
Howard University
Washington, DC

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Wednesday - June 05, 2019

Room: **Naio Room**
Time: **11:00am - 12:30pm**
Session: **Posters**

10. Isolating Iodine Transforming Bacteria from the Hanford Site

This is a research project on finding a media that is capable of isolating bacteria that have interactions with iodine. The main goal is to find bacteria that can transform radioactive iodine into iodine that is safe for the environment.

Q: *What problems can high levels of iodine cause?*

A: *Thyroid problems.*

Author/Presenter: **Ms. Kyliah Hughes**
Biology Department
Howard University
Washington, DC

11. Identification of Potential Bacterial Pathogens Linked to Pandemic Outbreaks from the New York African Burial Ground

Human-associated bacterial species found in soil samples collected from the NYABG have been analyzed in order to properly contextualize the lives of 17th-18th century African-Americans. Bacterial DNA has been extracted from a total of eight different cadaver-associated soil samples from the NYABG. Detection of disease pathogen associated bacteria such as Treponema pertenue will be used to infer the impact of historical disease outbreaks like yaws on the African American community in the NYABG.

Q: *Why is this research important?*

A: *This research will help create a keyhole view of the lives of African Americans in the NYABG and analyze the impact of disease outbreak in post-colonial New York City.*

Authors/Presenters: **Ms. Imade Ojo**
Dr. Fatimah Jackson
Mr. Carter Clinton
Department of Biology
Howard University
Washington, DC

Ms. Imade Ojo

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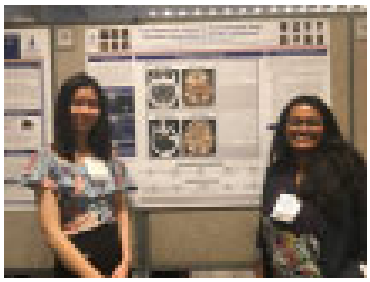
Wednesday - June 05, 2019

Room: **Naio Room**
Time: **11:00am - 12:30pm**
Session: **Posters**

12. Can Advanced Training Aid in Decreasing Disparities of Stroke Treatment at the Physician level of Barrier?

New stroke guidelines highlight radiology's crucial role in triaging patients into different treatment pathways, which can significantly impact treatment outcome. The study's goal is to review world literature identifying racial, insurance, and community/geographic based disparities in current stroke treatment and address the potential role of radiology and neuroimaging in improving a more universal access to appropriate treatment.

Authors/Presenters:



Ms. Apurva Chopade
College of Medicine
Howard University
Washington, DC
Ms. Victoria Nguyen
Department of Biology
Department of Electrical Engineering and Computer Science
Howard University
Washington, DC

Wednesday - June 05, 2019

Room: **Palolo 1**
Time: **12:45 - 2:15pm**
Session: **Higher Education; Applied Math; Technology, Engineering; Math; Computer Science**
Session Chair: **Dr. Carmen Cioc**

I. Using Peer Assisted Learning in an Engineering Technology Course

The Engineering Mechanics Statics course is one of the fundamental courses in our Mechanical Engineering Technology program and is a prerequisite course for the Strengths of Materials and Dynamics courses. The primary objective of the course is to provide the ability to investigate and solve trusses, frames, and mechanisms under static equilibrium conditions. A good understanding of these concepts is essential for solving a wide range of mechanics problems.

Authors/Presenters: **Dr. Carmen Cioc**
Engineering Technology Department
Dr. Noela Haughton
Mr. Christopher Wojciechowski
Educational Foundation & Leadership Department
Dr. Sorin Cioc
Mechanical, Industrial, and Manufacturing Engineering Department
The University of Toledo
Toledo, Ohio

II. Blending Team, Paired, and Individual Work in a Computing Course: Using Best Practices

The presentation will describe a data structures course that combines in-class teamwork, in-class paired lab work, and out-of-class individual work. Students apply skills through in-class activities, paired-labs, individual programming projects and exams. Research questions include RQ1: How did student attitudes toward group and individual learning change over the term? RQ2: How did teamwork and lab activities contribute to learning? Students felt value in the team activities in terms of solidifying individual understanding of concepts through multiple perspectives.

Q: *How do computing students value teamwork?*

A: *When asked to complete tasks in teams, their enjoyment of learning things with other people increases. They valued the problem-solving process with teammates, explaining ideas to others, and the fact that their teammates came to class prepared.*

Author/Presenter: **Dr. Tammy VanDeGrift**
Department of Computer Science
Shiley School of Engineering
University of Portland
Portland, Oregon

Continued on next page

Wednesday - June 05, 2019

Room: **Palolo 1**
Time: **12:45 - 2:15pm**
Session: **Higher Education; Applied Math; Technology, Engineering; Math; Computer Science**
Session Chair: **Dr. Carmen Cioc**

III. Unlocking Curious Minds

Many economies rely on engineering excellence. Thus, a stream of motivated, mechanical and mechatronic engineering graduates is required. This project was stimulated by our motivation to increase engineering enrolments from lower socioeconomic schools and female and Pacifica students. Sixty thirteen year old students and twelve teachers were challenged over three days as they learnt about energy conversion by making their own engine, mechanical devices, designing a laser cut flywheel, 3D Printing, 3D Scanning, and virtual reality. The challenges and successes are described.

Q: *How do we inspire struggling young students from low funded schools to make a professional engineering career?*

A: *Provide project related hands-on tasks in a University setting when entering high school.*

Authors/Presenters: **Dr. Don Clucas**
Dr. Stefanie Gutschmidt
Department of Mechanical Engineering
University of Canterbury
Ilam, Christchurch
New Zealand

Wednesday - June 05, 2019

Room: **Palolo 2**
Time: **12:45 - 2:15pm**
Session: **Network Security; Physics; Nanotechnology**
Session Chair: **Dr. Zdzislaw Klim**

I. Cyber Security Risk Assessment for the Continuing Airworthiness

The basic role of the Cyber Security Risk Assessment within the Airworthiness Security Process is to provide an evidence that the security measures implemented into aircraft systems are sufficient to mitigate the risk to an acceptable level. To establish that the cyber security risk of the aircraft is acceptable, the likelihood and the severity of the threat conditions are taken into account and based on the risk matrix the conclusion is driven when the cyber security risk is acceptable or not.

Q: *Why the aircraft is the subject of the cyber security risk?*

A: *The modern aircraft is equipped with the multiple electronic software based equipment including network connectivity and can be potential target for the cyber security attack.*

Authors/Presenters: **Dr. Zdzislaw Klim**
Prof. Adam Skorek
Department of Electrical and Computer Engineering
Université du Québec à Trois Rivières
Trois-Rivières, Québec
Canada

II. Applied Field Dependences of Local Magnetic Fields in Single Fe_3O_4 Crystals

The internal fields in single crystals of magnetite (Fe_3O_4) have been previously studied through muon-spin rotation (μSR). By Maximum-Entropy (ME) μSR, [2] we have analyzed μSR Fe_3O_4 data with external field parallel to the <111>, <110> or <100> axis. Our ME μSR field-dependent studies lead to a better understanding of the local magnetism and conduction mechanism in this Mott-Wigner glass.

Q: *Why the renewed interest in magnetite?*

A: *Spintronics (faster computers)*

Authors/Presenters: **Prof. Carolus Boekema**
Mr. Carlos Morante
Dr. Elaheh Ghorbani
Department of Physics & Astronomy
San José State University
San José, California

Continued on next page

Wednesday - June 05, 2019

Room: **Palolo 2**
Time: **12:45 - 2:15pm**
Session: **Network Security; Physics; Nanotechnology**
Session Chair: **Dr. Zdzislaw Klim**

III. Low-power, Electrochemically-tunable Graphene Synapses for Neuromorphic Computing

In this talk, we present, for the first time, a low-power, electrochemically-tunable graphene synapse. Through electrochemical intercalation – inserting Li ions in between the layers of graphene, we can precisely and reversibly modulate the conductance of the graphene to emulate the synaptic plasticity in a neural network.

Q: *What precision level can you achieve with the graphene synapse?*

A: *Over 256 levels, i.e. 8-bit*

Authors/Presenters: **Prof. Feng Xiong**
Mr. Mohammad Sharbati
Electrical and Computer Engineering
University of Pittsburgh
Pittsburgh, Pennslyvania

Wednesday - June 05, 2019

Room: **Palolo 3**
Time: **12:45 - 2:15pm**
Session: **History; Girlhood Studies, Reflexive Methods, Visual Participatory Research in Rural Malawi, Africa; Arts Criticism, Social Media**
Session Chair: **Dr. Jennifer Morris**

I. 'I as a humble member think it right to speak of these things:' Priscilla Parker and the Southwest Ohio Abolition Movement

Priscilla Parker migrated from Maine to Ohio in the early 19th c. after losing her husband and young son where she remarried, co-founded the Parker Academy which admitted students of both sexes and all races in 1839, and became a compelling member of the abolition movement both through her words and actions. Parker's story augments our understanding of current ideas about southwest Ohio as part of the underground railroad and abolition, and current concerns over race and modern day slavery.

Author/Presenter:

Dr. Jennifer Morris
Department of Liberal Arts
School of Arts and Humanities
Mount St. Joseph University
Cincinnati, Ohio

II. This Thing Called the Future; Women Telling Their Health Stories in Rural Malawi, Africa

Participatory visual research methodologies invite creativity showing that women are active agents of social change by sharing their health stories through arts-based inquiry. The research grew out of an experiential learning trip in 2010, and my doctoral research in 2013. Participatory visual research was inspired by local participants who wanted to develop an ongoing discussion about health in the context of HIV and AIDS. Intergenerational learning honors situated knowledge.

Q: *How does Girlhood Studies redefine age for girls in the context of rural Malawi, Africa?*

A: *Visual Participatory research touches intergenerational learning through active learning.*

Author/Presenter:

Prof. Barbara Hunting
Department of Integrated Studies in Education
McGill University
Sherbrooke, Quebec
Canada

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Wednesday - June 05, 2019

Room: **Palolo 3**
Time: **12:45 - 2:15pm**
Session: **History; Girlhood Studies, Reflexive Methods, Visual Participatory Research in Rural Malawi, Africa; Arts Criticism, Social Media**
Session Chair: **Dr. Jennifer Morris**

III. The Multi-Platform Critic: A Paradigm for Teaching Arts & Entertainment Writing in the 21st Century

While reviewing remains a cornerstone of Arts & Entertainment Writing, the twenty-first century critic no longer has the luxury of sharing his or her opinion in a vacuum. Thanks to social media, everyone is a critic and professional critics must differentiate themselves, promote themselves and articulate their views across multiple platforms. This paper outlines how an Art & Entertainment Writing class that had been designed for the print media was transformed into a multi-platform crash course.

Q: *How has art criticism changed in the era of social media?*

A: *It has become a two-way conversation, often presuming the audience has seen the work.*

Author/Presenter:

Prof. Melissa Nurczynski
English Department, Professional Writing
Kutztown University
Kutztown, Pennslyvania

Wednesday - June 05, 2019

Room: **Palolo 1**
Time: **2:30 - 4:00pm**
Session: **Science Education; Other Areas Related to Mathematics Research and Practices; Technology, Engineering and Mathematics; Inter-disciplinary and other areas of Technology and Engineering; STEM Education**
Session Chair: **Dr. Clayton Clark, II**

I. Exposure of Traditionally Underrepresented Students to STEM Research as Incentive to Major in STEM Disciplines

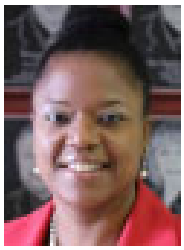
The Program of Excellence in STEM (PE-STEM) at Florida A&M University (FAMU) is a program designed to address this issue, especially a Historically Black College and/or University (HBCU). PE-STEM is in its sixth year and was specially designed to increase the number of traditionally underrepresented students recruited to, retained in, and graduating from STEM majors by participation in STEM-related research activities.

Q: *How has PE-STEM been effective in motivating students to choose STEM majors?*

A: *Since its inception, PE-STEM has seen the interest of its participants in STEM majors grow from around 55% to up over 90%.*

Authors/Presenters:

Dr. Clayton Clark, II
Department of Civil and Environmental Engineering
Florida A&M University
Tallahassee, Florida



Dr. Tiffany Wilson Ardley
College of Pharmacy and Pharmaceutical Sciences
Florida A&M University
Tallahassee, Florida

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Wednesday - June 05, 2019

Room: **Palolo 1**
Time: **2:30 - 4:00pm**
Session: **Science Education; Other Areas Related to Mathematics Research and Practices; Technology, Engineering and Mathematics; Inter-disciplinary and other areas of Technology and Engineering; STEM Education**
Session Chair: **Dr. Clayton Clark, II**

II. Maximizing Access: Underrepresented Minority Participation in STEM Education through Informal Pathways

Addressing the lack of URMs in STEM earlier in the pipeline contributes greatly towards student persistence during secondary education and undergraduate studies. Therefore, there is a need to increase in research on informal STEM education with findings being implemented within pre-college settings. This overview will highlight research and practice-based activities that have been implemented to address the topic of URMs participation and success within informal STEM education.

Q: *What are some of the key components for success with underrepresented minorities in STEM education?*

A: *Access to actual programming and activities and interactions with mentors and role models that look like them.*

Authors/Presenters:

Prof. Trina Fletcher
Electrical and Computer Engineering
SUCCEED, College of Engineering & Computing
Florida International University
Miami, Florida
Ms. Tina Fletcher
Graduate School of Education
University of Pennsylvania
Philadelphia, Pennsylvania

III. STEM Sista - Why the Program has Produced over 300 STEM STEM Girls

To teach 15 year old girls skill sets to pursue and flourish in a STEM career.

Q: *Why did you create STEM Sista?*

A: *To teach 15 year old girls skill sets to pursue and flourish in a STEM career.*

Author/Presenter:

Mrs. Teresa Janowski
Faculty of Engineering, Computer and Mathematical Sciences (ECMS)
The University of Adelaide
Adelaide, South Australia
Australia

Wednesday - June 05, 2019

Room: **Palolo 2**
Time: **2:30 - 4:00pm**
Session: **Robotics/ Automation/ Computer Vision; Interdisciplinary Learning; Mathematical Modeling, Statistics; Food Systems**
Session Chair: **Dr. Anne Catlla**

I. An Example of Interdisciplinary Learning in Classes on Food Systems and Mathematical Modeling

Seeking new applications of mathematics to motivate and engage students, I found myself working with an environmental scientist who studies food systems and a community member who seeks to improve food accessibility. We combined forces, and classes, to begin a food accessibility assessment of our hometown and present our results to the community partner. This project contributed to the community and to the students' ability to work in interdisciplinary teams and communicate to non-specialists.

Q: *How can you create projects and assignments that cross courses and disciplines?*

A: *Teach communication skills and reflection from the first day of class, find a topic that students' believe in, and teach them the technical skills to be an expert in their team.*

Author/Presenter:

Dr. Anne Catlla
Mathematics Department
Wofford College
Spartanburg, South Carolina

Continued on next page

Wednesday - June 05, 2019

Room: **Palolo 2**
Time: **2:30 - 4:00pm**
Session: **Robotics/ Automation/ Computer Vision; Interdisciplinary Learning; Mathematical Modeling, Statistics; Food Systems**
Session Chair: **Dr. Anne Catlla**

II. Building and Accelerating the AI Workforce: Seamless Pathway to AI Engineering Education

The project, known as the "Building and Accelerating the AI Workforce: Seamless Pathway to AI Engineering Education" Program at San Jose State University (SJSU), in collaboration with an alliance of high-tech industrial companies in Silicon Valley. The project consists of three main components that are linked to one another: (1) AI/ML curriculum development, (2) Connected Curriculum based on research-led teaching, and (3) AI/ML Seamless Pathway to AI engineering education.

Q: How to develop an AI workforce from high school to university?*Are there different types of TBI?*

A: *Collaboration with education units and industries to develop the connected curriculum.*

Author/Presenter: **Dr. Ahmed Hambaba**
Charles Davidson College of Engineering
San José State University
San José, California

III. On Recognition of Rectangular Prisms for Robotic Applications

This paper introduces some algorithms used along with edge detection techniques, Hough transform, and other image transformations to improve the recognition of the rectangular prismatic shapes in RGB images. The algorithms used were successful in reconstructing the full contour of the prismatic object with different lighting conditions, existence of shadow and background noise, and where direct application of Hough transform results in incomplete or distorted contour.

Q: *Why Image recognition is important for robots?*

A: *Image recognition can provide a live 3D object localization that guides and control the operation of robots in hazardous and industrial environment.*

Author/Presenter:

Dr. Ahmad Fayed
Department of Industrial and Engineering Technology
Southeastern Louisiana University
Hammond, Louisiana

Wednesday - June 05, 2019

Room: **Palolo 3**
Time: **2:30 - 4:00pm**
Session: **Best Systems of Music/Arts Education and Support for the Arts; Music, Visual Arts**
Session Chair: **Dr. Kirill Gliadkovsky**

WORKSHOP

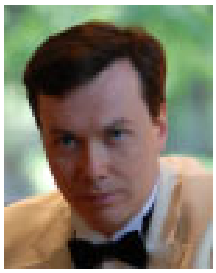
I. Raising Young Stars – Russian Music/Arts/Performing Arts Education System And State Support For The Arts Vs Alternative Systems In Other Parts Of The World - Their Success Stories And Challenges

A lecture on the traditions of engaging millions of children in the arts and developing outstanding music/dance/arts young stars in the process, as well as how this is closely related to the music/arts education system and general nurturing of the arts in Russia. Comparison to music/arts education and support systems in other areas of the world – Europe, Asia, North and South America, and their pros and cons. Summarizes best approaches. Q & A session at the end.

Q: How to make music, arts and performing arts thrive and attract millions?

A: Come to the session to hear the details of various countries' approaches and their effectiveness, including multiple layer mass system of music/arts schools engaging millions vs. regular music classes in schools or private studios; state support for education/arts vs. support by grants, foundations, scholarships and donations; how to make education, music and arts prestigious and attractive by teaching it to masses, and much, much more.

Author/Presenter:



Dr. Kirill Gliadkovsky
Dr. Anna Gliadkovskaya
Music Department
Saddleback College
Mission Viejo, California

Continued on next page

Wednesday - June 05, 2019

Room: **Palolo 3**
Time: **2:30 - 4:00pm**
Session: **Best Systems of Music/Arts Education and Support for the Arts; Music, Visual Arts**
Session Chair: **Dr. Kirill Gliadkovsky**

II. Depictions of British Columbia: The Influence of Emily Carr on Jean Coulthard

The art of Emily Carr (1871-1945) had a strong influence on the music of Jean Coulthard (1908-2000), specifically in their aesthetic priorities of using images of nature, and the mysticism within it, to portray the Canadian West Coast. This paper frames the two artists within the twentieth century, both socially and artistically. It then follows with an examination of the aesthetic properties of the artists' respective arts to establish the influence of Carr on Coulthard.

Q: *What were some of Carr's key influences on Coulthard?*

A: *Her use of motion, space, and abstraction in depicting the landscapes of British Columbia.*

Author/Presenter:

Ms. Christina Kempenaar
School of Music
University of Victoria
Victoria, British Columbia
Canada

Wednesday - June 05, 2019

Room: **Palolo 1**
Time: **4:15 - 5:45pm**
Session: **Curriculum, Research and Development; Applied Mathematics; Interdisciplinary Areas of Sciences; Partnership between Academia and the Corporate World; Psychology; STEM; Educational Measurement and Evaluation, Higher Education**
Session Chair: **Dr. Santiba Campbell**

I. Fostering a Research Identity across a Small Liberal Art Colleges

Liberal arts colleges are known for developing independent critical thinkers. While some liberal art colleges do not have graduate studies, most participate in various forms of research. Nevertheless, students outside of the STEM disciplines may not view the connection between their field, research skills, and the workforce. This paper will explore strategies developed and implemented on the campus of Bennett College, a private, historically Black liberal arts college for women, to increase student interest, engagement and academic achievement through the facilitation of research-based collaborations across the disciplines on campus. This included approaches involving faculty development, curricular enhancement and other on-campus partnerships that affect student engagement. The overall goal was to increase the understanding and importance of research within the students across our small liberal arts college with a limited budget and few laboratory spaces. The outcomes suggest that a research identity within students can be fostered by using interdisciplinary approaches and collaborative efforts across the campus which in turn may positively affect retention and academic success. This information may also prove successful at other small liberal arts colleges similar to Bennett College.

Q: How can one increase the understanding and importance of research within the students across a small liberal arts college with a limited budget and few laboratory spaces?

A: The outcomes suggest that a research identity within students can be fostered by using interdisciplinary approaches and collaborative efforts across the campus which in turn may positively affect retention and academic success.

Authors/Presenters: **Dr. Santiba Campbell**
Dr. Willietta Gibson
Department of Social and Behavioral Sciences
Bennett College
Greensboro, North Carolina

Dr. Sabtiba Campbell

Dr. Willietta Gibson

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Wednesday - June 05, 2019

Room: **Palolo 1**
Time: **4:15 - 5:45pm**
Session: **Curriculum, Research and Development; Applied Mathematics; Interdisciplinary Areas of Sciences; Partnership between Academia and the Corporate World; Psychology; STEM; Educational Measurement and Evaluation, Higher Education**
Session Chair: **Dr. Santiba Campbell**

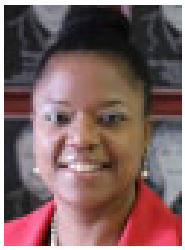
II. Participation in the Program of Excellence in STEM Helps Students to Consider Studying in a STEM Discipline

The Program of Excellence in STEM at Florida Agricultural and Mechanical University seeks to increase the number of students from groups traditionally underrepresented in STEM disciplines, with the ultimate goal of them graduating with a bachelor's degree (or higher) and employment in a STEM profession. Participants believe that their participation in this STEM program has encouraged them to pursue degrees in STEM and has given them the mindset to pursue graduate degrees in STEM.

Q: *How can you increase interest in STEM among high school students?*

A: *Participation in a STEM program will increase high school student's interest in STEM.*

Authors/Presenters:



Dr. Tiffany Wilson Ardley
College of Pharmacy and Pharmaceutical Sciences
Florida A&M University
Tallahassee, Florida

Dr. Clayton Clark, II
Department of Civil and Environmental Engineering
Florida A&M University
Tallahassee, Florida

Dr. Jason Black
Department of Civil and Environmental Engineering
Florida A&M University
Tallahassee, Florida

Continued on next page

Wednesday - June 05, 2019

Room: **Palolo 1**
Time: **4:15 - 5:45pm**
Session: **Curriculum, Research and Development; Applied Mathematics; Interdisciplinary Areas of Sciences; Partnership between Academia and the Corporate World; Psychology; STEM; Educational Measurement and Evaluation, Higher Education**
Session Chair: **Dr. Santiba Campbell**

III. Detecting Differential Item Functioning in a Learning Analytic Feedback Satisfaction Survey

This paper assessed a feedback satisfaction survey for the presence of differential item functioning (DIF) in the evaluation of a learning analytic (LA) feedback intervention. A select few items were flagged for DIF with respect to student type and gender; however, these effects were of negligible size. Overall, it was found that the feedback satisfaction survey was measuring pre-identified demographic groups equally well.

Q: *What is the significance of differential item functioning in instrument development?*

A: *It is important to know how instruments may be measuring groups differently.*

Authors/Presenters: **Mr. Matthew Schmidt**
Dr. Amin Mousavi
Dr. Vicki Squires
Dr. Kenneth Wilson
College of Education
University of Saskatchewan
Saskatoon, Saskatchewan
Canada

Wednesday - June 05, 2019

Room: **Palolo 2**
Time: **4:15 - 5:45pm**
Session: **African Studies; Political Science, History, Human Rights, and Democracy; Art History**
Session Chair: **Dr. Clemente Abrokwaa**

I. Gender and Science in Ghanaian Senior High Schools

The study, conducted in Ghana, was designed to ascertain whether or not any gender disparities existed in the choice of science as major between boys and girls at the Senior High School (SHS) level in the country. And if so, what would be some of the major contributing factors to the problem? It sought to answer the question why women have been quite successful in assisting with the development of the Ghanaian economy, particularly the informal sector of the economy, while they continue to lag behind their male counterparts in realizing their full potential in the mainstream economy and, most importantly, in educational achievements, especially in science, since Ghana's Independence in 1957.

Author/Presenter: **Dr. Clemente Abrokwaa**
Department of African Studies
Penn State University
State College, Pennslyvania

II. Human Rights and Democracy between Thought and Practice in the Modern History of The Arab World

Deliberating upon human rights and democracy is meaningless in the political and economic experience of our Arab world. The greatest suffering of democracy in the Arab world is evidenced by the stark contrast between the era of the masses and the continued search for the charismatic political figure or the loyal leader, as well as between the modern era of ultra-soft technology and the mentality of tribal sectarianism of the nomadic community, which still influences the values of that society.

Q: *Are democracy and human rights prevalent in Arab society?*

A: *The vitality of the prevailing culture, the spirit of tolerance, the respect for the values of religion, the values of the times, the awareness of the value of justice, equality and freedoms at its contemporary climax, and thus, it becomes easy to know whether democracy is prevalent in society or not?*

Author/Presenter: **Dr. Mustafa Al-Janabi**
College of Design, Architecture, Art, and Planning
University of Cincinnati
Cincinnati, Ohio

Continued on next page

Wednesday - June 05, 2019

Room: **Palolo 2**
Time: **4:15 - 5:45pm**
Session: **African Studies; Political Science, History, Human Rights, and Democracy; Art History**
Session Chair: **Dr. Clemente Abrokwaa**

III. Indigenous Stitch-Arts of India: Tradition and Revival in a Global Age

Indigenous Stitch-Arts of India have largely transformed from leisure time activity to sources of income generation for destitute women. On the one hand, this has led to a loss of their intrinsic character but on the other hand, it has empowered a multitude of women actively engaged in them. Several organizations in India are attempting to intertwine tradition, revival, and globalization of Stitch-Arts such as Chikankari, Rabari, Phulkari, and Kantha.

Q: *What are some of the steps being taken to rejuvenate the indigenous Stitch-Arts of India?*

A: *Various organizations are providing technological training and adequate pay to motivate needle workers to produce high quality, marketable items.*

Author/Presenter:

Dr. Punam Madhok
Department of Art History
School of Art & Design
East Carolina University
Greenville, North Carolina

Wednesday - June 05, 2019

Room: **Palolo 3**
Time: **4:15 - 5:45pm**
Session: **Surface Water Impairment; Urban Stormwater Runoff Quality; Green Infrastructure; Assessment and Teaching; Civil Engineering and Artificial Intelligence; Badminton Instruction; Virtual Reality Assisted Instruction**
Session Chair: **Dr. Youmei Liu**

I. Comparison of Permeable Pavement and Bioretention in Bacteria Removal from Urban Stormwater Runoff in South Texas

Urban stormwater runoff is a primary source of water quality impairments in receiving streams and water bodies. It is discharged into surface water untreated carrying various pollutants including sediments, nutrients, bacteria, causing a decline in aquatic biota and degradation of water quality. Green Infrastructure (GI) as permeable pavements and bioretention ecologically-based stormwater management approaches to manage rainfall on the site favoring soft engineering through a vegetated network

Q: *Can Green Infrastructure Improve the water quality?*

A: *Yes.*

Authors/Presenters: **Dr. Ahmed Mahmoud**
Dr. Javier Guerrero
Dr. Kim D. Jones
Civil Engineering Department
University of Texas Rio Grande Valley
Edinburg, Texas

II. Assessing and Teaching the 21st Century Skills for Career Readiness

The National Association of Colleges and Employers defined 8 competencies that students need for jobs. Texas Southern University received a 3-year grant from the NSF to design an Artificial Intelligence project - a collection of most up-to-date real world case studies in the civil engineering field. The objective of the project is to infuse innovative AI tools into traditional problem-solving routines through problem-based learning approach to prepare students for the marketable readiness.

Q: *What are the marketable competencies for student career success?*

A: *Professionalism/Work Ethic, Critical Thinking/Problem Solving, oral/Written Communications, teamwork/Collaboration, Information Technology Application, leadership, Career Management and Global/Intercultural Fluency.*

Authors/Presenters: **Dr. Yachi Wanyan**
Division of Academic Affairs
Texas Southern University
Houston, Texas
Dr. Youmei Liu
Institutional Research
University of Houston
Houston, Texas

Continued on next page

Wednesday - June 05, 2019

Room: **Palolo 3**
Time: **4:15 - 5:45pm**
Session: **Surface Water Impairment; Urban Stormwater Runoff Quality; Green Infrastructure; Assessment and Teaching; Civil Engineering and Artificial Intelligence; Badminton Instruction; Virtual Reality Assisted Instruction**
Session Chair: **Dr. Youmei Liu**

III Research on Virtual Reality Assisted Badminton Instruction in Physical Course

This research is to explore the effectiveness of Virtual Reality Assisted badminton instruction in physical course, with discussion on difficulties teachers may encounter and their responses. With qualitative method, researchers found best practices including: "rehearsal and getting key points", "adjusting gesture and mastering the knack", "collaboration and inter-assisting", and "promoting initiative and enhancing learning" and related measures to overcome the difficulties.

Q: *What are the best practices related to Virtual Reality Assisted badminton instruction?*

A: *"Rehearsal and getting key points", "adjusting gesture and mastering the knack", " collaboration and inter-assisting", and "promoting initiative and enhancing learning".*

Authors/Presenters: **Mr. Hung Ying Lee**
Department of Sport
National Taiwan Normal University
Taipei City 106
Taiwan
Dr. Chi-yang Chung
College of Education
Jinggangshan University
Ji An City, Jiangxi Province
China
Dr. Fan Yang
College of Education
Shanghai Normal University
Shanghai, Xuhui District
China

DAY 2

Thursday - June 06, 2019

Keynote Speaker - Mrs. Teresa Janowski

Thursday - June 06, 2019
Room: Naio
7:30 - 8:00am

Mrs. Teresa Janowski
Faculty of Engineering, Computer and Mathematical Sciences (ECMS)
The University of Adelaide
Adelaide, South Australia
Australia

Teresa Janowski, CEO & Founder @ STEM Fasttrack

Teresa Janowski has worked in a variety of Tech companies including Telstra, Motorola, BAE Systems and SAAB Technologies in a career spanning over 25 years.

In 2013, Teresa joined STEM Nation and transformed the organisation by creating the award-winning mentoring programs: STEM Sista and STEM Mista. These programs give students the chance to solve real world problems, learn life skills, and build the resilience required to succeed both in their STEM careers and into the future.

In 2018, Teresa established STEM Fastrack and with her team has been growing the program offering across Australia and is launching the first STEM Sista program in Europe. Teresa believes in strengthening the educators behind the students and as such, has developed a range of Project Management Workshops specifically for educators.

Teresa is married with adult children and enjoys working on cars on the weekend with her husband.

Thursday - June 06, 2019

Room: **Palolo 1**
Time: **8:15 - 9:45am**
Session: **Higher Education, Science Education; Biology, General Biology, Health Science; Environmental Science, Human and Health Services, Management, Natural Science, Psychology, Public Policy, Inter-disciplinary and other areas of Arts and Human; Medical Technology**
Session Chair: **Dr. Djibo Zanzot**

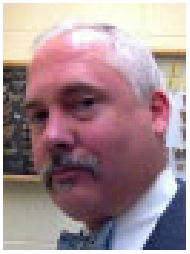
I. Introducing Scientific Literature in an Introductory Biology Curriculum

Our Department of Biological Sciences recently adopted a new set of student learning outcomes that include the ability to locate, summarize, and critically evaluate scientific articles. We (a Biology Lecturer and Biology Librarian) teamed to integrate these concepts into an introductory biology course, allowing for a scaffolded approach to scientific information literacy. Our approach will be presented.

Q: *Can these approaches be applied in a large lecture class?*

A: *Yes, though a smaller class size is more effective.*

Authors/Presenters: **Dr. Djibo Zanzot**
Ms. Patricia Hartman
Department of Biological Sciences
Auburn University
Auburn, Alabama



Dr. Djibo Zanzot

Continued on next page

Thursday - June 06, 2019

Room: **Palolo 1**
Time: **8:15 - 9:45am**
Session: **Higher Education, Science Education; Biology, General Biology, Health Science; Environmental Science, Human and Health Services, Management, Natural Science, Psychology, Public Policy, Inter-disciplinary and other areas of Arts and Human; Medical Technology**
Session Chair: **Dr. Djibo Zanzot**

II. Research Creation using Infrasonic and Ultrasonic Sound

I will discuss my investigation into where infrasonic (sound frequencies below 20Hz) and ultrasonic (sounds above 20kHz) environmental pollution currently exists, and in relation to what types of urban development. I am particularly interested in how these sources of sonic pollution may have an effect on human health and wellbeing.

Q: *How might infrasonic and ultrasonic frequencies affect humans positively?*

A: *Ultrasonic frequencies are used by physical therapists to increase blood flow, which promotes healing of the soft tissues of the body; and through its use in diagnostic imaging techniques to source out disease or pathologies, or to provide information about the health of a developing fetus or embryo in the womb of a mother. There has been an interest in employing whole-body vibration training in older people using infrasound to increase neuromuscular adaptation and bone mineral density. Furthermore, Dr. Lee Bartel at the University of Toronto had developed a consumer vibroacoustic device that uses Infrasonic sound at 40 Hz to stimulate cells in the body and brain to reduce the impact of Fibromyalgia pain, Alzheimer's Disease, Parkinson's Disease, Depression, and even increase blood flow.*

Author/Presenter:

Ms. Kaitlin Sly
Music Department
University of Victoria
Victoria, British Columbia
Canada

Continued on next page

Thursday - June 06, 2019

Room: **Palolo 1**
Time: **8:15 - 9:45am**
Session: **Higher Education, Science Education; Biology, General Biology, Health Science; Environmental Science, Human and Health Services, Management, Natural Science, Psychology, Public Policy, Inter-disciplinary and other areas of Arts and Human; Medical Technology**
Session Chair: **Dr. Djibo Zanzot**

III. Examining the Features of mHealth Applications Geared Towards Chronic Migraines: Content Analysis

Over 300,000 mobile health applications are currently available to address a variety of health initiatives including a significant number focused on headache. Due to the volume of headache applications with no established method for content regulation, it remains a challenge to find a user-friendly experience that provides clinically relevant content. Patients utilize results from online queries to identify headache management applications. The purpose of this study is to investigate headache applications identified from popular search queries and analyze their headache management features in hopes to improve existing and future headache management applications.

Q: *I was informed that headache onset may be associated with screen time. How would you approach this statement since your research's future direction notes that the product will be a phone-based application?*

A: *Further research needs to be performed to understand why screen time may be associated with headaches prior to being able to address the issue. For example, if it is the bright of screens that influence headache onset, the phone application could be produced on a black background. The issues would have to be accordingly addressed according to the current research linking headaches and screen time.*

Authors/Presenters: **Ms. Victoria Nguyen**
Ms. Vivian Lisanza
Department of Biology
Dr. Gloria Washington, PhD
Mr. Robby Gamble
Department of Electrical Engineering and Computer Science
Ms. Apurva Chopade
College of Medicine
Howard University
Washington DC

Mr. Mark Cameron
Children's National Medical Center
Washington DC
Dr. Paola Pergami, MD, PhD
Children's National Medical Center
Georgetown University
Washington DC
Dr. Marc DiSabella
Children's National Medical Center
The George Washington University School of Medicine and Health Sciences
Washington DC

Thursday - June 06, 2019

Room: **Palolo 2**
Time: **8:15 - 9:45am**
Session: **Health Science, Data Science; Machine Learning; An Analytic Approach for Solving Higher Order Ordinary Differential Equations (ODE); Math Education; Solutions to Equations of the Form ax+by=c where a,b,c,x,y are Integers**
Session Chair: **Mr. Md Al Masum Bhuiyan**

I. Statistical Data Mining Algorithms for the Prognosis of Diabetes and Autism

The early detection of these diseases could help the prognosis and chance of survival significantly. This manuscript is devoted to the application of Machine Learning (ML) technique to Diabetes and Autism disease data. Several important variables that cause diabetes and autism disease are studied in this work. We propose three supervised machine learning (ML) techniques, which can predict with great accuracy the likelihood of diabetes and autism in patients. These techniques allow computers to learn and to order the important variables that causes the diseases. We predict the test data based on the key variables and compute the prediction accuracy using the Receiver Operating Characteristic (ROC) curve to train a good classifier. The results suggest that the ML techniques are effective in classifying the patients regarding diabetes and autism disorder. Similar methodology can also be applied to other diseases such as Cancer and Heart Disease data.

Q: *Do you think Diabetes/Autism is predictable?*

A: *It is possible to predict with the use of machine learning techniques. If the machine learning techniques are meticulously followed, we may claim that we can even predict it accurately.*

Authors/Presenters: **Dr. Maria C. Mariani**
Mr. Md Al Masum Bhuiyan
Mr. Osei K. Tweneboah
Department of Mathematical Sciences
Computational Science Program
The University of Texas at El Paso
El Paso, Texas

Mr. Md Al Masum Bhuiyan

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Thursday - June 06, 2019

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Session Chair: **Mr. Md Al Masum Bhuiyan**

II. Analytic Solutions for Third Order Ordinary Differential Equations

This work studies an analytic approach for solving higher order ordinary differential equations (ODEs). We develop alternate techniques for solving higher order ODEs. The techniques offer analytic flexibility in many research areas such as physics, engineering, and applied sciences and are effective for solving complex ODEs.

Q: *Do you think it is possible to solve higher order differential equations analytically?*

A: *Yes, it is. Our paper offers an analytic approach for solving higher order ordinary differential equations (ODE).*

Authors/Presenters: **Dr. Maria P. Beccar-Varela**
Mr. M. A. Masum Bhuiyan
Mr. Osei K. Tweneboah
Dr. Maria C. Mariani
Department of Mathematical Sciences
Computational Science Program
The University of Texas at El Paso
El Paso, Texas

III. Diophantine Equations Revisited (Solutions to Diophantine Equations)

This paper will examine solutions to Diophantine equations (equations of the form ax+by=c where a,b,c,x,y are integers) and present possibly a more suitable solution for introductory students of mathematics using the slope concept of linear equations.

Authors/Presenters: **Prof. Mark Garrison**
Prof. Xiaoyan Hu
Department of Mathematics
Middle Georgia State University
McRae, Georgia

Thursday - June 06, 2019

Room: **Palolo 3**
Time: **8:15 - 9:45am**
Session: **Analysis of Canadian and American legislation and the Experiences of Students with Mental Health Disabilities; Criminal Justice/Law; School Counsellor Education**
Session Chair: **Dr. Dipesh Prema**

I. Challenging Institutional Ableism: Accommodating Students with Mental Health Disabilities in Science Education

Students with mental health disabilities continue to face systemic discrimination in the process of accessing accommodations in science education. Despite robust legal obligations as per the duty to accommodate and reasonable accommodation, full inclusion and accessibility is often not realized. Drawing from science education and law, this presentation analyzes the types of procedural, systemic and discretionary barriers students with mental health disabilities face in classroom and laboratory science education. We analyze "institutional ableism" through an examination of Canadian and American legislation and case law involving the accommodation of students with mental health disabilities in post-secondary science education contexts. We put forth specific policy, pedagogical and theoretical approaches for faculty to adopt when accommodating students with mental health disabilities in science education. These approaches adopt universal design principles from the United Nations Convention on the Rights of Persons with Disabilities, human rights legislation and science education research.

Q: *How will "institutional ableism" be analyzed in science education?*

A: *Through an analysis of Canadian and American legislation and the experiences of students with mental health disabilities.*

Authors/Presenters:

Dr. Dipesh Prema
Chemistry Department
Thompson Rivers University
Kamloops, British Columbia
Canada

Dr. Ruby Dhand
Faculty of Law
Thompson Rivers University
Kamloops, British Columbia
Canada

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Thursday - June 06, 2019

Room: **Palolo 3**
Time: **8:15 - 9:45am**
Session: **Analysis of Canadian and American legislation and the Experiences of Students with Mental Health Disabilities; Criminal Justice/Law; School Counsellor Education**
Session Chair: **Dr. Dipesh Prema**

II. Legal Responses to Mental Disability: Mental Health Courts in Canada and the United States

In Canada, research evaluating mental health and specialized courts addressing challenges faced by people with mental health disabilities in the criminal justice system is scarce. Using empirical data, this presentation provides an analysis of mental health and problem-solving courts with mental health programs in Canada and the United States, while putting forth recommendations for the creation of a new mental health court in Kamloops, British Columbia.

Q: *Are mental health courts and problem solving courts effective to address legal issues facing people with mental health disabilities in the criminal justice system?*

A: *Yes.*

Author/Presenter:

Dr. Ruby Dhand
Faculty of Law
Thompson Rivers University
Kamloops, British Columbia
Canada

III. Reflections of Veteran School Counsellors: Enhancing the Work Environment for Pre-Service and Novice School Counsellors

This paper details an action research study conducted in our local school district. All of the participants were practicing school counsellors. The aim of the study was to identify the top job-related stressors for school counsellors so that ways to manage these are developed and included in pre-service school counsellor training programs.

Q: *What do veteran school counsellors identify as their top job-related stressor and how can we prepare pre-service counsellors to manage this stressor?*

A: *Veteran school counsellors identify dealing with the traumatic situations of the students they work with as their top job-related stressor. The top three responses to help minimize this job-related stressor identified by veteran school counsellors are: the opportunity for clinical supervision and collaboration, positive self-care, and the addition of increased staffing.*

Author/Presenter:

Dr. Susan Lidster
School of Education
Thompson Rivers University
Kamloops, British Columbia
Canada

Thursday - June 06, 2019

Room: **Palolo 1**
Time: **10:00 - 11:30am**
Session: **Mathematics Education and Teacher Education; Geometry and Measurement; Integrate STEM Education; STEM Education at the College Level; Mathematical Modeling; Scaffolding; eLearning; Self-efficacy, Motivation**
Session Chair: **Dr. Sasha Wang**

I. Leveraging Prospective Elementary Teachers' STEM Learning Experiences: Introduction of An ACE Model

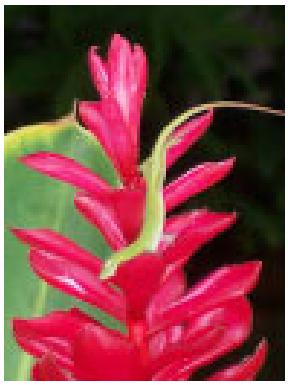
There is a need to elevate the mathematics learning experiences for prospective elementary teachers (PSETs) in acquiring mathematics knowledge through inquiries, exploring the role of mathematics in other STEM disciplines, and solidifying knowledge and skills in teaching contexts as sustainable practices. In this presentation, I will introduce an ACE course design model and will discuss its potential for creating an active learning environment to engage PSETs' mathematics and STEM learning.

Q: *In what ways does the ACE model leverage PSETs' learning experiences of mathematics course content?*

A: *It provides an opportunity to characterize how the three elements of the ACE model make use of the collective experience for PSETs, as well as its effect on PSETs' mathematics learning.*

Author/Presenter:

Dr. Sasha Wang
Mathematics Department
Boise State University
Boise, Idaho



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Thursday - June 06, 2019

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Session: **Mathematics Education and Teacher Education; Geometry and Measurement; Integrate STEM Education; STEM Education at the College Level; Mathematical Modeling; Scaffolding; eLearning; Self-efficacy, Motivation**
Session Chair: **Dr. Sasha Wang**

II. Re-Envisioning Science Methods: The STEM Lab School Project

This research presents a University and School District project developed in partnership to re-envision a Science Methods course so as to better prepare the next generation of future STEM Educators. The STEM Lab School Project incorporated practice-based approaches to teacher preparation, and it improved Pre-Service Teachers' self-perceptions as future STEM educators. In this session, materials to replicate this project and research on the impact of this project will be shared.

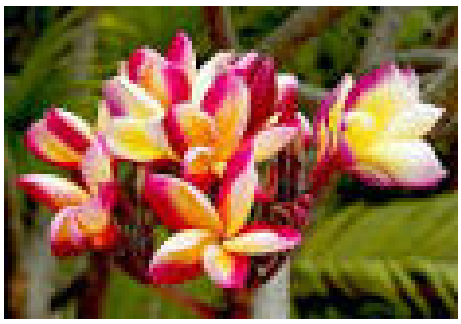
Q: *How do we better prepare the next generation of future STEM Educators?*

A: *Universities can partner with school districts to re-envision the Science Methods space to incorporate more practice-based approaches to teacher preparation, including opportunities for pre-service teachers to practice teaching STEM to children in school settings with live coaching and aligned feedback on STEM prioritized skills from both university and school district personnel.*

Authors/Presenters:


Dr. Megan Sulsberger

Dr. Megan Sulsberger
Dr. Corin Slown
Department of Education and Leadership
California State University, Monterey Bay
Seaside, California
Mr. Benjamin James
Mr. Rod Garcia
Monterey Peninsula Unified School District
Seaside, Calofornia



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Session Chair: **Dr. Sasha Wang**

WORKSHOP

III. Creating STEM Professionals One Teacher at a Time

By preparing STEM teachers through partnerships, rigorous academic programs, and real-world experiences, the Randolph-Macon College NOYCE Teacher-Scholar Program addresses teacher shortages in STEM fields. This scholarship program offers students opportunities and funding who commit to STEM teaching upon graduation. During this session, participants will engage in dialogue about the development of a successful STEM teacher preparation program, germane to increasing STEM- related professionals.

Q: What partnerships were developed to prepare and maintain a STEM teacher preparation program?

A: Partnerships, both internal and external, were developed to secure funding and opportunities to prepare K-12 STEM teachers.

Authors/Presenters: **Dr. Diana Yesbeck**
Ms. Donna Kouri
Ms. Jordan Wootton
Education Department
Randolph-Macon College
Ashland, Virginia

Thursday - June 06, 2019

Room: **Palolo 2**
Time: **10:00am - 12:00pm**
Session: **Biomedical Engineering; Nanodelivery to Brain Endothelium; Chemistry Research- Synthesis of Chemotheraputic Compounds; Material science and Engineering; Physics**
Session Chair: **Prof. Michael Cho**

I. Modulation of Brain Endothelium by Mechanical Trauma: Nanodelivery of Potential Therapeutic Reagents to Rescue Brain Endothelial Cells

Traumatic brain injury (TBI) is an increasingly important societal and global health problem. A better understanding of the mechanisms responsible for damage to the brain is warranted that can lead to the development of smart and reliable diagnosis and therapeutic treatment. We developed biocompatible nanoparticles that can be tuned, decorated, and loaded with potential therapeutic reagents to (1) identify and target the injury site, and (2) deliver drugs using controlled release technology.

Q: *Are there different types of TBI?*

A: *Yes, this work is focused on mechanically induced TBI.*

Authors/Presenters: **Prof. Michael Cho**
Mr. Edidion Inyang
Bioengineering Department
University of Texas at Arlington
Arlington, Texas

Prof. Michael Cho

II. 2-Dimensional Frustration Modeling

Computational frustration modeling can be used to study systems such as spin glasses and cuprate vortex states. Frustration is due to competing and random interactions Our general model can be mapped into a harmonic-oscillators model or an Ising model. Monte Carlo simulations are used to study frustration relaxation in a 2-dimensional lattice.

Q: *Is Frustration a Physics concept?*

A: *Yes, relatively new! used in magnetism and condensed matter.*

Authors/Presenters: **Prof. Carolus Boekema**
Dr. Elaheh Ghorbani
Ms. Zhengzheng Li
Department of Physics & Astronomy
San José State University
San José, California

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Thursday - June 06, 2019

Room: **Palolo 2**
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Session: **Biomedical Engineering; Nanodelivery to Brain Endothelium; Chemistry Research- Synthesis of Chemotheraputic Compounds; Material science and Engineering; Physics**
Session Chair: **Prof. Michael Cho**

III. Rapid Setting Mortar for Advanced Applications

The research team is attempting to develop a mortar than can be used for 3D printing or automated brick laying applications. The improved performance of this mortar may be achieved by adding varying amounts of nano silica to the mixtures. The goal of the study is to obtain a mortar that has reduced set time, increased compressive strength while maintaining an acceptable level of viscosity/rheology.

Q: *What are the potential uses of the rapid setting-mortar?*

A: *3D printing, robotic brick laying, sliding forms construction.*

Authors/Presenters: **Dr. Mohamed Zeidan**
Dr. Blake McHugh
Dr. Jordan Perez
Dr. Benjamin Boyett
Industrial and Engineering Technology
Southeastern Louisiana University
Hammond, Louisiana

IV. Synthesis and Characterization of Novel Sulfanilamides as Potential Chemotherapeutic Agents

The presentation will focus on the anticancer research I conducted at the University of Western Cape Town in South Africa. I will start off the presentation by discussing the importance of the research to society, the hypothesis, and objective of the project. I will then discuss the materials and methods used to conduct the investigation. Lastly, I plan to talk about the results and future plans for the research project.

Q: *How can sulfonamides be used to treat other diseases other than cancer?*

A: *Sulfonamides can be used to treat many different fungal and bacterial diseases due to their anticancer properties, chemical composition, and ability to kill harmful bacteria without effecting healthy human cells.*

Authors/Presenters:

Ms. Madeline Brown

Ms. Madeline Brown
Ms. Rebecca Bernadel
Ms. Sekou Stuppard
Ms. Mytia Edwards
Chemistry Department
Howard University
Washington, DC

Dr. Salam Titinchi
Dr. Hanna Abbo
Chemistry Department
University of Western Cape
Cape Town, South Africa

Thursday - June 06, 2019

Room: **Palolo 3**
Time: **10:00am - 12:00pm**
Session: **Data was scraped from public tweets posted to Twitter find out what are the current attitudes towards SBT; Higher Education, Transformational Learning, Pedagogy; Counteracting issues found in Career and Technology Education**
Session Chair: **Ms. Rachel Scherer**

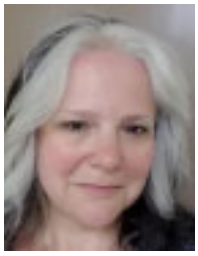
I. Simulation-Based Training Twitter Attitude Data Analysis

The use of public data has become big business and as such the use of social media platforms like Twitter or Instagram have become the go to social media site to gather data. The focus of the data being gathered and studied from Twitter is to find out what the current attitude is towards Simulation Based Training (SBT) in general. This is to be followed a future more in depth study can be conducted to discover what the attitudes towards the use of SBT.

Q: *Curious about how to use Twitter for qualitative analysis?*

A: *Explain how to scrape Tweets from Twitter and analyze them.*

Author/Presenter:



Ms. Rachel Scherer
University of North Texas
Denton, Texas

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Thursday - June 06, 2019

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Session Chair: **Ms. Rachel Scherer**

II. Supplementing Project-Based Capstones: Capstone Case Studies to Zero Gravity and Beyond

In the fall of 2018, Texas A&M construction science faculty, industry, and Astronautical engineers from the Air Force Academy collaborated with the Autodesk Corporation to conduct simulations for evaluating behavior of two different experiments prior to a Zero-G flight to test the experiments in real world low to zero gravity environments. The effort was a culmination of the multi-year capstone project. This paper documents 5 exciting capstones with culminating events in engr/construction.

Q: How do you help support accreditation with these capstones?

A: ABET and ACCE accreditation teams usually like these culminating events if they incorporate your past design experience into a final event.

Author/Presenter:

Dr. Patrick Suermann
Department of Construction Science
College of Architecture
Texas A&M University
College Station, Texas

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Thursday - June 06, 2019

Room: **Palolo 3**
Time: **10:00am - 12:00pm**
Session: **Data was scraped from public tweets posted to Twitter find out what are the current attitudes towards SBT; Higher Education, Transformational Learning, Pedagogy; Counteracting issues found in Career and Technology Education**
Session Chair: **Ms. Rachel Scherer**

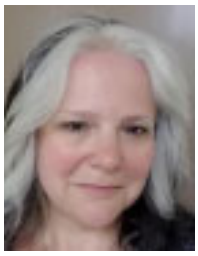
III. The Benefits of Using Simulation Based Training (SBT) to Improve Safety in the Classroom and Work Force

Simulation Based Training (SBT) in education refers to such labeled activities as gaming, gamification, 3D environmental training, virtual reality, and/or augmented reality. In this day and age simulation training is common place and even expected by today's students. If a student can play virtual reality games using their phone, why wouldn't they expect to be able to learn this way for a course. We know from educational studies that students learn best by using the same methods or the same way they played as young children, and today's students grew up playing video games. This means in the field of education we need to start incorporating simulation as a teaching tool because this is what our students have grown up using. Career and Technology Education and other lab based courses face additional challenges when it comes to education students due to the 1) cost for equipment, lab, and/or teachers; 2) major safety concerns on the tools the students use or skills they may need to practice; and finally 3) to find ways to increase students' knowledge and problem solving skills.

Q: *What the heck is Simulation Based Training (SBT)? Could SBT help counteract the issues found in Career and Technology Education and other lab based courses?*

A: *In education refers to such labeled activities as gaming, gamification, 3D environmental training, virtual reality, and/or augmented reality.*

Author/Presenter:



Ms. Rachel Scherer
University of North Texas
Denton, Texas

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Thursday - June 06, 2019

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Session: **Data was scraped from public tweets posted to Twitter find out what are the current attitudes towards SBT; Higher Education, Transformational Learning, Pedagogy; Counteracting issues found in Career and Technology Education**
Session Chair: **Ms. Rachel Scherer**

IV. Creating Effective and Efficient User Dashboards Through Dynamic Customization and Well-Designed Webpage Visualization

This work presents the design and implementation of a fully functional student dashboard software that promises to facilitate a generic university information system in an efficient and effective way. Our project also serves as a didactic platform as it walks through the steps of developing software from a software engineering perspective. To verify its validity and enhanced features, we compare the performance of our work with similar software available.

Q: *Why build a new dashboard?*

A: *For better efficiency and effectiveness.*

Authors/Presenters: **Dr. Ebru Celikel Cankaya**
Dr. Dylan Odekirk
Department of Computer Science
University of Texas at Dallas
Richardson, Texas

Thursday - June 06, 2019

Room: **Palolo 4**
Time: **10:00am - 11:30am**

WORKSHOP

I. Verbal De-escalation in the Classroom

Academic institutions are increasingly populated by a small but significant group of students, including those living with a mental or behavioral illness who engage in disruptive or maladaptive behaviors. This highly interactive workshop provides faculty and staff with the tools to manage, redirect and de-escalate disruptive behaviors using the same proven verbal techniques as crisis interveners and hostage negotiators. Open to all academic professionals, no prior training necessary.

Q: *How do I manage maladaptive classroom behavior in a student-center manner?*

A: *Attend Verbal De-escalation in the Classroom.*

Authors/Presenters: **Dr. Starr Eaddy**
Dr. Edi Peterson
Biology & Health Sciences
St. Francis College
Brooklyn Heights, New York

Poster Session

Thursday - June 06, 2019
11:00 am - 12:30 pm
Naio Room

Thursday - June 06, 2019

Room: **Naio Room**
Time: **11:00am - 12:30pm**
Session: **Posters**

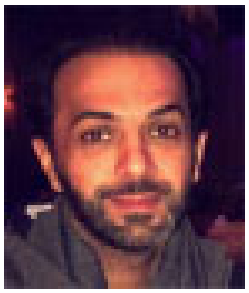
1. A TPACK Perspective on Designing and Modelling Flipped Classrooms

To aid instructors in designing and modelling a flipped course framework, a Technological Pedagogical Content Knowledge (TPACK) perspective is adopted. The paper demonstrates why a TPACK model is a suitable approach to flipped classroom creation and how it can be applied in practice.

Q: *Is application of a flipped classroom approach a tempting trend in education?*

A: *It brings challenges in such areas as effective technology applications, motivation for students, and creation of a meaningful link between the content and the learning process.*

Author/Presenter:



Dr. Waleed Afandi
Management Information System
King Abdulaziz University
MC Jeddah, Saudi Arabia

Continued on next page

Thursday - June 06, 2019

Room: **Naio Room**
Time: **11:00am - 12:30pm**
Session: **Posters**

2. A Scoping Review of Social Presence

The purpose of this presentation to report the summative findings of a scoping review of the construct social presence as applied to online higher education learning. Results from the manuscripts screened for inclusion and synthesized from the data extracted in the scoping review, provide strategies for the structuring of social presence; the potential benefits of effective affective communication in an online environment; and an overview of the evolution of the construct social presence.

Q: *Why is social presence important to online learning?*

A: *As social interaction in education has been shown to be a key element to learning, it is important to understand the relationship between social presence and online learning. Social presence is the way individuals develop inter-personal relationships, communicate, and project themselves online. Social presence is one of the more important concepts used to determine the level of interaction and effectiveness of online learning.*

Author/Presenter:

Dr. David Mykota
Dept, of Educational Psychology & Special Education
University of Saskatchewan
Saskatchewan, Canada

3. Reactivity of 1,3 Dipolar Cycloaddition with Azide and Strained Allene Rings

We were interested to learn if azide cycloadditions to allenes might be fast enough for uses in bioorthogonal chemistry. Density Functional Theory (M06-2X/6-311+G(d,p) // M06-2X/6-31G(d)), a popular quantum mechanical method to predict reaction rates, was used to study reactions between methyl azide and a series of strained, highly reactive cyclic allenes. Our calculations provide quantitative predictions of the activation and reaction energies for formation of possible products.

Q: *What is computational chemistry?*

A: *Computational Chemistry is the usage of systematized coding and simulation to uncover and explain chemical phenomena beyond that which can be observed experimentally.*

Author/Presenter:

Mr. Norman Harris II
Department of Chemistry and Biochemistry
Howard University
Washington, DC

Continued on next page

Thursday - June 06, 2019

Room: **Naio Room**
Time: **11:00am - 12:30pm**
Session: **Posters**

4. Understanding Perspectives of Mentor Teachers and Pre-Service Teachers for Teacher Preparation Program Improvement

Student teaching and collaboration with mentor teachers has been reported to be the most critical aspect of preparatory experiences that shape new teachers' teaching practices. This study aims to examine the extent of (mis)alignment between mentor and pre-service teachers' experiences and improve a teacher education program to better align and increase pre-service teacher preparation and success in their careers.

Q: *How do pre-service teachers and mentor teachers describe the student teaching experiences at a teacher education program on the west coast of the U.S.? What experiences do they perceive as beneficial and why? What are the tensions or dilemmas that they face during student teaching?*

A: *Overall, the experiences were described to be positive. More specifically, the pre-service teachers were pleased with the level of collaboration and the exposure to different experiences that helped them develop professionally. Some of the tensions that they faced were due to misalignments in beliefs and values, personality differences, and mentor teachers' reluctance to give candidates autonomy of the classroom.*

Authors/Presenters: **Ms. Dimple Ravuri**
Ms. Ella Rose
Mr. Jiwon Lee
Dr. Hosun Kang
Dr. Doron Zinger
Dr. Elizabeth van Es
Dr. Virginia Panish
School of Education
University of California
Irvine, California

Continued on next page

Thursday - June 06, 2019

Room: **Naio Room**
Time: **11:00am - 12:30pm**
Session: **Posters**

5. Problem Posing and Conjecture in Middle School Mathematics

Problem posing and conjecture are as essential as problem solving and proof, respectively. Math teachers should be able to exemplify problem posing and conjecture in and by school mathematics contents to facilitate such students' activities. We introduce some real examples of problem posing and conjecture based on 'what if not' strategy in the Korean middle school mathematics.

Q: *What is the key question for problem posing and conjecture In each example?*

A: *What if A is B?*

Author/Presenter: **Dr. Jonghoon Do**
Department of Mathematics Education
College of Education
Seowon University
Cheongju, Chungbuk
South Korea

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Thursday - June 06, 2019

Room: **Naio Room**
Time: **11:00am - 12:30pm**
Session: **Posters**

6. Influences of Friends and Family on Women's Pursuit of Computing; A Sequential Explanatory Design

The participation of female students in STEM majors, particularly computing and engineering, has remained low. In this study, our goal is to understand the most important factors influencing female students towards computing majors. We studied the impact of family and friends on four different racial groups including White, Black, Hispanic, and Asian students who chose computing majors (n=1650). The results of the study indicated friends had a positive significant role on White female students.

Q: *What factors (family, friend) influence students' academic achievement in computing fields on different racial groups?*

A: *White female students get significantly influenced by their friends towards computing fields, however, no other significant relationship among families or friends' impact in other racial groups were found.*

Authors/Presenters: **Ms. Maral Kargarmoakhar**
Dr. Monique S. Ross
Department of Computing and Information Sciences
Florida International University
Miami, Florida
Dr. Zahra Hazari
Department of Teaching and Learning
Florida International University
Miami, Florida
Dr. Mark Allen Weiss
College of Engineering and Computing
Florida International University
Miami, Florida
Dr. Michael Georgiopoulos
Department of Electrical & Computer Engineering
University of Central Florida
Orlando, Florida
Dr. Ken Christensen
Computer Science and Engineering Department
College of Engineering
University of South Florida
Tampa, Florida

Ms. Maral Kargarmoakhar

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Thursday - June 06, 2019

Room: **Naio Room**
Time: **11:00am - 12:30pm**
Session: **Posters**

7. Why Students Persist: A Qualitative Study of First-time, Full-time Students at a Regional Hispanic-Serving Institution

This is a two-fold, qualitative study designed to explore reasons for lack of re-enrollment of firsttime, full-time freshman students at a rural, regional Hispanic-Serving Institution (HSI). This study incorporates survey administration to both previously enrolled freshman, as well as currently enrolled sophomores. These surveys include demographical questions, questions related to resilience, as well as open-ended questions aimed at investigating students' experiences and reasons for lack of reenrollment. This study hopes to contribute to the identification of strategies for retention of first-time, full-time freshman at a rural regional HSI.

Q: *Why do first-time, full-time university students fail to persist?*

A: *Responses are still pointing toward a need for financial literacy and support.*

Authors/Presenters: **Dr. Angela Spaulding**
Ms. Christine Dorsett
The Graduate School and Kilgore Research Center
West Texas A&M University
Canyon, Texas
Dr. Emily Hunt
Dept. of Engineering, Computer Science & Mathematics
West Texas A&M University
Canyon, Texas

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Thursday - June 06, 2019

Room: **Naio Room**
Time: **11:00am - 12:30pm**
Session: **Posters**

8. Perceived Experiences of Induction and Mentor Programs by New Teachers Working in High-Poverty Schools: An Exploration of Views and Teaching Practices

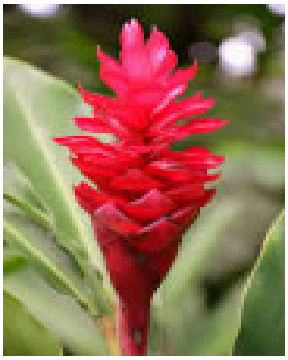
The poster shares information from a qualitative study examining new teacher perceptions regarding their induction and mentor programs. This study resulted in four findings: (1) a lack of teachers, mentors, and high quality, aligned professional development at the school site; (2) the informal mentoring structure has made a notable impact on new teachers; (3) teachers advocated for the prioritization of psychological support; and (4) teachers believe five mindsets are necessary to be effective.

Q: *How do I provide high quality support to prospective teacher candidates and new teachers in schools across the country?*

A: *This poster presentation will share teacher perceptions regarding their induction and mentor programs, paying attention to how the instructional supports and psychological supports in their induction and mentor programs shaped their current views about teaching in a high-poverty school and their instructional practices. You will also have the opportunity to examine how you can change your current practices to support teacher preparation and development.*

Author/Presenter:

Dr. Brandy Nelson
Harper Middle College High School
Charlotte Mecklenburg Schools
Charlotte, North Carolina



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Thursday - June 06, 2019

Room: **Naio Room**
Time: **11:00am - 12:30pm**
Session: **Posters**

9. Identifying Potential Roles for Sin3a as a Metastasis Suppressor in E1B55k-deleted Ad Infected Cells

The main goal of this project is to identify ways in which the gene Sin3a, a known metastasis suppressor in triple negative breast cancer cell lines, can suppress metastasis in other cell lines treated with E1B55K-deleted virus. We do this as another step into identifying therapies and additional treatment options for patients with metastatic disease, as they currently have limited treatment options available to them.

Q: *Why are you interested in Sin3a?*

A: *We are interested in Sin3a because of its involvement in chromatin modification complexes that are correlated with cancer cell growth.*

Authors/Presenters: **Ms. Melodie Hunter**
Dr. Michael Thomas
Department of Biology
Howard University
Washington, DC

10. Using DNASP to Study Frequency and Evolution of Chloride Voltage-Gated Channel Ka Gene in African Populations

The purpose of this study was to use DNASP software to examine the frequency of gene CLCNKA in African populations in comparison to other global populations. The data showed that CLCNKA was frequent in all populations and displayed positive selection. Evidence from the study proposes that CLCNKA is not specific to Africans and selection for diversification will most likely be from nonsynonymous mutations. This research can be used to further study hypertension related genes.

Q: *Is gene CLCNKA frequent in African populations in comparison to other global populations?*

A: *Evidence from the study proposes that CLCNKA is not specific to African populations because it is frequent in most populations: BEB, CHS, CHB, GBR, JPT, and TSI.*

Authors/Presenters: **Ms. Yolanda Jean-Baptiste**
Department of Biology, Hypertension & Health Science
Howard University
Washington, DC
Dr. Michael Campbell
Department of Biology
Howard University
Washington, DC

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Thursday - June 06, 2019

Room: **Naio Room**
Time: **11:00am - 12:30pm**
Session: **Posters**

11. Development of Board Game for the Promotion of Food Education Based on the Study of Project Based Learning

The purpose of this study is board game development aiming to promote the food education based on the study of project based learning. There is a view that board games have good effects in advancing children's sociality and personality, and that it is useful for acquiring knowledge. Therefore, there is a case for using board game in education. In this study, we created a prototype of the board game to promote the food education.

Q: *What is the purpose of this study?*

A: *The purpose of this study is board game development aiming to promote the food education based on the study of project based learning.*

Authors/Presenters: **Mr. Yuuki Daigo**
Dr. Masao Toyama
Faculty of Social Systems Science
Chiba Institute of Technology
Narashino, Chiba
Japan

12. Case Study on Product Promotion Methods in Retail Stores

In retail stores such as supermarkets, it is expected that product sales will vary by the influence of the display that the manufacturer does not intend. To solve this problem, it is necessary to devise the promotion method in addition to the display method. Therefore, supermarket puts on pop in order to appeal the product. However, some stores have display shelves that make it hard to put on pop. We need to consider solutions.

Q: *What is the problem?*

A: *In retail stores such as supermarkets, it is expected that product sales will vary by the influence of the display that the manufacturer does not intend.*

Authors/Presenters: **Ms. Ami Nakano**
Dr. Masao Toyama
Faculty of Social Systems Science
Chiba Institute of Technology
Narashino, Chiba
Japan

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Thursday - June 06, 2019

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Session: **Posters**

13. Research on Advertising Effect by Distribution of Goods

Product sales promotion methods include distribution of flyers, POP advertisements and publication in magazines. Previous research has conducted research that combines advertising and consumer ideas. However, such advertising methods have limitations in conveying the actual taste and flavor. Therefore, as an effective method, there is a sampling method of distributing an actual product. We analyze whether profit can be expected by distributing products for free.

Q: *What is the problem?*

A: *Some advertising methods have limitations in conveying the actual taste and flavor.*

Authors/Presenters: **Ms. Aika Sasa**
Dr. Masao Toyama
Faculty of Social Systems Science
Chiba Institute of Technology
Narashino, Chiba
Japan

14. A Comparative Study of Dentsu and Hakuhodo Using SWOT and Financial Analysis

The purpose of this study is to conduct a comparative analysis of Dentsu and Hakuhodo to clarify their characteristics using swot and financial analyses. In order to conduct those, we examined strengths, weaknesses, opportunities, threats, profitability, safety, productivity and growth of the two companies.

Q: *What is the purpose of this study?*

A: *The purpose of this study is to conduct a comparative analysis of Dentsu and Hakuhodo to clarify their characteristics using swot and financial analyses.*

Authors/Presenters: **Mr. Shoma Masuda**
Dr. Masao Toyama
Faculty of Social Systems Science
Chiba Institute of Technology
Narashino, Chiba
Japan

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Thursday - June 06, 2019

Room: **Naio Room**
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Session: **Posters**

15. Case Study on Threat of Personal Information Outflow in SNS

The purpose of this research is case study on threat of personal information outflow in SNS. In the background of the outflow of personal information in SNS, there is a desire to have oneself acknowledged by many people. For that purpose, there are people who outflow their information in SNS. In the process of raising a sense of self-satisfaction, one's address may be disclosed. In order to prevent the outflow of personal information, it is necessary to change the way of thinking about the desire to admit oneself.

Q: *What is the purpose of this research?*

A: *The purpose of this research is case study on threat of personal information outflow in SNS.*

Authors/Presenters: **Mr. Sora Hanyuu**
Dr. Masao Toyama
Faculty of Social Systems Science
Chiba Institute of Technology
Narashino, Chiba
Japan

16. Incorporating a Service-Learning Component in an Organic Chemistry Laboratory Course of a Small Liberal Arts College

Service learning (SL) has been progressively introduced into various curricula in the past years but has gained implementation fairly recently in the organic chemistry laboratory. In our case, we've incorporated service-learning into a second-year undergraduate organic chemistry laboratory course (organic chemistry I and II), wherein undergraduate organic chemistry students teach students from secondary schools (high schools) in the community a variety of organic chemistry experiments.

Q: *How did you start incorporating Service Learning into your Organic Chemistry Laboratory Course?*

A: *We've followed protocols from our service learning center and undergone curriculum development fellowship programs.*

Authors/Presenters: **Dr. Patrisha P. Bugayong**
Ms. Meredith Stoops
Dr. Matthew J. Ramsey
Department of Chemistry and Biochemistry
Benedictine College
Atchison, Kansas

Thursday - June 06, 2019

Room: **Palolo 1**
Time: **12:45 - 2:15pm**
Session: **Authentic Assessment & Peer Review; Digital Media; Qualitative Analysis; International Students in Higher Education Institution**
Session Chair: **Dr. Jasvir Kaur Nachatar Singh**

I. Are International Students Resilient in their Studies?

Existing scholarly work on international students predominately emanates from Western settings and offers rich insights surrounding their academic and social challenges and how this group of students are not resilient in navigating their studies as well as social skills in the host country. Limited research has been conducted on understanding why international students face these challenges and how they overcome it in a non-Western setting.

Q: *Are international students resilient in their studies and social activities?*

A: *Yes, they are. They navigate their know-what and skills excellently.*

Author/Presenter:

Dr. Jasvir Kaur Nachatar Singh
Department of Management, Sport and Tourism
La Trobe Business School
La Trobe University
Melbourne, Victoria
Australia

II. Peer Review as Assessment Tool for Digital Media Course

This paper reports on research conducted into the use of peer review assessment as part of the assessment tool method in a Digital Story Telling course, part of a Digital Media program at an Australian university. The objectives of this research are to study the effectiveness and relevance of the Peer Review assessment tool introduced in this course, answering the research question "How practical is Peer Review assessment tool in Digital Media courses?"

Q: *What is the main benefit of using peer review in assessing student's work?*

A: *Peer review allows students to give an opinion on works of others, it also gives them an overview of the expectation of the assessment, hence giving them the motivation to improve his/ her work.*

Author/Presenter:

Ms. Regina John Luan
School of Education and the Arts
Central Queensland University
Bundaberg, Queensland,
Australia

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Thursday - June 06, 2019

Room: **Palolo 1**
Time: **12:45 - 2:15pm**
Session: **Authentic Assessment & Peer Review; Digital Media; Qualitative Analysis; International Students in Higher Education Institution**
Session Chair: **Dr. Jasvir Kaur Nachatar Singh**

III. Exploring Student Perspectives and Experiences in a Hands-on, Project-Based Aquaponics Unit

The purpose of this study is to provide high school students' hands-on experiential learning opportunities in the classroom through aquaponics which may boost their curiosity and interest in Science, Technology, Engineering, and Mathematics (STEM).

Q: *How does different levels of nutrient input affect the carrying capacity of an aquaponics ecosystem?*

A: *Students' task will be to gather sufficient data to answer the question and find the average, identify the trends, and utilize graphical comparisons of multiple sets of data (i.e.,mathematical representations) gathered from each participating school.*

Authors/Presenters:
Mr. Kenneth R. Thompson
Aquaculture Research Center
Kentucky State University
Frankfort, Kentucky
Dr. Kirk W. Pomper
College of Agriculture, Communities, and the Environment
Kentucky State University
Frankfort, Kentucky
Dr. James H. Tidwell
Division of Aquaculture
Kentucky State University
Frankfort, Kentucky
Dr. Rebecca M. Krall
Department of STEM Education
Kentucky State University
Frankfort, Kentucky

Thursday - June 06, 2019

Room: **Palolo 2**
Time: **12:45 - 2:15pm**
Session: **Language Education; Linguistics; Digital Technology and Social Networks; English Language Teaching and Learning**
Session Chair: **Dr. Christine Biebricher**

I. Becoming Language Teachers – Navigating teaching Mandarin as primary school teachers in New Zealand

The study uses a qualitative approach and reports on the journeys of four primary school teachers in New Zealand offering Mandarin Chinese to 9-12 year olds. The teachers do not have linguistic or pedagogical background knowledge and rely on self-study and a pedagogy based professional development programme. The journeys are quite different showing open-minded attitudes and approaches to language teaching to anxiety transforming into enjoyment and to initial resistance moving into acceptance.

Q: Which support would you recommend for language teacher education based on your experience or knowledge in your home country?

A: Consistent linguistic learning, pedagogical education during pre-service qualification, on-going professional development, language learning across the curriculum, for example learning the language through Maths or Arts.

Author/Presenter: **Dr. Christine Biebricher**
Faculty of Education and Social Work
The University of Auckland
Auckland, Aukland
New Zealand

II. The Overall Effectiveness of Facebook in Teaching and Learning English Language Skills

The continuous development of digital technology and social networks has reshaped many aspects of education. Following this trend, English Language Teaching and Learning has also been significantly impacted, especially under the coverage of Facebook. This presentation aims for exploring the role of Facebook under the teaching and learning angle, from which the applications of Facebook can be meaningfully exploited for the accomplishment of greater educational objectives.

Q: *Why do people think of deschooling these days?*

A: *Because they are heading to Face-schooling.*

Author/Presenter: **Ms.Tuong Vy Nguyen**
Curriculum and Instruction
Faculty of Education
University of Victoria
Victoria, British Columbia
Canada

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Thursday - June 06, 2019

Room: **Palolo 2**
Time: **12:45 - 2:15pm**
Session: **Language Education; Linguistics; Digital Technology and Social Networks; English Language Teaching and Learning**
Session Chair: **Dr. Christine Biebricher**

III. Investigation of Words in Japanese Closed Caption TV Corpus

For Japanese language learners, we describe the specific details of TV program vocabulary and investigate what kind of words is necessary for understanding the contents of TV scripts. We use our closed caption TV corpus over 1 billion words size for investigating vocabulary. In this presentation we will show different words statistics from various viewpoints such as difference of years, difference of part-of-speech, and difference of genres.

Q: *What kind of words were frequent appeared in TV corpus?*

A: *The most frequent word is the •g•B•h symbol, which indicates the period of a sentence in Japanese. The other frequent words "no, te, ni, wa, ga, wo, de," and "to" are particles, which are very important discourse makers for understanding the meaning of a Japanese sentence.*

Author/Presenter: **Dr. Hajime Mochizuki**
Institute of Global Studies
Tokyo University of Foreign Studies
Fuchu, Tokyo
Japan

Thursday - June 06, 2019

Room: **Palolo 3**
Time: **12:45 - 2:15pm**
Session: **Sociology, Interdisciplinary Studies; Social and Economic Relations; Social Science (Industrial Development)**
Session Chair: **Dr. Todd Ames**

I. Shifting Subsistence in Micronesia: Economic Development Potentials in Cash-Crop Production and Marine Resource Harvesting in Micronesia

This paper is based on research in the islands of Yap, Pohnpei and Palau. This research investigates the importance of traditional subsistence, small-scale agricultural activities, agro-forestry and marine resources and emerging marketing activities to sustainable economic activities and rural community development.

Q: *Why is local food production important in Micronesia?*

A: *High costs and transportation obstacles have made producing local foods a strategic issue for the region.*

Author/Presenter: **Dr. Todd Ames**
Sociology and Micronesian Studies
University of Guam
Mangilao, Guam

II. Social and Economic Relations in Micronesia

This paper focuses on enhancing the growth of appropriate entrepreneurship and economic opportunities, in particular micro-finance and small-business development. Focus areas include the identification of micro-market opportunities currently being produced through sustainable practices; capacity building and stakeholder participation in entrepreneurship and small-scale business development; opportunities for regional exports; and economic opportunities in agricultural and marine development.

Q: *In what ways does Sociology, as a STEM discipline, contribute to the overall understanding of the importance of STEM in 21st century science and education?*

A: *The Social Sciences, in particular Sociology is an applied scientific discipline which carries high standards with regards to research, analyses, and technical writing. The contributions to STEM include social applications, putting forth quantitative and qualitative scientific research. Social and human well-being as topics of scientific inquiry are key to 21st century education and science.*

Author/Presenter: **Dr. Angeline Ames**
Department of Sociology & Micronesian Studies
University of Guam
Mangilao, Guam

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Thursday - June 06, 2019

Room: **Palolo 3**
Time: **12:45 - 2:15pm**
Session: **Sociology, Interdisciplinary Studies; Social and Economic Relations; Social Science (Industrial Development)**
Session Chair: **Dr. Todd Ames**

III. Governance, Migration and Structural Economic Transformation: The Case of Nigeria

The paper centers on the pattern of governance, migration and Nigerian economic situation that require transformation in view of the prevailing happenings over the years such as inability of policies, strategies, plans and program to address myriad economic quagmire besieging the nation, thereby placing the country as one of the poorest and among the most corrupt in the global community. The paper adopts analytical and descriptive approach in examining Nigeria's situation and found that poor governance in Nigeria is the arrow-head of the ongoing anomalies and inability to address the social, economic and political imbroglio in Nigeria, thereby compelling many professionals, skilled and unskilled to opt for migration as a way out which contributes its quota in reducing needed quality labour force. The paper articulated ways to walk out of the situation among which include: leadership in Nigeria should be determined by communities who know who is who among themselves and should not be who has a godfather or resources to maneuver others; institutions of governance must be reformed and transformed through elimination of all loopholes for expropriating public resources for personal use; business and economic environments need grand overhaul; power and water supply must sincerely be addressed both in the rural and urban areas; transportation and road infrastructure must be reformed.

Q: *What is the reactions of the people to governance situation in your country?*

A: *People are frequently intimidated with security agency.*

Authors/Presenters: **Mr.Hyancinth Nwankwo Aniagolu**
Mr. Kalu E Uma Alex
Enugu State College of Education Technical
Enugu, Nigeria
Mr. Ikwo Ndufu Alike
Ebonyi State University
Enugu, Nigeria

Thursday - June 06, 2019

Room: **Palolo 4**
Time: **12:45 - 2:15pm**
Session: **Indigenous Knowledge System in Education;**

WORKSHOP

I. TEACHING THE INDIGENOUS CHILD: An Australian Context

Often the wealth of the knowledge systems that Indigenous children bring to school settings are not considered in curriculum content. These papers look not only at what knowledge the child may bring to the school setting but also the possibilities of incorporating such knowledge systems into mainstream educational systems.

Author/Presenter: **Mr. Michael Colbung**
School of Education
Faculty of Arts
The University of Adelaide
Adelaide, South Australia
Australia

Thursday - June 06, 2019

Room: **Palolo 1**
Time: **2:30 - 4:00pm**
Session: **Curriculum, Research and Development; Math ISTEM; Wave Equation; Mathematics; Math and Science Education; Inter-disciplinary Areas of Mathematics**
Session Chair: **Dr. Richard Ford**

I. Learning Outcomes of Prepared and Underprepared College Freshmen in General Education Mathematics

In this session we provide data regarding student learning outcomes for two general education mathematics courses: Introductory Statistics and Finite Math for Business. The outcomes are compared between students identified as underprepared who receive supplemental support and students identified as college-ready who do not receive the supplemental support .

Q: *Is co-requisite support required of the underprepared freshmen?*

A: *Yes. All Category 3 students are required to enroll into supported GE math courses their first term.*

Authors/Presenters: **Dr. Richard Ford**
Department of Mathematics and Statistics
California State University, Chico
Chico, California
Dr. Elizabeth Boyd
Department of Agriculture
California State University, Chico
Chico, California

Dr. Richard Ford

Continued on next page

Thursday - June 06, 2019

Room: **Palolo 1**
Time: **2:30 - 4:00pm**
Session: **Curriculum, Research and Development; Math ISTEM; Wave Equation; Mathematics**
Session Chair: **Dr. Richard Ford**

II. Analysis of Mathcourse "An invitation to Mathematical Physics and its History"

Twenty-three students finished the course with 10: A+, 7: A, 4: A-, 1: B+ and 1: B with of 9 Seniors, 5 Juniors, 5 Sophomores and 5 Freshmen. Students were self-identified as high-performance STEM. The primary goal is to dramatically increase their knowledge of the math and to raise their self confidence in Math and Physics.

Q: *Why does this course work?*

A: *The history is the key.*

Author/Presenter:

Prof. Jont Allen
Department of Electrical and Computer Engineering
University of Illinois, Urbana
Mahomet, Illinois

III. Pairing Developmental Math Support with General Education Science for Underprepared First Year Students

The California State University admissions process admits students who are underprepared for math/quantitative reasoning (QR) and English with the caveat that they must receive developmental support in these subject areas. In this session we provide comparative data regarding student learning outcomes for prepared and underprepared students enrolled in general education (GE) science courses. The underprepared students were provided co-requisite supplemental QR support.

Q: *What are some examples of math content found in the GE science courses?*

A: *Unit conversions, geometry applications, proportionate scaling, volume and mixture problems, basic decimal and percent problems are all typical applications found in the GE science classes.*

Authors/Presenters:

Dr. Richard Ford

Dr. Elizabeth Boyd
Department of Agriculture
California State University, Chico
Chico, California
Dr. Richard Ford
Department of Mathematics and Statistics
California State University, Chico
Chico, California

Thursday - June 06, 2019

Room: **Palolo 2**
Time: **2:30 - 4:00pm**
Session: **STEM Awareness; Arts Advocacy; Secondary Education; Elementary/ Middle School Education; Educational Technology; Quantitative Analysis**
Session Chair: **Prof. David Moya**

I. Identifying STEM Awareness in High School Art Educators

The dialogue between STEM and art appears to lack the perspectives and experiences of art educators as it relates to their understanding of STEM. This presentation aims to highlight possible factors correlating with high school art educators, and their awareness with STEM related education.

Q: *What significance does STEM awareness have on the current STEAM dialogue?*

A: *Various aspects of STEM awareness include community involvement, available resources, and career outlook. The need for STEM related education to meet the demands of a global STEM economy has become apparent. However, an emphasis on the quality of the potential STEM worker needs to be addressed, rather than merely filling an open STEM job position. Therefore, the usefulness or effectiveness of arts integration to STEM becomes paramount for STEAM advocates to build a case in continuing their pursuits. The information from this study might assist administrators and policy makers in identifying growth areas for STEM awareness to create more holistic STEAM based programs and art educators.*

Author/Presenter:

Prof. David Moya
Department of Communication and Studio Arts
University of Houston - Clear Lake
Houston, Texas

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Thursday - June 06, 2019

Room: **Palolo 2**
Time: **2:30 - 4:00pm**
Session: **STEM Awareness; Arts Advocacy; Secondary Education; Elementary/ Middle School Education; Educational Technology; Quantitative Analysis**
Session Chair: **Prof. David Moya**

II. Blurring the Lines: Spotlight on Art and Science in a Subject Called Flight

A case study of a cross-curricular subject that challenges junior secondary students to work collaboratively to solve a real-world problem through inquiry learning. Using knowledge and skills that transcend Art, Media Arts and Science, students are empowered to fail and employ critical thinking to learn from their mistakes. Student's perceive improvement in resilience, risk taking and reduced anxiety.

Q: *How can STEAM inquiry learning develop traits of risk taking and resilience and reduce anxiety?*

A: *By creating an atmosphere where failure is a positive phenomenon and not a weakness, in which students are encouraged to try and fail in order to solve problems. In this setting students perceive increased resilience and risk-taking and reduced levels of anxiety.*

Authors/Presenters:

Mrs. Jo-Anne Hine
Ms. Rowena Berlin
Queensland Curriculum and Assessment Authority
Cannon Hill Anglican College, Brisbane
Spring Hill, Queensland
Australia

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Thursday - June 06, 2019

Room: **Palolo 2**
Time: **2:30 - 4:00pm**
Session: **STEM Awareness; Arts Advocacy; Secondary Education; Elementary/ Middle School Education; Educational Technology; Quantitative Analysis**
Session Chair: **Prof. David Moya**

III. Designing STEM Learning Using the BSCS 5E Instructional Model

Although many educators are interested in implementing STEM, they often are unsure how to get started. This paper will share how a middle school teacher and a university professor collaborated to use the BSCS 5E Instructional Model to develop and teach a design unit to 8th-grade students. This paper suggests that using the 5E Instructional Model is an effective strategy to design, adjust, and personalize STEM curriculum.

Q: *How can we increase the confidence of elementary and middle school teachers to teach STEM?*

A: *First, collaborate with teachers. Second, equip teachers with a strategy to teach STEM. Third, provide teachers with STEM teaching tools & resources that are free or use every day materials.*

Authors/Presenters: **Dr. Jennifer Nash**
Ms. Jennifer Funke
College of Education
Dakota State University
Madison, South Dakota

Dr. Jennifer Nash

Thursday - June 06, 2019

Room: **Palolo 3**
Time: **2:30 - 4:00pm**
Session: **STEM Leadership across Natural Sciences; Mathematics; Computer Science and Engineering Technology; Teaching Operating Systems / Classroom Example; OS and Parallel Processign Concepts - Computer Science; STEM Education at the College Level; Mathematical Modeling; Scaffolding; eLearning; Self-efficacy, Motivation**
Session Chair: **Dr. Mary Jo Parker**

I. A System of Activity-based STEM Leadership Development

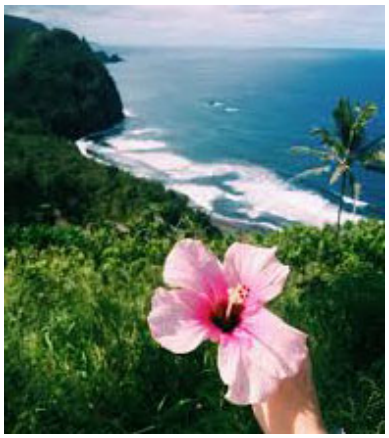
University of Houston-Downtown's Scholars Academy utilizes several mechanisms throughout the collegiate careers of science, technology, engineering, and mathematics majors to purposefully train undergraduates in leadership. The belief that leadership is learned and works to develop people and work groups encourages a flexible approach for leadership training. Focus on two grant-funded leadership development initiatives provides details of the activities undertaken while informing undergraduate attitudes and perceived levels of leadership capacity.

Q: *What is your favorite sport?*

A: *Basketball.*

Author/Presenter:

Dr. Mary Jo Parker
Natural Sciences, Scholars Academy
College of Sciences and Technology
University of Houston-Houston
Houston, Texas



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Session Chair: **Dr. Mary Jo Parker**

II. Pathway: Identifying Preferred Solution Paths

We present a method for identifying preferred solution paths in the Pathway word-problem solver. Pathway is the first and only word-problem solver being developed for equation-based STEM courses. By entering the specification of a word problem into Pathway, the tool is able to find all possible solution paths.

The average retention rate for STEM is 60%. Pathway promises to improve retention by providing the specific help that is needed at the moment of need, and unlimited practice.

Q: *What are the benefits of such much help, eliminating struggle?*

A: *Test results show the method results in an increase in exam scores.*

Authors/Presenters:

Mrs. Quintana Clark
Agricultural Sciences Educationi and Communication
Purdue University
West Lafayette, Indiana

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Thursday - June 06, 2019

Room: **Palolo 3**
Time: **2:30 - 4:00pm**
Session: **STEM Leadership across Natural Sciences; Mathematics; Computer Science and Engineering Technology; Teaching Operating Systems / Classroom Example; OS and Parallel Processign Concepts - Computer Science; STEM Education at the College Level; Mathematical Modeling; Scaffolding; eLearning; Self-efficacy, Motivation**
Session Chair: **Dr. Mary Jo Parker**

III. Python: Threads or Processes

With the advent of multi-core processors, parallel processing has become common; even economy lap top computers and cell phones are quad core. Professional programmers need to be aware of the underlying functionality of the operating system and language support in order to maximize program execution efficiency. This paper examines the impact of the global lock (GIL) on the interpreter for python and threads compared to processes.

Q: *Can python processes truly out perform threads.*

A: *Yes, given sufficient data (and it doesn't take much) python processes can execute dramatically faster than python threads.*

Authors/Presenters: **Dr. Roger Eggen**
School of Computing - Information Science
University of North Florida
Jacksonville, Florida
Dr. Maurice Eggen
Computer Science Department
Trinity University
Jacksonville, Florida

Dr. Roger Eggen

Thursday - June 06, 2019

Room: **Palolo 4**
Time: **2:30 - 4:00pm**
Session: **Teacher Education, STEAM Education, Indigenous Education**
Session Chair: **Prof. Robert Campbell**

I. Indigenous Themes in STEAM: Co-reflecting and Co-constructing in Teacher Education

This presentation follows the journey of teacher educators at a Canadian university who used integrated themes to incorporate Indigenous content and ways of learning into a STEAM course designed for teacher candidates. Action research methods were used to design, develop, implement, and evaluate both the STEAM course, and the Indigenous themes within it, ensuring that decisions made and directions taken were inclusive, collaborative, well-founded, and documented.

Q: *What ways can Indigenous content be included in teacher education programs?*

A: *In a STEAM context is can be included as integrated or discrete thematic units, lessons, and activities.*

Authors/Presenters: **Prof. Robert Campbell**
Prof. Wendy Klassen
Prof. Desiree Marshall-Peer
Prof. Liz Saville
Okanagan School of Education
University of British Columbia
Kelowna, British Columbia
Canada

Continued on next page

Thursday - June 06, 2019

Room: **Palolo 4**
Time: **2:30 - 4:00pm**
Session: **Teacher Education, STEAM Education, Indigenous Education**
Session Chair: **Prof. Robert Campbell**

II. Off the Grid: Developing Resilient Energy Infrastructure from Indigenous Resources

Many isolated rural and tribal communities rely on energy supplies brought in from great distances. Severe weather can pose life safety risks if energy supplies are insufficient and deliveries cannot be made. Many communities have shale gas or geothermal resources that can be tapped to provide heat and power in an emergency at community shelters. The technology and economics of indigenous energy development will be explored.

Q: *How can I find out what resilient indigenous energy resources might be available in my community?*

A: *State geological surveys and the U.S. Geological Survey are the best places to start. The type of geologic energy resource available will depend on the rocks, but geothermal is available everywhere.*

Authors/Presenters: **Mr. Daniel Soeder**
Dr. Foster Sawyer
Dr. Jennifer Benning
Geology & Geological Engineering
South Dakota School of Mines & Technology
Rapid City, South Dakota

Mr. Daniel Soeder

Continued on next page

Thursday - June 06, 2019

Room: **Palolo 4**
Time: **2:30 - 4:00pm**
Session: **Teacher Education, STEAM Education, Indigenous Education**
Session Chair: **Prof. Robert Campbell**

III. Managing the Creative Empire: The Advantages of Being Artsy

This paper sets to explore how the department of Creative Technology at AUT, is stimulating and encouraging students to be at the frontier of innovative thinking and practices, bringing the 'A' to STEAM. Situating the paper in the context of New Zealand creative industry, this writing aims to map the socio-technical benefits of being 'artsy', instead of focusing on short-term financial predictions, when it comes to setting up the agenda for the creative industry and education.

Q: *How being 'artsy' stimulates the socio-technical field of STEAM?*

A: *Do not focus on the short-term financial predictions; embrace the creative uncertainties.*

Authors/Presenters:

Mr. Rumen Rachev
Art and Design Department
The Centre for Learning and Teaching
Aukland University of Technology
Auckland, New Zealand

Dr. Yvonne Chan
Colab - Creative Technologies
Aukland University of Technology
Auckland, New Zealand

Thursday - June 06, 2019

Room: **Palolo 1**
Time: **4:15 - 5:45pm**
Session: **Entrepreneurship Development; Industrial Engineering and Management or Reliability Engineering; Management, Education Leadership; IT**
Session Chair: **Prof. Damian Hine**

I. Graduate Skills and Employability in the STEM Intensive Sector of Innovation and Commercialisation: The Moderating Effect of Organisational Importance on Perceived Skills Relevance and Individual Performance

STEM requires supporting innovation and commercialisation (I&C) knowledge and capabilities to deliver solutions to society. In this study we analyse the value employers in the I&C industry place on graduate skills, where experiential knowledge is as relevant as the skills gained from formal education. Using survey data we model (using regression) the moderating effects of 'importance to the organization' on the impact of entrepreneurial skills on perception of individual performance.

Q: *What skills are most important for graduates to succeed in STEM intensive industries?*

A: *Entrepreneurial skills are valued by how important those skills are to the organisation employing graduates. This then affects an individual's perceived performance.*

Authors/Presenters: **Prof. Damian Hine**
Prof. Chris Collet
Australian Institute for Business and Economics
University of Queensland
Brisbane, Queensland
Australia

Continued on next page

Thursday - June 06, 2019

Room: **Palolo 1**
Time: **4:15 - 5:45pm**
Session: **Entrepreneurship Development; Industrial Engineering and Management or Reliability Engineering; Management, Education Leadership; IT**
Session Chair: **Prof. Damian Hine**

II. Application of Model Based Systems Engineering in Aerospace Case Study By using MADe Software

In this project, two MSU engineering students are engaged in the investigation into the application of MADe (a reliability and systems engineering study software) to spacecraft subsystems development, under the guidance of Dr. Chen and NASA reliability engineers at Goddard Space Flight Center. The goal is to apply the software in the subsystems development of spacecraft such as sounding rockets in order to improve the process efficiency and understanding between various subsystems groups.

Q: *Will this experience help students in future job market?*

A: *Yes, one of the student authors has received multiple job offers before his graduation.*

Authors/Presenters: **Prof. Guangming Chen**
Mr. Tony Odita
Mr. Youngjo Lim
Department of Industrial and Systems Engineering
Morgan State University
Baltimore, Maryland

III. The Role Of Cyber Security Management In Mitigating Risks : Case Study Saudi Banks Sector

The Study Recommended To The reputation of Saudi banks can be severely damaged if online banking is not provided in accordance with safety, confidentiality, accuracy, timeliness, continuity and immediate response to the needs and requirements of its customers. In order to protect the bank, it must develop and monitor and monitor performance standards for e-banking operations.

Author/Presenter: **Dr. Waleed Afandi**
Management Information System
King Abdulaziz University
MC Jeddah, Saudi Arabia

Thursday - June 06, 2019

Room: **Palolo 2**
Time: **4:15 - 5:45pm**
Session: **Interpersonal Communication and Media; Reading Disability; Philosophy**
Session Chair: **Dr. Cheryl Pawlowski**

I. How Perception Theory Effects Online Dating

Using Perception Theory, "Beautiful-is-Good Effect" (Eagly, Ashmore, Makhijani, & Longo, 1991), and Neil Postman's Technological Determinism Theory the researchers are looking at how perception effects selection for relationships in online dating sites.

Q: *What is the criteria for users in selecting potential partners for online dating?*

A: *Attractiveness, income, education, location, marital history.*

Authors/Presenters: **Dr. Cheryl Pawlowski**
Communication Studies, College of Humanities & Social Sciences
University of Northern Colorado
Greeley, Colorado
Prof. Diane Matuschka
Aquaculture Research Center
University of North Florida
Jacksonville, Florida

II. Speech Perception in Children with Reading Disabilities: Phonetic Processing is the Problem

Reading disability (RD) is a key obstacle in the development of literacy, and studies show that 15-20% of grade-school students have an RD. We present data from two tasks: Syllable Confusion Oddball (SCO) and Nonsense Syllable Confusion Matrix (NSCM) task. For the SCO task, the proportion of errors was significantly higher for the RD listeners compared with the RC listeners. Results from the NSCM task revealed individual differences in the confusion patterns for these errors.

Q: *What is the different between hearing impaired and reading disabled children?*

A: *Reading disabled children have very similar speech loss, yet they do not have a hearing loss. Namely they act like children with a hearing loss, but they have no hearing loss.*

Author/Presenter: **Ms. Yashuo Wu**
Electrical Engineering Department
University of Illinois, Urbana Champaign
Champaign, Illinois

Thursday - June 06, 2019

Room: **Palolo 2**
Time: **4:15 - 5:45pm**
Session: **Interpersonal Communication and Media; Reading Disability; Philosophy**
Session Chair: **Dr. Cheryl Pawlowski**

III. Self-Regarding Concern and Concern for Loved Ones

It is sometimes argued that the concern one bears with one's loved ones is essentially no different from self-regarding concern. If this is indeed the case, we may significantly prolong the time during which we can extend our self-interest by procreating our children and making sure that they continue to have our descendants bound by love. In this talk, however, I argue that there are reasons to believe that the two kinds of concerns differ from each other.

Q: *Can you prolong your life span by procreating children?*

A: *There are reasons to think not.*

Author/Presenter: **Prof. Huiyuhl Yi**
Division of General Studies
Ulsan National Institute of Science and Technology
Ulsan, South Korea

Thursday - June 06, 2019

Room: **Palolo 2**
Time: **4:15 - 5:45pm**
Session: **Use of Online Learning Communities and their Effectiveness;Teaching & Learning of Computing Related Concepts; Inter-disciplinary and Other Areas of Education; Mathematics Education**
Session Chair: **Dr. Anu Gokhale**

I. Changing Millennials' Attitudes Toward STEM Through Online Discussions

The Net Generation has embraced the concept of online communication, which bodes well for our NSF funded project that uses e-tools to generate more interest in STEM, especially computing, among students. The online learning communities were designed to demonstrate that the field is not dominated by "geeky" white guys but the fact that women and minority students can, and do contribute.

Q: *What are some of today's students (millennials') characteristics that you have observed?*

A: *I will prepare slides on Millennials' characteristics and how we could capitalize on those for furthering learning.*

Authors/Presenters: **Dr. Anu Gokhale**
Department of Technology
College of Applied Science and Technology
Illinois State University
Peoria, Illinois
Dr. Kenton Machina
Department of Philosophy
Illinois State University
Normal, Illinois

Continued on next page

Thursday - June 06, 2019

Room: **Palolo 2**
Time: **4:15 - 5:45pm**
Session: **Use of Online Learning Communities and their Effectiveness;Teaching & Learning of Computing Related Concepts; Inter-disciplinary and Other Areas of Education; Mathematics Education**
Session Chair: **Dr. Anu Gokhale**

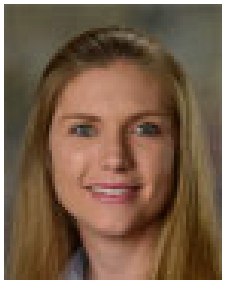
II. Implementing Hands-On Tiny House Design and Construction for Building Science and Architecture Students

"An elective course was offered in Spring, 2018 at XXX University titled "Special Problems-Tiny Houses." This course met for 2.5 hours, once a week and incorporated lecture, research, hands-on construction activities, and a field trip centered around tiny home design and construction. Enrollment in the Spring, 2018 course consisted of 11 architecture students and 3 building construction students. Results of a survey administered at the end of the course indicated that hands-on construction activities were the most effective component of the course.

Q: *What makes tiny homes a good teaching tool for building construction and/or architecture students?*

A: *Tiny homes offer the same overall components and systems as larger homes, but on a small scale which can be easily designed and constructed by students for enhanced learning.*

Author/Presenter:



Prof. April Simons
McWhorter School of Building Science
Auburn University
Illinois State University
Auburn, Alabama

Continued on next page

Thursday - June 06, 2019

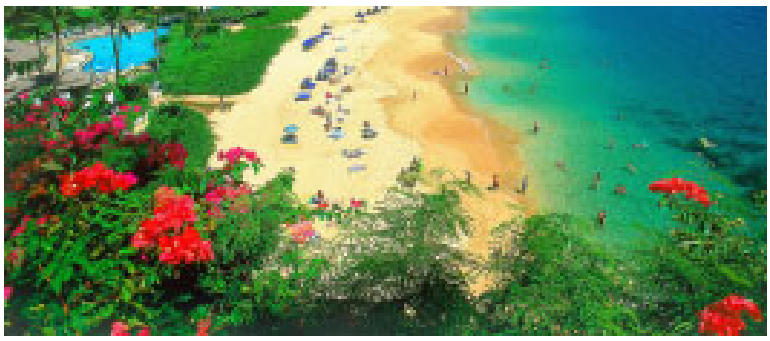
Room: **Palolo 2**
Time: **4:15 - 5:45pm**
Session: **Use of Online Learning Communities and their Effectiveness;Teaching & Learning of Computing Related Concepts; Inter-disciplinary and Other Areas of Education; Mathematics Education**
Session Chair: **Dr. Anu Gokhale**

III. Math instruction: How Can We do it Better?

Math instruction in the United States has long been a point of concerned discussion. Literature suggests that U.S. public schools are in peril, losing their globally competitive edge, and lack cohesiveness in curricula, teacher training, and sound educational values. Effective math instruction leads to greater student understanding and mastery of concepts; leads to the use of problem-solving and critical thinking skills and leads to active engagement and real-life applications.

Authors/Presenters: **Dr. Diana Yesbeck**
Ms. Donna Kouri
Education Department
Randolph-Macon College
Ashland, Virginia

Dr. Diana Yesbeck



Acknowledgement

Hawaii University International Conferences would like to thank the following people and organizations who have made our 2019 STEM/STEAM and Education Conference a success!

Maps: Courtesy of Hawaii Visitors & Convention Center

The Prince Waikiki Hotel for the beautiful conference venue.

Keynote Speaker

We would like to thank **Mrs. Teresa Janowski,** Faculty of Engineering, Computer and Mathematical Sciences (ECMS), The University of Adelaide, South Australia, Australia for sharing her knowledge and skills with us.

Hawaiian Steel Guitar Association

We would like to thank **Mr. Kamaka Tom** for the splendid introduction and music performance at the conference. His dedication to academic endeavors and sharing his knowledge and skills with us is greatly appreciated.

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Reviewers

We thank the dedicated professionals who reviewed the papers submitted by our presenters to be included in our programs, for the conference proceedings. Your work is of utmost importance to make sure those accepted meet the highest academic standards of presentation.

Dr. Aggarwal, Rachna
Prof. Antwi-Boasiako, Kwame
Dr. Baliram, Nalline
Dr. Bender, Diane
Dr. Bhowmik, Jahar
Dr. Briscoe, William
Dr. Cioc, Carmen
Dr. Crowe, Cheryll E.
Dr. Dhand, Ruby
Dr, Eaddy, Starr
Dr. Fisher, Bryan
Dr. Fritts, Mary Lou
Dr. Heljakka, Katrina
Dr. Hogue, Michelle
Dr. Jones, Felicia
Dr. Kohm, Steven
Dr. Lawson, Alberta
Prof. Mulatu, Lemma
Dr. Nite, Sandra
Dr. Park, Eui
Dr. Park, Hanah
Dr. Parker, Mary Jo
Prof. Petrillo, Jay
Dr. Prema, Dipesh
Dr. Rauchwerk, Susan
Dr. Richards, Danielle
Dr. Shaw, Rhonda
Dr. Smith, Stephen
Dr. Stocco, Leo
Prof. Suwak, Jennifer
Dr. Tameze, Claude
Dr. Tingler, Stephenie
Dr. Traynor-Nilsen, Patricia
Dr. Tsao, Ying-Chiao
Dr. Tubach, Lisa
Dr. Wiedeman-Rouse, Teri
Prof. Yaklich, Christine

The HUIC staff would like to cordially invite you to participate in the growth and development of the conference by becoming a peer reviewer of our future conferences. If you are interested in becoming a peer reviewer, please complete the form available at the registration desk indicating your topic of interest and specialization

The Sessions Chairs

Thanks to all the Session Chairs for your guidance of the participants and presenters in each session to maximize the experiences of the session attendees, to convey the thoughts and new ideas each brings to our conference. All timely presentations are important to expand the overall knowledge offered from many perspectives.

Dr. Abrokwaa, Clemente Dr.
Ames, Angeline
Dr. Biebricher, Christine Mr.
Bhuiyan, Md. Al Masum
Prof. Campbell, Robert Dr.
Campbell, Santiba
Dr. Catlla, Anne
Prof. Cho, Michael
Dr. Cioc, Carmen
Dr. Clark, Jason
Dr. Ford, Richard
Dr. Gliadkovsky, Kirill
Dr. Gokhale, Anu
Dr. Hine, Damian
Dr. Klim, Zdzislaw
Dr, Liu, Youmei
Dr. Mateo, Zeny
Dr. Morris, Jennifer
Prof. Moya, David
Dr. Parker, Mary Jo
Dr. Pawlowski, Cheryl
Dr. Prema, Dipesh
Dr. Richards, Danielle
Dr. Scherer, Rachel
Dr. Stocco, Leo
Dr. Wang, Sasha
Dr. Wilson-Ardley, Tiffany
Dr. Zanzot, Djibo

Some of Our Participants

Ms. Regina John Luan
Central Queensland University
Queensland, Australia

Prof. Melissa Nurczynski
Kutztown University
Pennslyvania

Prof. Leo Stocco
University of British Columbia
Canada

Mrs. Jo-Anne Hine
Ms. Rowena Berlin
Cannon Hill Anglican College
Queensland, Australia

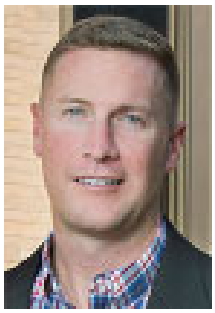
Dr. Jennifer Morris
Mount St. Joseph University
Ohio

Dr. Mary Jo Parker
University of Houston
Texas

Ms. Tamsin Hanly
University Of Auckland
New Zealand

Dr. Megan Sulsberger
California State University
Monterey Bay, California

Dr. David Mykota
University of Saskatchewan
Saskatchewan, Canada



Dr. Patrick C. Suermann
Texas A&M University
College Station, Texas

Continued on next page

Some of Our Participants

Ms. Kaitlin Sly
University of Victoria
British Columbia, Canada

Dr. Jasvir Kaur Nachatar Singh
La Trobe University
Victoria, Australia

Dr. Natalie Bolton
University of Missouri
St. Louis, Missouri

Ms. Christina Kempenaar
University of Victoria
British Columbia, Canada

Dr. Susan Lidster
Thompson Rivers University
British Columbia, Canada

Dr. Jennifer Nash
Dakota State University
South Dakota

Mr. Md Al Masum Bhuiyan
The University of Texas
El Paso, Texas

Dr. David Meel
Bowling Green State University
Ohio

Dr. Dipesh Prema
Thompson Rivers University
British Columbia, Canada

Dr. Ruby Dhand
Thompson Rivers University
British Columbia, Canada

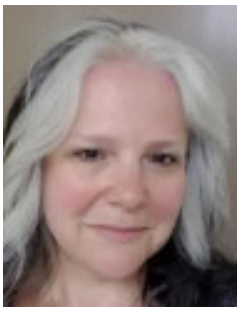
Continued on next page

Some of Our Participants

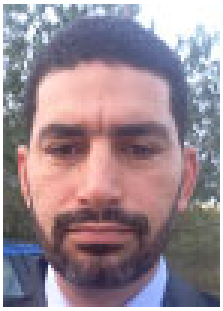
Dr. Zeny Mateo
University of Manitoba
Manitoba, Canada

Dr. Djibo Zanzot
Auburn University
Alabama

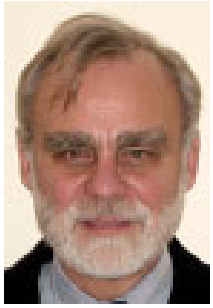
Dr. Patricia Boatwright
Francis Marion University
South Carolina



Ms. Rachel Scherer
University of North Texas
Texas



Dr. Ahmad Fayed
Southeastern Louisiana University
Hammond, Louisiana



Prof. Jont Allen
University of Illinois, Urbana
Illinois

Mr. Daniel Soeder
South Dakota School of Mines & Technology
South Dakota

Mrs. Teresa Janowski
The University of Adelaide
South Australia, Australia

Dr. Anne Catlla
Wofford College
South Carolina

Continued on next page

Some of Our Participants

Dr. Richard Ford
California State University
Chico, California

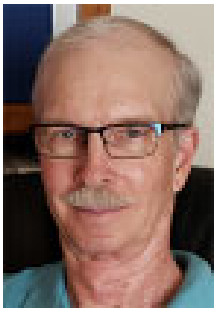
Prof. David Moya
University of Houston - Clear Lake
Texas

Ms. Maral Kargarmoakhar
Florida International University
Florida

Dr. Santiba Campbell
Bennett College
North Carolina

Dr. Kirill Gliadkovsky
Saddleback College
California

Prof. Michael Cho
University of Texas at Arlington
Texas



Dr. Roger Eggen
University of North Florida
Florida

Dr. Sasha Wang
Boise State University
Idaho

Dr. Yvonne Chan
Aukland University of Technology
New Zealand

Continued on next page

Some of Our Participants

Ms. Lainie Baldwin
St. Olaf College
Minnesota

Mrs. Jennifer Holbein
St. Olaf College
Minnesota

Dr. Pirita Ihamäki & Dr. Katriina Heljakka
Prizztech Ltd.
Finland

Mrs. Quintana Clark
Purdue University
Indiana

Dr. Brandy Nelson
Charlotte Mecklenburg Schools
North Carolina

Prof. Trina Fletcher
Florida International University
Florida

Dr. Clayton Clark, II
Florida A&M University
Florida

Dr. Tiffany Wilson Ardley
Florida A&M University
Florida

Dr. Kathryn Wozniak
Concordia University Chicago
Illinois

Dr. Punam Madhok
East Carolina University
North Carolina

Continued on next page

Some of Our Participants

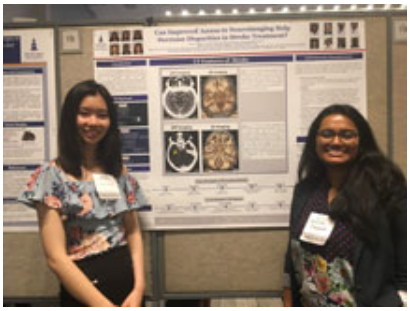
Ms. Imade Ojo

Mr. Norman Harris II

Ms. Madeline Brown

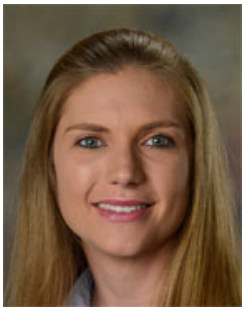
Ms. Melodie Hunter

Howard University, Washington DC



Ms. Apurva Chopade & Ms. Victoria Nguyen
Howard University
Washington DC

Dr. Anu Gokhale
Illinois State University
Illinois



Prof. April Simons
Auburn University
Alabama

We also want to thank each and every one who attended our conference for their contributions to the knowledge bases presented and the interactions of the attendees who generously shared their knowledge and expertise to enhance the conference experience for all who attended. We hope to see all of you back in Hawaii again one day in our continuing effort to bring those together in conferencing here in this magnificent environment as we look to the future of educational efforts in all parts of the world!

Mahalo!

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Prince Waikiki

100 Holomoana St, Honolulu, HI 96815

Addendum

MOVED: **Wednesday June 05, 2019 Page 18**

Room: Palolo 1 12:45 - 2:15pm

III. Low-power, Electrochemically-tunable Graphene Synapses for Neuromorphic Computing

In this talk, we present, for the first time, a low-power, electrochemically-tunable graphene synapse. Through electrochemical intercalation – inserting Li ions in between the layers of graphene, we can precisely and reversibly modulate the conductance of the graphene to emulate the synaptic plasticity in a neural network.

Q: *What precision level can you achieve with the graphene synapse?*

A: *Over 256 levels, i.e. 8-bit*

Authors/Presenters: **Prof. Feng Xiong**
Mr. Mohammad Sharbati
Electrical and Computer Engineering
University of Pittsburgh

Pittsburgh, Pennslyvania

MOVED to: **Thursday June 06, 2019**

Room: Palolo 4 2:30 - 4:30pm

IV. Low-power, Electrochemically-tunable Graphene Synapses for Neuromorphic Computing

In this talk, we present, for the first time, a low-power, electrochemically-tunable graphene synapse. Through electrochemical intercalation – inserting Li ions in between the layers of graphene, we can precisely and reversibly modulate the conductance of the graphene to emulate the synaptic plasticity in a neural network.

Q: *What precision level can you achieve with the graphene synapse?*

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Authors/Presenters: **Prof. Feng Xiong**
Mr. Mohammad Sharbati
Electrical and Computer Engineering
University of Pittsburgh

Pittsburgh, Pennslyvania

ADDENDUM

ADDITION: Thursday - June 06, 2019

Room: **Palolo 1**
Time: **2:30 - 4:00pm**
Session: **Curriculum, Research and Development; Math ISTEM; Wave Equation; Mathematics**
Session Chair: **Dr. Richard Ford**

III. Pairing Developmental Math Support with General Education Science for Underprepared First Year Students

The California State University admissions process admits students who are underprepared for math/quantitative reasoning (QR) and English with the caveat that they must receive developmental support in these subject areas. In this session we provide comparative data regarding student learning outcomes for prepared and underprepared students enrolled in general education (GE) science courses. The underprepared students were provided co-requisite supplemental QR support.

Q: *What are some examples of math content found in the GE science courses?*

A: *Unit conversions, geometry applications, proportionate scaling, volume and mixture problems, basic decimal and percent problems are all typical applications found in the GE science classes.*

Authors/Presenters:

Dr. Elizabeth Boyd
Department of Agriculture
California State University
Chico, California

Dr. Richard Ford
Dept. of Mathematics & Statistics
California State University
Chico, California

ADDITIONS to Co-authors:

Rick Danner
Suzie Jauregui
Dr. M.E. Matthews
Ana Medic
Courtney Silver
Claire-Marie Kooi
Eric Willard

California State University
Chico, California

Chris Brown
Paul Bailey
Rebecca Brunelli
Dr. LaDawn Haws
Dr. Kristen Kaczynski
Dr. Hossein Zakeri
Pam Morrell

California State University
Chico, California