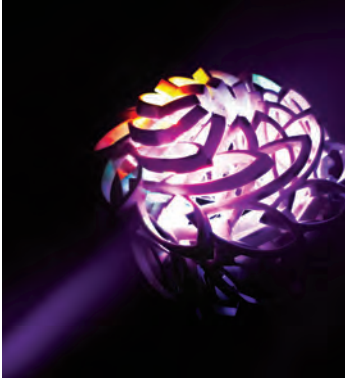14th ANNUAL
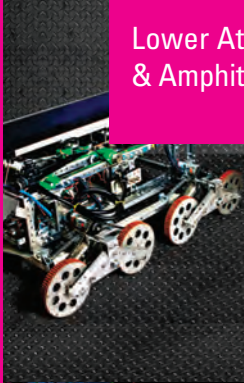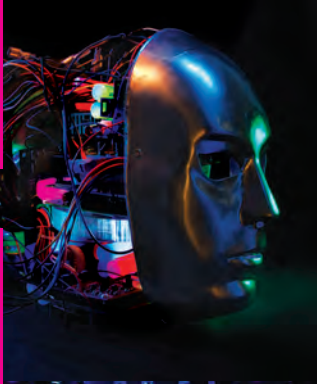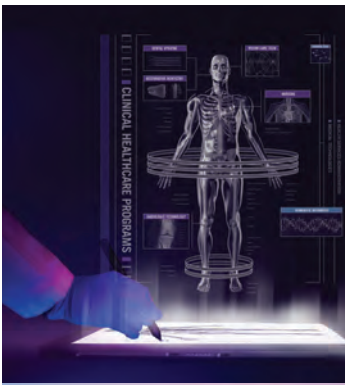POSTER SESSION

A Showcase of City Tech Faculty and Students' Research and Publications

11.17.2016
1:00-4:00 pm
Lower Atrium & Amphitheater

BIOLOGY AND HEALTH SCIENCES	**BUSINESS**	**CHEMISTRY**
COMPUTER ENGINEERING AND INFORMATION SYSTEM TECHNOLOGY	**EDUCATION**	**ENGINEERING AND ARCHITECTURAL TECHNOLOGY**
HOSPITALITY	**HUMANITIES, SOCIAL SCIENCES AND ENGLISH**	**LIBRARY**
MATHEMATICS	**PHYSICS**	The program is organized by topics rather than by departments. Frequently the presentations are cross-disciplinary or difficult to assign to the discipline represented by the department with which the presenter is affiliated.

WELCOME AND GREETINGS

ATRIUM AMPHITHEATER

1:00 pm–1:10 pm

Dr. Russell Hotzler
President

Dr. Bonne August
Provost

1:10 pm–1:35 pm

Selected 1 minute Poster's presentation by faculty

SELECTED 1 MINUTE POSTER'S PRESENTATION BY FACULTY

1:10 pm-1:35 pm
Atrium Amphitheater

1 Jeremy Seto, Jose Moreno, and Javier Gonazalez-Maeso, Microbiome Modulation in Maternal Immune Activation in Murine Psychiatric Models.

2 Virginia Curran, Death Café – Welcoming Discussion about Death over Tea and Cake!

3 Alyssa Dana Adomaitis, Caroline Kobia, and Diana Saiki, Developing an Attitudinal Model of Collaborative Consumption: Moderating Effects of Consumer Traits and Situational Factors.

4 Justin Christopher, Katiana Henri, Yadash Bankay, and Aparicio Carranza, Virtual and Physical Implementations of OpenStack.

5 Mary Ann Biehl and María Giuliani, Commute2Brooklyn.

6 Benito Mendoza, On Applying Bio-Inspired Algorithms for the Automated Design of Combinational Logic Circuits.

7 Dominica Sim and Farrukh Zia, CityTech's Fashionable Robot.

8 Bridget Maley and Patricia Garofalo, Use of Dimensional Analysis to Reduce Medication Errors in Associate Degree Nursing Students.

9 Fangyang Shen, Janine, Roccosalvo, Kendra Guo, and Nanase Akagami, Research on STEM Teacher Mentorship and Recruitment.

10 Alexander Aptekar, Vertical Energy Wall Analyzed.

11 Angran Xiao, Process Optimization in Rapid Tooling for Thermoformed Products

12 Kylie Garcelon, It's Not Peking Duck: A Documentary Film Exploring the Origin, Misinterpretation and Transformation of Asian Barbeque Duck Preparations.

13 Mary Nilles, City Tech Campus Area Tours: Celebrating Our History, Saving Our Legacy.

14 Parvaneh Pourshariati, Emperor Heraclius and Prophet Muhammad: A Case of Historiographical Mimicry.

15 Jeannine Foster-McKelvia, The Intersection of African-American Oral Traditions and African-American Theatre.

16 Sean P. Macdonald, Has Stagnant Real Earnings Growth Contributed to an Uneven U.S. Housing Market Recovery Following the Great Recession?

17 Farrin Chwalkowski, Symbols in Arts, Religion and Culture: The Soul of Nature.

18 Kimberley Bugg, Creating the Leadership You Seek: A Workforce Planning Model for Academic Libraries.

19 Caner Koca, New Examples of Four-Dimensional Compact Einstein-Maxwell Spaces.

20 Hans Schoutens, How to Recognize a Plane when You See One.

21 Ariyeh H. Maller, Kate Storey-Fisher, and Julien Devriend, A Practical Definition of Halo Mass.

22 Leonid M. Pomirchi, Bose-Einstein Condensate of Excitons in a Trap. Formations of Rotating Solitons

23 Hamid Norouzi, Satya Prakash, and Reginald Blake, A Novel Approach for Freeze/Thaw Detection Using Satellite Emissivity Estimates.

24 Matthew Brunetti, Optical Transitions of Excitons in Monolayer and Bilayer Transition Metal Dichalcogenides.

POSTER SESSION

1:00 pm-4:00 pm
Lower Atrium

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2 Frank R. Viloria and Subhendra N. Sarkar. Radiologic Characterization, Going beyond Detection of Multiple Myeloma: a Meta Analysis.

3 L. Karthikeyan, F.S.Ozen, and S.M.Lipson. CystiCran® 40 Enhances the Infectivity/Detection of Rotavirus in Epithelial Cells.

4 Aida L. Egues and Lisette Santisteban. Testing a Strategy: Facilitating NCLEX-RN Pass Rate Increase with Expedience.

5 Anna Matthews and Aida L. Egues. Trends in Mirroring Populations Served: An Opportunity for Progress in Nursing and Dental Hygiene Professions.

6 Katherine Gregory. Reconstructing the self through genetic health markers.

7 Linda Paradiso. The Relationship Between Just Culture, Trust and Patient Safety.

8 Subhendra N. Sarkar. Perfusion Abnormalities in Chronic Fatigue Syndrome Induced by Mild Head Trauma

9 Subhendra N. Sarkar. Ultra-Low Power MRI Techniques for Safe Planning and Monitoring Deep Brain Stimulation Treatments in Patients with Untreatable Parkinsonism.

10 Jean Garces, Travika Sewrattan, and Subhendra Sarkar. Emergency department crowding in non-rural areas - a statistical analysis.

11 Virginia Curran. Death Café – Welcoming Discussion about Death over Tea and Cake!

12 Janet Cordero and Subhendra Sarkar. Lung Cancer Screening Accuracy by PET/CT – A Review.

13 Mercer R. Brugler, Tatiana Voza, Craig Dawes, Colin Joseph, Juanita Marin, Nicole Bellaflores-Mejia, Sheila Moaleman, Lysna Paul, Samantha L. Goldman, Ralph Alcendor, Dennis Opresko, Daniel Wagner, Rob Stewart, Sadie Mills, Di Tracey, and Kevin G. MacIsaac. Molecular Characterization of the Black Coral Telopathes Cf. Magna from Deep Waters Around New Zealand, Antarctica (Ross & Somov Seas) and Hawai'i.

14 Mai Zahran, Andreas Mardt, and Petra Imhof. Effect of Uracil-Guanine Mispair on the Water Diffusion.

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15 Tsun-Yin (Tracie) Tung. The Relationship Between Choice Overload and Consumers' Apparel Online Shopping Experience.

16 Alyssa Dana Adomaitis, Caroline Kobia, and Diana Saiki. Developing an Attitudinal Model of Collaborative Consumption: Moderating Effects of Consumer Traits and Situational Factors.

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17 Alberto Martinez, Tanzeen Rahman, Ralph Alcendor, Magdalena Podgorny, Ismaila Sanogo, and Rebecca McCurdy. Novel Ionophoric Polyphenols Display Potent Antioxidant And Antiamyloidogenic Properties And Are Non-toxic Towards Tetrahymena thermophila.

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18 Justin Christopher, Katiana Henri, Yadash Bankay, and Aparicio Carranza. Virtual and Physical Implementations of OpenStack.

19 Mohammed Islam and Chein Chang Li. Implementation of Multiple WebHosting on Virtual Machine and IIS 8 Centralized SSL Certificates Support with ASP. NET Configuration Management Exploration.

20 James Hanley, Emily Gonzalez, Kathdy Pril-Jackson, and Harrison Carranza. Basic Cryptographic Techniques for Deciphering Messages Using CAP4.

21 Marcos Pinto and Travis Simon. Web Robots: Good or Bad But a Necessity.

22 Danny Moonasar, Imran Hossein, Justin Wong, and Aparicio Carranza. Home Automation for Everyone.

23 Mihail Russkin, Daanish Bhamla, and Aparicio Carranza. Implementing Multiple VMware ESXi Servers.

24 Mary Ann Biehl and María Giuliani. Commute2Brooklyn.

25 Josue Magallanes, Javier Espinal, Edward Lam and Aparicio Carranza. Use of Wifite and Reaver for Gaining Access to Wireless Networks.

26 Dominica Sim and Farrukh Zia. CityTech's Fashionable Robot.

27 Chen Xu and Puyun Guo. Design of a Compact Near-infrared Optical Imaging System.

28 José M. Reyes Álamo. An Analysis of Content Management Systems for Implementing Search Engine Optimization.

29 Benito Mendoza. On Applying Bio-Inspired Algorithms for the Automated Design of Combinational Logic Circuits.

30 Janusz Kusyk. Game Theory and Genetic Algorithm Based Method for Self-positioning of Nodes in Mobile Ad-hoc Networks and Techniques for Evaluating Their Performance.

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31 Mary Palmer, Bridget Maley and Margaret Rafferty. Progression and Retention Policies in Nursing Prelicensure Education.

32 Anne Leonhardt, Sandra Cheng, Satyanand Singh, and Peter Spellane. Electronic Maps, Social Robots, and Spatial Printing: The Cultural and Mathematical Roots of Digital Technologies.

33 Aida L. Egues. A Handbook on Mentoring Students in Undergraduate Research: Proven Strategies for Success.

34 Bridget Maley and Patricia Garofalo. Use of Dimensional Analysis to Reduce Medication Errors in Associate Degree Nursing Students.

35 Rachel Raskin. Assessing the Impact of Active Learning and Literacy Strategies in an Introductory Accounting Course.

36 Fangyang Shen, Janine, Roccosalvo, Kendra Guo, and Nanase Akagami. Research on STEM Teacher Mentorship and Recruitment.

37 Ashwin Satyanarayana and Mariusz Nuckowski. Using Data Mining to Predict Student Academic Performance.

38 Jaclyn Mina and Subhendra Sarkar. Job Prospects for Fresh New York Radiologic Technology Graduates as Compared to the National Trend.

39 Kathleen Falk and Bridget Maley, Appreciative Inquiry for Equity in Children's Health Outcomes: Brownsville Community Action Research.

40 Subhendra Sarkar, Chen Xu, Samsur Rahman, and Niloufer Haque. Elective Laboratory Design in Material Biology and Tissue Engineering: A Low Budget Effort by Undergraduate Scientist Educators.

41 Ohbong Kwon, Chen Xu, and Juanita C. But. Reading matters in First Year Electrical Circuits Course.

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42 Joseph Vidich, Michael DiCarlo, Allon Morgan, Shadeen Dixon, Heraldi Sadmojo, Mimu Sakuma, and Claudia Tupayachi. Iris Pavilion: Thresholds of Perception in Architectural and Virtual Space.

43 Alexander Aptekar. Vertical Energy Wall Analyzed.

44 Angran Xiao. Process Optimization in Rapid Tooling for Thermoformed Products.

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46 Unurjargal Nyambuu. Globalization and Its Implications for the Income Inequality and Labor's Share.

47 Mary Nilles. City Tech Campus Area Tours: Celebrating Our History, Saving Our Legacy.

48 Javiela Evangelista. This Is a Civil Genocide: Testimonies of Denationalization in the Dominican Republic.

49 Aaron Barlow. Doughboys on the Western Front.

50 Parvaneh Pourshariati. Emperor Heraclius and Prophet Muhammad: A Case of Historiographical Mimicry.

51 Emilie Boone. Mapping Points of Contact: Harlem's Photography Studios of the Early Twentieth Century.

52 Jeannine Foster-McKelvia. The Intersection of African-American Oral Traditions and African-American Theatre.

53 Lisa Pope Fischer. Symbolic Traces of Communist Legacy in Present Day Hungary: Experiences of a Generation That Lived During the Socialist Era.

54 Sean P. Macdonal., Has Stagnant Real Earnings Growth Contributed to an Uneven U.S. Housing Market Recovery Following the Great Recession?

55 Eli Neugeboren. Drawing the News.

56 Farrin Chwalkowski. Symbols in Arts, Religion and Culture: The Soul of Nature.

57 Annie Ngana-Mundeke, Climate Change, Global Warming, Hurricanes, and Their Impacts: The Case of the Hurricane Matthew..

58 Anita Giraldo. Democrat Spoken Here. A Typographic Artwork.

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60 Kimberly R. Abrams, Junior Tidal. Electronic Resource Management with YOURLs.

61 Kimberley Bugg. Creating the Leadership You Seek: A Workforce Planning Model for Academic Libraries.

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63 Caner Koca. New Examples of Four-Dimensional Compact Einstein-Maxwell Spaces.

64 Hans Schoutens. How to Recognize a Plane when You See One.

65 Boyan Kostadinov. Limiting Forms of Iterated Circular Convolutions of Skew Polygons in Rm.

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66 B. Zhu, P. I. Borel, T. Geisler, R. Jensen, L. Leng, X. Jiang, D. W. Peckham, R. L. Lingle Jr., M. F. Yan, P. W. Wisk, and D. J. DiGiovanni. 800-Gb/s (8x128-Gb/s) Unrepeatered Transmission over 515-km Large-area Ultra-low-loss Fiber using 2nd-order Raman Pumping.

67 Ariyeh H. Maller, Kate Storey-Fisher, and Julien Devriend. A Practical Definition of Halo Mass.

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70 Hamid Norouzi, Satya Prakash, and Reginald Blake. A Novel Approach for Freeze/Thaw Detection Using Satellite Emissivity Estimates.

71 Oleg Berman and Roman Kezerashvili. High-temperature Superfluidity in a Transition Metal Dichalcogenide Bilayer.

72 Ray D. Sameshima. Integrand Reduction Reloaded; Algebraic Geometry and Finite Fields.

73 Matthew Brunetti. Optical Transitions of Excitons in Monolayer and Bilayer Transition Metal Dichalcogenides.

ABSTRACTS OF PRESENTATIONS

BIOLOGY AND HEALTH SCIENCES

Microbiome Modulation in Maternal Immune Activation in Murine Psychiatric Models

Jeremy Seto[1], Jose Moreno[2], and Javier Gonazalez-Maeso[2]
[1]Biological Sciences, New York City College of Technology
[2]Physiology and Biophysics, Virginia Commonwealth University

Human patients afflicted with neuropsychiatric illnesses have presented with significantly higher levels of circulating inflammatory cytokines independent of infection. Maternal Immune Activation is a model where pregnant mice react to infection/stress in a manner that influences the psychiatric outcome of offspring at adulthood. Mice succumb to symptomology reminiscent of schizophrenia as adults. Fetal mouse brains were analyzed to determine cytokine levels as a system of biomarkers for the disease state that may illuminate an underlying etiology from neurodevelopment alterations. The impact of the gut microbiome in maintaining neuroimmunomodulatory effects on psychiatric state from these mice illustrate significant changes.

Radiologic Characterization, Going beyond Detection of Multiple Myeloma: a Meta Analysis

Frank R. Viloria and Subhendra N. Sarkar / Department of Radiologic Technology and Medical Imaging

This work compared various radiology research efforts for the past 15 years to identify the most cost-effective and comprehensive tool for detecting and early staging of multiple myeloma (MM), a complex bone cancer with a 3-year survival period if detected late. Over the years researchers observed plain radiographs or plain CT, which provide high resolution of bone, economical and readily available but not adequate for early detection of MM. By adding physiological information from PET, the radiation, cost and characterization go up and PET/CT combination performs almost as well as MRI. However, for better treatment cancer physiology is more important than anatomy. Hence, PET/MRI based molecular and cellular physiology, although costly, may become the most favored approach for patients with MM.

CystiCran® 40 Enhances the Infectivity/ Detection of Rotavirus in Epithelial Cells

L.Karthikeyan[1], F.S.Ozen[2], and S.M.Lipson[2]
[1]New York City College of Technology, CUNY, [2]St. Francis College

CystiCran® 40 (C-40), was found to significantly increase the rotavirus infectivity titers after several days in host cell cultures. Measurement of transepithelial electrical resistance in monkey kidney epithelial cell (MA-104) cultures, revealed a premature loss of tight junction integrity by virus/C-40 treatment. TEM revealed amorphous virus particles 3 days post inoculation, compared with that of EGCG-treated virus or the positive control. The ramifications of our findings are significant, as the use of C-40 in routine viral screening has the potential of affecting increased rates during sample testing for the detection of currently circulating as well as new and re-emerging viruses.

Testing a Strategy: Facilitating NCLEX-RN Pass Rate Increase with Expedience

Aida L. Egues and Lisette Santisteban / Nursing Department

Faculty, professional, societal, and student implications illustrate the importance of student success in passing the NCLEX-RN® for licensure to practice. Pass rate success is a critical benchmark for nursing programs; it determines accreditation, helps to meet society's nurse staffing supply and demand needs, and validates basic student competence in nursing practice and theory. Faculty and student morale, institution and program reputation, and student enrollment are likewise influenced by examination pass rates. Abrupt declines in pass rates on the NCLEX-RN® examination necessitate a prompt, proactive response.

Trends in Mirroring Populations Served: An Opportunity for Progress in Nursing and Dental Hygiene Professions

Anna Matthews[1] and Aida L. Egues[2]
[1]Dental Hygiene Department, [2]Nursing Department

Eliminating health disparities includes increasing practitioners that more closely mirror the diversity of populations served. Institutional trends over a ten-year academic period (2005-2014) at NYCCT were examined with respect to racial/ethnic composition of Dental Hygiene and Nursing associate degree program graduates and compared to national professional and 2010 New York City and United States Census findings. Overall, racial and ethnic minority groups at the institution were better represented when compared to national professional statistics but the racial/ethnic composition of graduates was not representative of the local New York City population, and hence, fail to reflect populations served.

Reconstructing the Self Through Genetic Health Markers

Katherine Gregory / Health and Human Services Department

Direct-to-consumer genetic testing kits increasingly promise personalized genetic information on demand. With access to their individual genome, consumers have reaped contestable genetic knowledge that repositions concepts of ethnic/racial ancestry, "pre-illness" state, and structures of meaning assigned a "core" genetic identity. Using autoethnographic, in-depth interviews, and data scraping methodologies to map the process of discovery, this research aims at understanding how the social construction of identity assigned to health markers and the body, a locus of scientific inquiry in which bio-technology and big data increasingly trump all other forms of knowledge production, are understood through a feminist phenomenological lens.

The Relationship Between Just Culture, Trust and Patient Safety

Linda Paradiso / Nursing Department

An environment of trust and fairness known as "Just Culture" is required to promote the culture of safety. Employees must perceive that they will receive fair and just treatment when reporting near misses and incidents, which encourage organizational improvements that impact patient safety. This study, currently in progress, will describe the relationship between the nurses' perception of Just Culture, trust, and the impact of these perceptions on voluntary reporting of incidents. It will examine whether a Just Culture environment is a trusting environment, where voluntary reporting of incidents is ingrained in staff behaviors which ultimately impact patient safety outcomes.

Perfusion Abnormalities in Chronic Fatigue Syndrome Induced by Mild Head Trauma

Subhendra N. Sarkar / Department of Radiologic Technology and Medical Imaging

Mild traumatic brain injury (mTBI) often induces neuropsychiatric deficits including chronic fatigue syndrome (CFS). In CFS, frontal and temporal lobes have often showed abnormal perfusion or MR spectroscopic abnormalities. This work assessed radioisotope perfusion patterns in 8 patients carefully selected without prior psychiatric conditions who have developed CFS (primary or secondary diagnosis of CFS/1994 CDC criteria) within two years after mTBI and were imaged by 99mTc-ECD brain SPECT with early/delayed tomographic reconstructions. The majority of the patients (7/8) had perfusion deficits in the left frontal or left temporal lobes during delayed tracer retention while the early distribution of tracer was normal. Additionally 3/8 patients showed excess isotope distribution in the temporal lobe as well as in the tissues adjacent to venous drainage system.

Ultra-Low Power MRI Techniques for Safe Planning and Monitoring Deep Brain Stimulation Treatments in Patients with Untreatable Parkinsonism

Subhendra N. Sarkar / Department of Radiologic Technology and Medical Imaging

Untreatable (medically refractory) Parkinson's is often treated with deep brain stimulation (DBS) and managed with MRI but only under severe hardware and radiofrequency power restrictions to avoid brain tissue heating. The images are often suboptimal but help to rule out brain bleed, infection and electrode placement accuracy. In this work at Beth Israel Deaconess Medical Center, Boston we developed a set of brain MRI sequences including white matter diffusion tractography and resting state fMRI for Parkinson's patients with implanted DBS electrodes at ultra-low radiofrequency power. The resulting images preserved the brain tissue contrast, the white matter connectivity and functional network maps with minimal interference from the metalic leads and were adequate for neurological assessment and additional surgical planning.

Emergency Department Crowding in Non-rural Areas - A Statistical Analysis

Jean Garces, Travika Sewrattan, and Subhendra Sarkar / Department of Radiologic Technology and Medical Imaging

Increased ED wait-times in non-rural areas: 34 minutes for EDs with < 20,000 to 70 minutes in EDs with >50,000 annual visits are analyzed. This work is comprised of the following six analyses: between 1990 and 2009, the number of hospital-based ED's in non-rural areas decreased by 27%, ED visits increased by 44%, ED utilization increased by 18%, 10% patients leave before ED testing or find alternatives, ED patients need Radiology services but are provided by < 1.5 Radiologic Technologists/1000 workers in non-rural areas and by >2/1000 workers in rural areas, and the high ED visits contribute negatively to ED revenues due to inadequate insurance for many in non-rural ED's. All of these perhaps will continue leading to further technologist shortage, patient diversions, greater ED delays and further revenue loss.

Death Café – Welcoming Discussion about Death over Tea and Cake!

Virginia Curran / Nursing Department

Significance/Background: the topic of death and dying has become increasingly uncomfortable, even taboo, in today's death-denying culture. People can sometimes reach the age of 35-40 without ever having experienced the death of a loved one, leaving them ill prepared to process a death and filled with questions, fears, and uncertainties. Death Cafés are based on the work of Swiss sociologist Bernard Crettaz who began holding "café mortels" in 2004 in Switzerland and France. These "café" gatherings were fashioned after a European tradition of "café philosophiqes" where people would meet in informal ways to discuss ideas or common interests. In 2010 London web designer, Jon Underwood began a website for Death Cafés. Lizzy Miles, a hospice and palliative care social worker learned of the idea and held the first Death Café in 2012 in Ohio. Since then, there are over 1600 Death Cafes meeting in the U.S. and approximately 3000 worldwide.

Purpose: investigate the experience of participants in Death Cafes in the United States.

Conceptual Framework: Pamela Reed's theory of self transcendence is used to guide this qualitative research. This social concept theory examines the expansion of self-boundaries through the major concepts of self-transcendence, well-being, and vulnerability. The forum of the "Death Café" allows for human interaction and discussion around an important under- discussed topic for many people.

Methods: utilizing an interpretative phenomenological approach, data including lived experiences from Death Café attendees is collected using both interview and observational methods to describe this new grassroots movement.

Lung Cancer Screening Accuracy by PET/CT – A Review

Janet Cordero and Subhendra Sarkar / Department of Radiologic Technology and Medical Imaging

Nuclear Medicine/Molecular Imaging in Radiology is a useful modality to characterize pathological conditions including tumors. We reviewed the staging accuracy for the past decade of two main types of lung cancers. Combined PET/CT screening of "Small cell lung cancer and Non-small cell lung cancer" have higher detection accuracy than either modality alone or by other methods. It has helped patient survival rate by early and reliable staging leading to timely surgical tumor resection. However drugs to date have shown no real benefit for improving patient survival. Clinical PET/CT (costing $2000-$5000) has lowered unnecessary surgeries while investigational PET isotopes in academic research centers are offering further promise.

Molecular Characterization of the Black Coral Telopathes Cf. Magna from Deep Waters Around New Zealand, Antarctica (Ross & Somov Seas) and Hawaiʻi

Mercer R. Brugler[1,2,4,] Tatiana Voza[1], Craig Dawes[1], Colin Joseph[1], Juanita Marin[1], Nicole Bellaflores-Mejia[1], Sheila Moaleman[1], Lysna Paul[1], Samantha L. Goldman[3], Ralph Alcendor[1], Dennis Opresko[4], Daniel Wagner[5], Rob Stewart[6], Sadie Mills[6], Di Tracey[6] and Kevin G. MacIsaac[7]
[1]NYC College of Technology, CUNY; [2]American Museum of Natural History, Sackler Institute for Comparative Genomics; [3]University of Maryland; [4]Smithsonian Institution National Museum of Natural History; [5]NOAA's Papahanaumokuakea Marine National Monument; [6]National Institute of Water & Atmospheric Research Ltd; [7]Department of Fisheries and Oceans Canada, Bedford Institute of Oceanography

Antipatharians are a deep-water group with ~75% of the 247 species occurring at depths >50m. The most recent genus to be described is Telopathes and is only known from the western North Atlantic. We obtained thirteen colonies that resemble T. magna from waters surrounding New Zealand and Antarctica. We also received a T. cf. magna colony collected near O'ahu. To determine the relatedness of these specimens to the western North Atlantic T. magna, we analyzed three mitochondrial regions and two nuclear genes. These data have the potential to significantly extend the known range of T. magna and/or elucidate new species.

Effect of Uracil-Guanine Mispair on Water Diffusion

Mai Zahran[1], Andreas Mardt[1,2], and Petra Imhof[2]
[1]Biological Sciences Department, NYCCT; [2]Physics Department, Frei Universitat, Berlin

The repairing of wrong base pairs in DNA plays an important role in maintaining information stored in the DNA. However, it is still unclear how a repair enzyme is capable of finding a mutation within the very large amount of base pairs present in DNA molecules. In the present work, we investigated the effects of a Uracil-Guanine mispair on the structure of the DNA as well as on the static and dynamic properties of the surrounding water. Molecular Dynamics Simulations with the DNA in a water box were used to calculate structure parameters. Additionally, the density and the dynamics of the water molecules near the DNA were estimated. The structure shows a distinctly different behavior for the Uracil-Guanine-Mispair and the water molecules are slowed down near the uracil mutated base. Both facts could enhance the possibility that the enzyme can find the wrong base pair.

BUSINESS

The Relationship Between Choice Overload and Consumers' Apparel Online Shopping Experience

Tsun-Yin (Tracie) Tung / Department of Business

The purpose of the study was to investigate what evaluative responses consumers have to form their attitude in the context of facing too much choice during online shopping. Both focus group and questionnaire data collection methods were conducted. The focus group results helped to understand the relationship between choice overload and consumers' apparel online shopping experience, such as favorable and unfavorable shopping experiences in relation to website designs/navigations. The questionnaire results confirmed that a consumer's internal responses consist of three components, affective, behavioral, and cognitive, that form a person's attitude in the specific context.

Developing an Attitudinal Model of Collaborative Consumption: Moderating Effects of Consumer Traits and Situational Factors

Alyssa Dana Adomaitis[1], Caroline Kobia[2], and Diana Saiki[3]
[1]The New York College of Technology, CUNY; [2]Mississippi State University, Mississippi; [3]Ball State University, Indiana

Collaborative consumption (CC) is referred to as "sharing economy, peer economy, collaborative economy, crowdsourcing, and the maker-movement" (Botsman, 2015). It is built on the notion of "what's mine is yours" and consumption behavior include sharing, borrowing, lending, and exchanging skills for goods (Gutkowska, 2015). Students of the new millennium are young enough to recall their childhood days of negotiating toy play, borrowing games, and trading with friends (Aquise, 2015). There is a behavioral shift in millennium consumer consumption whereas owners of certain personal assets are sharing for a profit in the digital marketplace. The objective of the current study is to propose an attitudinal model for CC as it relates to fashion retail apps to illustrate the moderating effects of consumer traits and situational factors on the relationship of social media usage and gratification. This helps: (1) understand if fashion is particularly amenable to CC; (2) investigate usage patterns more accurately; and (3) examine whether fashion consumers indeed show different behavior patterns that match the altruistic (sustainability) versus individualistic (economic benefits) motivations.

CHEMISTRY

Novel Ionophoric Polyphenols Display Potent Antioxidant and Antiamyloidogenic Properties and Are Non-toxic Towards Tetrahymena Thermophila

Alberto Martinez,[1] Tanzeen Rahman,[1] Ralph Alcendor,[2] Magdalena Podgorny,[1] Ismaila Sanogo,[1] and Rebecca McCurdy[1]
[1]Department of Chemistry, [2]Department of Biology

Alzheimer's disease (AD) is the most common form of dementia affecting more than 28 million people in the world. Only symptomatic treatments are currently available. Anticipated three-fold increase of AD incidence in the next 50 years has established the need to explore new possible treatments. In this work, a series of 5 disease-modifying and multi-target ionophoric polyphenols, inspired on the structure of natural resveratrol, have been synthesized and characterized. All compounds are non-toxic and show in vitro ability to inhibit important biochemical processes involved in AD. Therefore, herein we present a promising alternative as a potential treatment for AD.

COMPUTER ENGINEERING AND INFORMATION SYSTEM TECHNOLOGY

Virtual and Physical Implementations of OpenStack

Justin Christopher, Katiana Henri, Yadash Bankay, and Aparicio Carranza / Computer Engineering Technology Department

OpenStack is a library of Open Source Software projects that forms the foundation for creating private and public cloud solution distributions. Cloud solutions rely on remote servers hosted on the Internet rather than local systems. OpenStack is composed of core segments (Nova, Neutron, Glance, Keystone, Horizon, Ceilometer, etc.) - Neutron, the networking module, implements services and associated libraries to provide on-demand, scalable and technology-agnostic network abstraction layer support. In this project, we report and contrast the advantages and disadvantages of implementing the OpenStack Neutron module running in a Virtual Environment and then in a physical server with Ubuntu server OS.

Implementation of Multiple WebHosting on Virtual Machine and IIS 8 Centralized SSL Certificates Support with ASP.NET Configuration Management Exploration

Mohammed Islam and Chein Chang Li / Computer Systems Technology Department

Our research focuses on the use of a virtual mechanic that runs on the Windows Server 2012, which acts as a host. The Linux and Windows 10 operating systems are installed and configured as guest operating systems. The three operating systems are bridge-networked. We then configure multiple websites hosting on Windows and Linux based operating systems, utilizing domain name system (DNS) to support web developers. In addition, we explore IIS 8 centralized SSL certificates support future and ASP.NET 4.5 configuration management on different Web Server platforms. The result of this project is to expand our knowledge in building a secure web infrastructure, physically and virtually on a portable developmental laptop.

Basic Cryptographic Techniques for Deciphering Messages Using CAP4

James Hanley, Emily Gonzalez, Kathdy Pril-Jackson, and Harrison Carranza / Computer Systems Technology Department

The proliferation of Internet connectivity and ever evolving technology have brought security as a focal point for developing techniques to protect our data and information. There are incidents occurring all over, from small intrusions such as hacking into someone's social media account to breaches into large corporations. The use of cryptography can help us to mitigate the exposure of data to the praying eyes of unauthorized users. We present results of exploring Block Ciphers Mode, Data Encryption Standard, Advanced Encryption Standard, Classical Transposition Ciphers, and Vigenere Square Analysis as it applies to network security using the CAP4 solution.

Web Robots: Good or Bad but a Necessity

Marcos Pinto and Travis Simon / Computer Systems Technology Department

Web robots or bots are software applications that run automate tasks in the Internet, i.e., requests and responses that can be of benefit to their developers. Developers might be looking for special data located in Web pages, indexing and archiving Web sites, checking Web sites for errors, invalid links, email, etc. However, some developers also have mean intentions in their mind using Web bots for search and data mining with purposes of hurting the Web site owners in one form or another. We will develop a simple 'good' bot to handle HTTP requests and responses.

Home Automation for Everyone

Danny Moonasar, Imran Hossein, Justin Wong, and Aparicio Carranza / Computer Engineering Technology Department

With the development of Open Source Software, the Do-it-Yourself culture, and the availability of low-cost hardware, it is now feasible for most individuals to take advantage of creating their own Home Automation Systems. Automated Systems that we have explored are smart blinds, tea kettles, and fans. We have tested the viability of creating a low cost, scalable Home Automation System using Arduino Micro-controllers, Android Smart phones, and the Internet of Things that interconnects to both on these systems. We report the design, implementation, and cost effectiveness of each project in contrast to the current commercial solutions.

Implementing Multiple VMware ESXi Servers

Mihail Russkin, Daanish Bhamla, and Aparicio Carranza / Computer Engineering Technology Department

VMware vSphere leverages the power of virtualization to transform data centers into simplified cloud computing infrastructures and enables IT organizations to deliver flexible and reliable IT services. VMware vSphere virtualizes and aggregates the underlying physical hardware resources across multiple systems and provides pools of virtual resources to Data Centers. As a Cloud Operating System, VMware vSphere manages large collections of Infrastructure (such as CPUs, Storage, and Networking) as a seamless and dynamic operating environment, and also manages the complexity of a Data Center. The proof of concept implementation for the creation of multiple VMware ESXi Servers using vSphere is presented.

Commute2Brooklyn

Maryann Biehl and María Giuliani / Communication Design Department

Commuting is an experience we all share, whether it involves a few short steps, traversing waterways, highways, or transit systems.

Capturing images of our journeys provide opportunities to explore moments of difference and commonality. The base of the Kosciuszko Bridge connects the boroughs of Queens and Brooklyn and forms a common point where our commutes intersect. Construction to replace this bridge provides an opportunity to document how change in the physical landscape affects the commuters' common experience. Our research examines how designers respond to the evolving landscape and what may emerge from this cycle of observation and change.

Use of Wifite and Reaver for Gaining Access to Wireless Networks

Josue Magallanes, Javier Espinal, Edward Lam and Aparicio Carranza / Computer Engineering Technology Department

Connecting Wireless Access Point via a router has become the norm, giving users immediate access to the Internet. Routers have a WiFi Protected Setup feature, which allows easy connection by entering a PIN or holding a button for a certain period of time. This feature is being exploited by certain individuals to obtain the WiFi password illegally using the brute force and dictionary attacks method. The Kali Linux distribution offers various tools for testing the router's security configuration. We report the effectiveness of Wifite and Reaver tools for discovering the router's passwords in a contained environment following the ethical approach.

CityTech's Fashionable Robot

Dominica Sim and Farrukh Zia / Computer Engineering Technology Department

The New York City fashion industry is eager to use robotic mannequins but their high cost and specialized nature, as compared to normal static life-size mannequins, has prevented their adoption by the fashion industry. We have designed a robotic mannequin by using low-cost open source computer hardware and software and readily available, off the shelf construction material. A 3D body profile is created by using an innovative cardboard slice construction technique with the help of human body imaging and 3D CAD tools. Additional enhancements will allow customers to interact with the mannequin through their smart phone's wireless connectivity.

Design of a Compact Near-infrared Optical Imaging System

Chen Xu[1] and Puyun Guo[2]
[1] Computer Engineering Technology Department, New York City College of Technology; [2] Dynamic Research Instruments

Near infrared (NIR) optical imaging system can be used to quantify the properties of biological tissue, diagnose breast tumor, and assess tumor vasculature response to neoadjuvant chemotherapy. Here we present the design of a compact frequency domain diffusive optical imaging system. It consists of three component modules: the optical source module including the laser diodes at 780nm and 830 nm, the optical detection module with three Photon-multiplier reception channels, and the host Computer linked USB data acquisition (DAQ) and digital I/O module with customized software, which can be conveniently implemented under LabVIEW and Matlab , VC++/C#.

An Analysis of Content Management Systems for Implementing Search Engine Optimization

José M. Reyes Álamo / Computer Engineering Technology Department

Search Engine Optimization (SEO) refers to a series of principles and techniques used by webmasters in order to improve their website ranking on the search engines results page. As websites become more complex, webmasters rely more on the use of content management systems (CMS) such as Drupal, Joomla, and WordPress. As the number of websites grows every day, finding the right CMS that will help a particular type of website implement SEO becomes crucial. This poster lays the foundation for a future in-depth analysis of CMS in relation to their strength implementing SEO for different types of websites.

On Applying Bio-Inspired Algorithms for the Automated Design of Combinational Logic Circuits

Benito Mendoza / Computer Engineering Technology Department

In digital circuit design, an important goal is minimization. To reduce the circuit cost, designers aim to minimize the number of components utilized in the circuit. Minimization sometimes translates into an increase of system reliability and lower power consumption. The Automated Circuit Design Problem (ACDP) can be seen as an optimization problem aiming to reduce the number of components used in a functional circuit. Bio-Inspired Optimization Algorithms (BIOA) are inspired by natural systems (flocks of birds, schools of fish, etc.), where animals achieve robust and scalable group behavior by the distributed actions of their independent members. In this poster, we present our findings on applying BIOAs to the ACDP.

Game Theory and Genetic Algorithm Based Method for Self-positioning of Nodes in Mobile Ad-hoc Networks and Techniques for Evaluating Their Performance

Janusz Kusyk / Department of Computer Systems Technology

Mobile Ad-hoc Networks (MANETs) are infrastructureless wireless networks formed by autonomous mobile nodes. However, lack of a centralized controller, dynamic topology, and power limitations present challenges for effective distribution of self-governing MANET nodes. We propose a distributed and scalable technique implementing game theory and genetic algorithms for autonomous nodes to independently position themselves in an unfamiliar terrain. Our technique uses genetic algorithm with a force-scaling fitness function to find next locations to move that are evaluated by a game set up among neighboring nodes. We present quantitative techniques to assess network uniformity, area coverage, and distance traveled by each none.

EDUCATION

Progression and Retention Policies in Nursing Prelicensure Education

Mary Palmer, Bridget Maley and Margaret Rafferty / Nursing Department

Attrition is a major problem in associate degree nursing pre-licensure programs. Attrition rates have been reported as approximately fifty (50) percent in many programs. Progression policies determine the conditions under which a student can proceed in the nursing curriculum. Some programs requiring students to pass on the first registration while other schools allow students multiple attempts to succeed in their coursework. Despite the importance of these policies, research is scant. The purpose of this poster is to present a systematic review of the nursing literature on progression and retention policies in pre-licensure nursing programs in the United States.

Electronic Maps, Social Robots, and Spatial Printing: The Cultural and Mathematical Roots of Digital Technologies

Anne Leonhardt[1], Sandra Cheng[2], Satyanand Singh[3], and Peter Spellane[4]
[1]Department of Architectural Technology, [2]Department of Humanities, [3]Department of Mathematics, [4]Department of Chemistry

The NEH grant, A Cultural History of Digital Technology, is an eighteen-month interdisciplinary faculty development project designed to equip faculty from both STEM and humanities disciplines with an understanding of the cultural, historical, and philosophical dimensions of three major contemporary technologies that are focal points in City Tech's curriculum: Geospatial Technology, Digital Fabrication, and Robotics. The project centers on faculty seminars, public lectures, and the creation of teaching modules in the humanities, mathematics, and technology fields.

A Handbook on Mentoring Students in Undergraduate Research: Proven Strategies for Success

Aida L. Egues / Nursing Department

The multidisciplinary Undergraduate Research Committee (URC) at CityTech has proudly developed *A Handbook on Mentoring Students in Undergraduate Research: Proven Strategies for Success*. The vetted Handbook is a culmination of several semesters of work by trained faculty mentors across disciplines actively engaged in research with students. Students mentored in research have demonstrated a heightened awareness in collaborating with others, in disseminating peer-reviewed research findings in regional, national, and international forums, as well as in improving their analytical and critical thinking abilities. The *Handbook* is pioneering as a living guide for successful mentoring within a unique academic setting.

Use of Dimensional Analysis to Reduce Medication Errors in Associate Degree Nursing Students

Bridget Maley[1] and Patricia Garofalo[2]
[1]Nursing Department, [2]Adelphi University

Medication errors cause 7,000 deaths in the United States annually (Anderson & Townsend, 2015). Nurses are responsible to safely administer medication in the acute care setting. The introduction of a standardized medication calculation method in the academic setting may help decrease these errors. The use of dimensional analysis (DA) requires the student to use a single equation and learn one calculation process (Craig & Sellers, 1995). This retrospective study using Chi Square to demonstrate the use of dimensional analysis increased nursing students' mathematical computation competency and therefore may reduce nursing medication errors in practice.

Assessing the Impact of Active Learning and Literacy Strategies in an Introductory Accounting Course

Rachel Raskin / Department of Business

Content literacy, the ability to use reading and writing for the acquisition of new content (McKenna and Robinson 1990) is integral to accounting education. Reading and writing together facilitate higher order thinking such as synthesis and evaluation to clarify, refine and extend one's internalization of content (McKenna and Robinson 1990). The research of Kerr et al. (2004) supports the idea that effective comprehension and academic success depends on metacognitive processing, which during reading is pronounced by use of procedural and focused strategies invoked by the reader. Direct instruction of course material paired with active reading and writing assignments provides a platform for effective learning.

Research on STEM Teacher Mentorship and Recruitment

Fangyang Shen, Janine, Roccosalvo, Kendra Guo, and Nanase Akagami / Computer Systems Technology Department

New York City College of Technology (CityTech) is implementing a Noyce Phase I scholarship program that increases the number of highly qualified STEM teachers in high-need school districts in Brooklyn and the New York metropolitan area. The grant is roughly $1.45 million, from Jan. 1, 2014 to Dec. 31, 2018. We have produced a total of 8 new STEM teachers, over 300 Noyce Interns and Summer Program students in the past three years, as well as created a new STEM teacher preparation pathway. We conducted a lot of effective research on how to recruit and mentor STEM teachers. In this poster, we will summarize our Noyce project results and the research on Noyce scholar mentorship and recruitment.

Using Data Mining to Predict Student Academic Performance

Ashwin Satyanarayana and Mariusz Nuckowski / Computer Systems Technology Deaprtment

In the last decade, data mining (DM) has been applied in the field of education, and is an emerging interdisciplinary research field also known as Educational Data Mining (EDM). One of the goals of EDM is to better understand how to predict student academic performance given personal, socio-economic, psychological and other environmental attributes. In this work, we use multiple classifiers (Decision Trees-J48, Naïve Bayes and Random Forest) to improve the quality of student data by eliminating noisy instances, and hence improving predictive accuracy. We then empirically show that predictive accuracies of approximately 90% can be achieved using data mining techniques.

Job Prospects for Fresh New York Radiologic Technology Graduates as Compared to the National Trend

Jaclyn Mina and Subhendra Sarkar / Department of Radiologic Science and Medical Imaging

This work interviewed randomly selected eleven Radiologic technologists (RT) from New York metropolis graduated between 1981 and 2016 to explore their job search experience as fresh RT graduates. Approximately 1/3 found hospital based and the rest found outpatient or traveling technologist jobs within six month. Currently among 197,000 RT jobs nationally, greater New York has approx 14,000 positions with annual projected growth rate 2.4% or 400 RT's for next 3 years (approx. 70/30% entry/upper levels) while nationally projected annual RT job growth is 1%. In spite of a higher growth rate at present, non-rural areas like New York have only 1.5RT's/1000 jobs available while rural states have 2-2.5 RT's/1000 jobs indicating higher technologist productivity or less radiologic service in urban setting

Appreciative Inquiry for Equity in Children's Health Outcomes: Brownsville Community Action Research

Kathleen Falk and Bridget Maley / Nursing Department

The aim of this study was to engage all stakeholders in a shared vision and collective actions to reduce health disparities among children in Brownsville, Brooklyn. Health care resources in Brownsville are sparse and lack evidence-based practice standards. A Nurse-Led Community Advisory Council was developed and implemented to address these inequalities. Appreciative Inquiry was used by nursing faculty and students to facilitate stakeholder participation. Data were collected, an action plan was implemented, and it was evaluated after three months. A collective view emerged for bringing health care equity to this community. A Mission Statement and Vision has been created in Phase I.

Elective Laboratory Design in Material Biology and Tissue Engineering: A Low Budget Effort by Undergraduate Scientist Educators

Subhendra Sarkar[1], Chen Xu[2], Samsur Rahman[3], and Niloufer Haque[4]
[1]Departments of Radiologic Technology and Medical Imaging Department, [2]Computer Engineering Technology Department, [3]Mechanical Engineering Technology Department, [4]Biological Sciences Department

As healthcare players are merging to become mega players in search of profitability, biomedical innovators are opting for treatment using nanomedicine while eyeing at a $177B market by 2019. Unfortunately, without research emphasis. most undergraduate colleges are unaware of this disruptive innovation. Our group looked at potential research and training at modest budget that could fit well in undergraduate applied science and biomedical engineering curricula at New York City College of Technology. We found that, with external and internal collaborations we can develop Materials Biology experiments in Tissue Engineering for undergraduates. Examples of the nanofabrication and research learning could be fabrication of composite mimics of infected tissue and prosthesis articulations using 3D scaffolding followed by microscopic observation and analysis, and EEG/EKG detection and non-invasive imaging of human subjects. Even model tissue-drug interaction and controlled drug delivery could be studied on stressed target organs and tissue mimics.

Reading matters in First Year Electrical Circuits Course

[1]Ohbong Kwon, [1]Chen Xu, and [2]Juanita C. But
[1]Computer Engineering Technology Department, [2]English Department

In this paper, we will examine the challenges students face in reading to learn in EMT 1150. First, we will review the correlation between students' reading proficiency and their performance in the course. We will analyze the results of reading assessments administered in two sections (N=41) of EMT1150 in Spring 2016, which reveal students' level of ability to comprehend, analyze, and evaluate information in their textbooks. Secondly, we will look at how students' reading habits affect their performance in the course, which will shed light on how they study outside of the classroom.

ENGINEERING AND ARCHITECTURAL TECHNOLOGY

Iris Pavilion: Thresholds of Perception in Architectural and Virtual Space

Joseph Vidich, Michael DiCarlo, Allon Morgan, Shadeen Dixon, Heraldi Sadmojo, Mimu Sakuma, and Claudia Tupayachi / Department of Architectural Technology

The Iris Pavilion was part of a new International Fabrication Festival hosted by the Faculty of Architecture and the Built Environment and the Fabrication Laboratory at the University of Westminster. The festival featured over 50 innovative cardboard pavilions designed and built by students from Westminster as well as by guest teams from across the UK and around the world. CUNY's College of Technology was invited to participate and assembled a team of five students from the Department of Architectural Technology lead by Adjunct Lecturer Joseph Vidich.

The constraints of the festival rules limited each group to a three-meter square cube area and required each team to use cardboard as their primary building material. Conceptually our team developed the form as an architectural investigation into thresholds of haptic and visual perception. Sight lines and forced perspectives were strategically created in order to lead the viewer around, into and through the pavilion, at once allowing them to observe and be observed themselves. Each aperture or puncture defines a specific set of vantage points encouraging the viewer to circumnavigate the boundaries of the pavilion, eventually discovering the entrance.

The internal chamber of the Iris Pavilion, a cavity through which all the lines of sight are focused, houses three Virtual Reality headsets pre-programmed with immersive 3-dimensional landscapes of iconic New York City landmarks. The chamber itself, designed to barely accommodate three adults, forces users to negotiate the physical space surrounding them while simultaneously navigating the alternate 3-dimensional virtual realities of the headsets. The resultant effect is the conflation of the haptic awareness of the body with the disconnected visual perception of mind as occupied by a new, virtual world.

Vertical Energy Wall Analyzed

Alexander Aptekar / Department of Architectural Technology

This is an analysis of the vertical solar energy wall system developed and prototyped for the City Tech team DURA (Diverse | Urban | Resilient | Adaptable) Solar Decathlon project. The analysis looks at how successful the system was in utilizing the façade's light, thermal and solar electric energy. The analysis utilizes both energy balancing data from the Department of Energy monitoring the competition and project modeling. The analysis compares the project levels achieved in each of the energy harvesting categories and compares them to the exposure areas required for the project. Future design implications of the data are explored.

Process Optimization in Rapid Tooling for Thermoformed Products

Angran Xiao / Department of Mechanical Engineering Technology

3D printing technologies such as Fusion Deposition Modeling (FDM) provide new flexibilities for the thermoforming of customized products with complex geometries, such as dental moldings and orthotic devices. Besides being capable of printing thermoforming molds with less time and lower cost, the molds can be built with increased permeability, which will save the costs of designing and building venting systems. However, increasing permeability of a mold will inevitably deteriorate its mechanical strengths because the mold is "hollow". In order to study the properties of FDM molds including the permeability, compression strength and bending strength, a set of experiments are designed and carried out to construct regression models of these properties. The case study is an orthotic device; the molds are manufactured using optimized process parameters determined using these regression models.

HOSPITALITY

It's Not Peking Duck: A Documentary Film Exploring the Origin, Misinterpretation and Transformation of Asian Barbeque Duck Preparations

Kylie Garcelon / Hospitality Management Department

Peking Duck preparation may have begun during the 11th century and was prepared by specially trained chefs for China's most wealthy and elite. The unique flavors and crispiness of the duck's succulent skin became so popular that there are accounts of the meat being discarded and reserved for the servant's meal. Widespread migration was a catalyst for Peking Duck becoming a global food phenomenon. This has led to many interpretations of the original preparation, yet the original and traditional methods are still demanded by consumers today, and there are still chefs who have staunchly used the traditional and complicated methods.

HUMANITIES, SOCIAL SCIENCES AND ENGLISH

Globalization and Its Implications for the Income Inequality and Labor's Share

Unurjargal Nyambuu / Social Science Department

The functional distribution of national income between wages, rents and profits plays a fundamental role in determining income inequality. Historical data and analysis show that income inequality has risen significantly. While profit share in GDP increased, wage share in the GDP fell because of the lag in wage growth compared to productivity growth. Empirical estimations show that

labor's share is not stable and has an inverted U-shaped pattern for many countries. Globalization, with increased international trade, labor migration, off shoring and international investment, affected labor's bargaining position through specialization and factor mobility and partly contributed to the increase in inequality.

City Tech Campus Area Tours: Celebrating Our History, Saving Our Legacy

Mary Nilles / English Department

This project explores the development of the present-day City Tech campus in downtown Brooklyn, 1948-2016. Of special focus are buildings along Jay, Johnson (Tech Place) and Pearl streets, including Voorhees Hall, Midway, the Pearl Street Building, Namm Hall, the historic Klitgord Center, and the soon-to-be-completed new science complex. This ongoing initiative builds upon the previous creation of campus history exhibitions; it invites students in selected English classes to engage in research that honors City Tech's upcoming 70th anniversary. Project outcomes include Tour Guides, brochures, posters and short videos.

This Is a Civil Genocide: Testimonies of Denationalization in the Dominican Republic

Javiela Evangelista / African American Studies Department

In the Dominican Republic, a 2013 Constitutional Tribunal ruling retroactively revoked the citizenship of 200,000 Dominican nationals of Haitian descent, thus creating the fifth largest stateless population in the world and the largest in the Western Hemisphere. Without nationality, stateless people are habitually denied the right to vote, work, own or inherit property, receive government benefits, or travel. In response to state claims of legal legitimacy, this ethnographic research analyzes themes emerging from interviews with denationalized Dominicans in the Dominican Republic. A demonstration of resilience, their testimonies amplify the structural violence of racialized human rights violations.

Doughboys on the Western Front

Aaron Barlow / English Department

Through documents such as military communications, newspaper accounts, personal letters, divisional histories written soon after the end of hostilities, and other sources, readers glimpse the doughboy experience during World War I. The book covers training in the United States and in France, early participation in conflicts, daily life in the American Expeditionary Force, the major battles for American troops, and what returning home was like for those lucky ones. The assembled narrative of the war experience from many different voices and individuals creates a resource that enables a better understanding of attitudes and perspectives from 1918 through the very early 1920s.

Emperor Heraclius and Prophet Muhammad: A Case of Historiographical Mimicry

Parvaneh Pourshariati / Social Sciences Department

During my past and current research on the crucial events of the 7th century Middle East and the confrontations of the two major imperial powers directing the international scene as "archenemies,"—the Sasanians (224-651) in Iran, and to their West, the Eastern Roman (or Byzantine) Empire—confrontations that led to the near-collapse of these great empires at the hand of the Arab armies (the so-called "Islamic conquests"), I ran into several curious instances of synchrony: that between the march of significant events in the life of the Prophet Muhammad (570-632), in an ostensibly remote area in the Arabian peninsula, and that of the political career of Emperor Heraclius (575-641). In this poster, I will present several striking instances of this synchrony and will postulate that Islamic biographers—centuries later, in the Abbasid capital of Baghdad—had constructed this sacred(?) narrative of the Prophet to mimic that of the illustrious and revered Byzantine emperor Heraclius in an attempt to construct their narrative of origins and prophetology.

Mapping Points of Contact: Harlem's Photography Studios of the Early Twentieth Century

Emilie Boone / African American Studies Department

The African American photographer James Van Der Zee is central to scholarship on photography and early twentieth century Harlem. However, by considering a number of other Harlem-based studio photographers who ran businesses close to Van Der Zee's, a revised history of Harlem photography emerges. This poster presentation encourages viewers to better understand how one photographer worked diligently, not in isolation, but among a complex and rich world of studios in Harlem during the 1920s and 1930s.

The Intersection of African-American Oral Traditions and African-American Theatre

Jeannine Foster-McKelvia / African American Studies Department

Artists create art based on their personal experiences and the social and political circumstances in which they live. They use art to comment on these conditions, explore how people survive in their circumstances, suggest social and political changes, and make fun of human behavior. In whatever manner they choose to create, artists are recording the history of their times and on occasion interpreting the past. Oral folklore is the stories, myths, family and community histories passed down from generation to generation. In West African culture, the Griot

was charged with keeping these stories and histories. The art of historian and storyteller was passed down from father to son. The African oral tradition is alive in the new world; theatre and performance are the modern Griot. This paper will examine the intersection of the African-America oral tradition and theatre performance and text. It will explore how African-American playwrights record American history from an African-American perspective, telling their stories of survival from the Middle Passage to Black Lives Matter.

Symbolic Traces of Communist Legacy in Present Day Hungary: Experiences of a Generation That Lived During the Socialist Era

Lisa Pope Fischer / Social Science Department

This book shows how personal practices symbolically refurbish elements from the Communist era to fit present-day issues and challenges. Personal life histories from an older generation weave together case studies of gift giving, procurement strategies, harvest ritual, healthcare, and socialist kitsch to illustrate turns towards mysticism, neo-traditionalism, nostalgia, and nationalism. Some during the socialist era romanticized the future possibilities of a Western society, yet now given this reality and the unforeseen complications of it has given rise to nostalgia for this past, and for a lost way of life.

Has Stagnant Real Earnings Growth Contributed to an Uneven U.S. Housing Market Recovery Following the Great Recession?

Sean P. Macdonald / Social Science Department

The housing market recovery in the U.S. following the recession of 2008-09 has in many ways been atypical of earlier housing market recoveries. It is argued here that the recovery from 2011 through 2016 has disproportionately occurred among higher income earners, while improvement in the middle and moderate income sectors appears to have occurred later and to have been comparatively less robust. This has contributed to an uneven housing market recovery that largely mirrors the lag in real income growth among moderate and middle income households relative to higher income households.

Drawing the News

Eli Neugeboren / Communication Design Department

By adding a layer of subjective interpretation to our consumption of the news through the act of drawing, I feel like I am contributing a moment of quiet to the info stream. I choose the reference image based on the level of relative importance of the story or event and, at times, the personal reaction I may have to it.

Drawing the News started out with several parallel intentions:
1. Keep up with current events.
2. Add a level of consistent rigor to my practice.
3. Develop and hone my skills and visual style.

Symbols in Arts, Religion and Culture: The Soul of Nature

Farrin Chwalkowski / Department of Humanities

Nature has been an intimate part of the human experience from the earliest times. Different religions and cultures, from all corners of the world, have honored and worshiped nature in art, ritual and literature in their own unique ways. We find nature in woven fabric, as building ornamentation, even as the basis of social hierarchy. We learn about our own human nature, our own sense of identity and how we fit into the larger scheme of life and spirit when we come to better understand how our human ancestors, through art, symbol and myth, expressed their relationship with the natural world.

Climate Change, Global Warming, Hurricanes, and Their Impacts: The Case of the Hurricane Matthew

Annie Ngana-Mundeke / African American Studies Department

Hurricanes and natural disasters bring surprises that affect the mind as they claim human lives, destroy houses, public buildings, and devastate regions severely hit. This paper assesses new findings of the studies about climate change, global warming, hurricanes, natural disasters, and their impacts. It also measures the economic loss caused by Hurricane Matthew that has devastated areas in the United States: Florida, North Caroline, and South Caroline; and in Caribbean Islands-- Haiti, Jamaica, Cuba, Dominican Republic and the Bahamas-- October 2016.

Democrat Spoken Here. A Typographic Artwork

Anita Giraldo / Department of Communication Design

Democrat Spoken Here is a hand-painted typographic piece currently under research and development. It all begins with the font. A message is only as compelling as the font expressing it: Strong yet accessible, steady yet inviting, fun yet serious. The answer: Clarendon. Published in England in 1845 by a foundry employee, Clarendon is considered the first registered typeface. Its slab serif was well suited for rendering in wooden type slabs, and was therefore associated with wanted posters of the American Old West. This poster will present an illustrated treatment of the typeface Clarendon—the preliminary research for the typographic composition.

Understanding Predatory Publishing

Monica Berger / Library

Predatory publishing is difficult to discuss as well as challenging to define. It can be described as low-quality, amateurish and sometimes unethical academic publishing that is often open access. The 2013 "Bohannon Sting" in *Science* brought predatory publishing to the fore. What was the response? What is the current state of predatory publishing and what does the research show about the motivations of the authors, editors, and publishers of predatory work? Learn key signs of a predatory publisher and how to evaluate publishers.

Electronic Resource Management with YOURLs

Kimberly R. Abrams, Junior Tidal / Library

Hyperlink management is critical to website functionality because a site with dead links is not operable for the end user. Our poster demonstrates how to effectively manage electronic resources on the library website. Long proxied URLs are shortened utilizing YOURLs, an open-source short link manager. With YOURLs, URL updates for existing resources can be done in one place, negating the need to update all instances of a URL on different platforms: this includes the library's CMS, Drupal and LibGuides. Short links are easier to remember and can be used to promote resources on social media, email, and printed material.

Creating the Leadership You Seek: A Workforce Planning Model for Academic Libraries

Kimberley Bugg / Library

Librarians are concerned about the potential of an impending crisis of workforce, particularly for leadership, that leaves the profession without the right people necessary to propel and sustain the profession through the 21st century. However, very few long-term solutions are offered for handling the potential loss. As a result, this poster explores a workforce planning model where academic librarians are constantly involved in positioning the qualified, capable workforce already employed to fill those gaps. This is accomplishable in five stages: developing organization-specific leadership competencies, identifying individuals with leadership potential, sharpening leadership skills, creating opportunities to practice leadership, and succession planning.

Orphans in Forests of Linear Fractional Transformations

Sandie Han, Ariane M. Masuda, Satyanand Singh, and Johann Thiel / Mathematics Department

Nathanson generalized the notion of the Calkin-Wilf tree to positive linear fractional transformations (PLFTs) and used it to partition the set of PLFTs into an infinite forest of rooted trees. These roots are called orphans. We extend his work by providing a combinatorial formula for the number of orphans with a fixed determinant. We derive a method for determining the orphan ancestor of a given PLFT, and show that every positive complex number has finitely many ancestors in a complex (u,v)-Calkin-Wilf tree. Our work has been linked to new sequences, A274628 and A274629, in the Online Encyclopedia of Integer Sequences.

New Examples of Four-Dimensional Compact Einstein-Maxwell Spaces

Caner Koca / Department of Mathematics

In 1915, Albert Einstein proposed a system of mathematical equations for the geometric model of the universe -- now called Einstein's Field Equations -- which govern a relation between the physics of the existing matter (or energy) in space and the geometry of the space-time. A particular and frequently-studied case of these equations, when the space is full with electromagnetic fields, is called Einstein-Maxwell Equations, after James Clerk Maxwell who was the first physicist to establish a mathematical relation between electric and magnetic fields. Although Einstein-Maxwell equations had been extensively studied by the physicists, they have recently attracted the attention of mathematicians working in the field of Differential Geometry.

In this joint project with Prof. Tønnesen-Friedman (Union College), we discovered new examples of (Riemannian) solutions of Einstein-Maxwell equations on an infinite family of 4-manifolds, called Minimal Ruled Surfaces. These 4-dimensional spaces are compact, that is to say, the universal space-time has only finite volume!

How to Recognize a Plane When You See One

Hans Schoutens / Mathematics Department

How can we verify that a given surface is the Cartesian plane? Or the higher dimensional variant of this problem for n-dimensional Euclidean space? The answer to this question depends on when we consider two spaces to be "the same" (iso-morph). I want to discuss the complications that arise when we want to do this up to algebraic isomorphism, which seems to be one of the hardest cases. The new point-of-view I propose is the use of model theory. However, the latter perspective necessarily introduces non-standard models, and now we also have to find a way to isolate those.

Limiting Forms of Iterated Circular Convolutions of Skew Polygons in R^m

Boyan Kostadinov / Mathematics Department

We consider arbitrary, skew, N-gons in R^m, having a zero centroid. We investigate a special kind of normalized, averaging process, repeatedly applied to the original polygon, which we identify with a special kind of normalized circular convolution modulo N. The paper has two parts: the first part investigates the case of a repeated circular convolution applied to m-dimensional polygons without normalization, and the second part investigates the more difficult case with normalization. We prove that if the normalized convolution is repeated sufficiently many times, then the vertices of the limiting polygon lie on an ellipse, embedded in a 2-dimensional subspace of R^m, spanned by a basis specified by the principal harmonic components of the discrete Fourier transforms of the initial vectors of vertex coordinates. We derive a complete and compact analytical description of the limiting elliptical form, as well as the limiting plane, using the tools of discrete Fourier analysis and the language of circular convolutions.

800-Gb/s (8x128-Gb/s) Unrepeatered Transmission over 515-km Large-area Ultra-low-loss Fiber using 2nd-order Raman Pumping

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This work reports 8x128-Gb/s PDM-QPSK signals unrepeatered transmission over 515-km fiber link. The record distance of 800 Gb/s unrepeatered transmission is achieved by employing enabling techniques including large-effective-area ultra-low-attenuation fibers, co- and counter-propagating 2nd-order pumped distributed Raman amplifications, and remote optically pumped amplifier (ROPA), which is also counter-propagating 2nd-order Raman pumped. The designs and characteristics of the ROPA and 2nd-order pumped distributed Raman amplification are described, and the transmission performance of this ultra-long reach 800-Gb/s unrepeatered transmission fiber link is discussed.

A Practical Definition of Halo Mass

Ariyeh H. Maller,[1] Kate Storey-Fisher,[2] and Julien Devriend[3]
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We present a methodology to define the dark matter halo in cosmological hydrodynamical simulations. Our method is to compare the amount of gas that has thermalized in an object to various standard definitions of the dark matter halo to see which definition gives results closest to the cosmological baryon fraction. In this way we arrive at a definition that matches how dark matter halos are usually used in the literature. We also can measure the variance around this relationship and test for any mass or redshift dependence. Finally, we can study any correlation between this variance and other halo properties to try and determine what causes the variation.

Higher-Order Corrections to Massive Particle Production at the Large Hadron Collider

Andrea Ferroglia and Giovanni Ossola / Physics Department

The goal of our research is to apply advanced technical tools for the calculation of radiative corrections in QCD to processes involving massive particles, such as Higgs bosons, top-quark pairs, and pairs of colored supersymmetric partners of quarks and gluons. We employ and further develop the GoSam framework for one-loop calculations, effective field theory methods which allow us to carry out the resummation of large logarithmic corrections, and methods for the calculation of multi-loop and multi-leg Feynman diagrams.

Bose-Einstein Condensate of Excitons in a Trap. Formations of Rotating Solitons

Leonid M. Pomirchi / Physics Department

The solution of nonlinear, driven-dissipative Gross-Pitaevskii equation for a Bose-Einstein condensate trapped in external asymmetric parabolic potential is obtained. We found that the condensate can spontaneously acquire a soliton-like shape for spatially homogeneous pumping. The condensate soliton performs oscillatory motion in a parabolic trap and, also, can spontaneously rotate. Stability of the condensate soliton in the spatially asymmetric trap is analyzed. This analysis may be applied to the condensates of quantum well excitons and cavity polaritons in semiconductor heterostructures.

A Novel Approach for Freeze/Thaw Detection Using Satellite Emissivity Estimates

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[2]Physics Department

Reliable detection of high-latitude soil freeze/thaw states is crucial for the carbon cycle, terrestrial water cycle and global climate system. The existing remote sensing freeze/thaw detection algorithms primarily rely on microwave brightness temperatures. The use of satellite-derived land surface emissivity for land surface processes is promising, because emissivity estimates are free from atmospheric effects and represent the soil characteristics more realistically. The aim of this study is to develop a consistent long-term record of global instantaneous land emissivity estimates using AMSR-E and AMSR2 data, and to develop a novel algorithm using present emissivity estimates for high-latitude freeze/thaw detection.

High-Temperature Superfluidity in a Transition Metal Dichalcogenide Bilayer

Oleg Berman and Roman Kezerashvili / Physics Department

Two-dimensional dipolar excitons, formed by electrons and holes, spatially separated in two parallel transition metal dichalcogenide (TMDC) atomically thin layers, form superfluid at temperatures below the critical one. The effective masses of A and B dipolar excitons, collective excitations spectrum, sound velocity and critical temperature TC for superfluidity were obtained for various TMDC bilayers. TC for two-component exciton system in a TMDC bilayer is about one order of magnitude higher than TC for any one-component exciton system, because for two-component system TC depends on the reduced mass of A and B excitons, which is smaller than the individual exciton mass.

Integrand Reduction Reloaded; Algebraic Geometry and Finite Fields

Ray D. Sameshima[1,2] / [1]Physics Department, New York City College of Technology;
[2]Graduate School and University Center, City University of New York

Scattering amplitudes in quantum field theory allow us to compare the phenomenological prediction of particle theories with the measurement at collider experiments. The study of scattering amplitudes, in terms of their symmetries and analytic properties, provides a framework to develop techniques and efficient algorithms to evaluate cross sections and differential distributions. In this poster, we describe an interesting technique for the evaluation of scattering amplitudes based on multivariate polynomial division. We also show a novel approach to improve its efficiency by introducing finite fields.

Optical Transitions of Excitons in Monolayer and Bilayer Transition Metal Dichalcogenides

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Excitons in 2D crystals such as transition metal dichalcogenides (TMDCs) are the focus of intense scientific study for their unique properties such as their large binding energies and potential for high temperature superfluidity. We study absorption of incident light by excitons in TMDCs. Using the eigenfunctions and eigenenergies of the excitons, we calculate the oscillator strength, a measure of the relative strength of each excitonic optical transition. The absorption coefficient, which gives the fraction of photons absorbed per unit length, was evaluated. The absorption factor, which gives the fraction of photons absorbed per monolayer (or bilayer), was obtained.

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