



# **Symposium on University Research and Creative Expression (SOURCE) 2017**

## **New York Institute of Technology**

Dear NYIT Faculty, Staff, Students, and Friends:

Welcome to the Fourteenth Annual SOURCE of NYIT!

Creative expression and research with faculty members have become integral parts of a student's educational experience at New York Institute of Technology. The SOURCE is intended to provide a unique opportunity for students to present their research and creative scholarly work in collaboration with their faculty members and mentors. The SOURCE also generates a common ground for interdepartmental, interschool, and interdisciplinary communication.

I am very pleased to inform you that 73 abstracts were accepted for presentation and more than 161 undergraduate and graduate students of NYIT, representing almost all campuses, schools and colleges, have authored or co-authored these abstracts. The depth and breadth of the projects are strong indications of the quality of our teaching and learning at NYIT. I would like to take this opportunity to congratulate all the students for their academic excellence at NYIT.

Many individuals in the NYIT community have worked on the event diligently to make it a success. I would like to extend a very special thank you to all the students, faculty, administrators and volunteers who assisted with the preparation, management, and operation of SOURCE.

Sincerely,

Dr. Roger Yu, Chair  
SOURCE Committee

**Tag Us!**

**#NYITSource2017, #NYITDidThat, #Sourcenyit**

*Symposium on University Research and Creative Expression (SOURCE) 2017*  
*Program*

10 a.m. - 10:20 a.m.	<b>REGISTRATION and BREAKFAST</b> NYIT 16 W. 61st Street, New York, NY 10023, 11 <sup>th</sup> floor
10:30 a.m. - 11:45 a.m.	<b>EXHIBITION HALL</b> NYIT 16 W. 61st Street, New York, NY 10023, 11 <sup>th</sup> floor
12 noon – 1:00 p.m.	<b>Plenary Debate</b> <i>“Inspired by Nature: Through the Eyes of Art and Science”</i> <b>DEBATERS:</b> Yuko Oda, Associate Professor, Digital Art & Design, NYIT, Gavin McStay, Assistant Professor, Life Sciences, NYIT <b>Moderator:</b> James Simon, Dean, College of Arts and Sciences NYIT Auditorium on Broadway
1:00 p.m. – 1:30 p.m.	<b>LUNCH</b> NYIT Auditorium on Broadway, Lobby
1:30 p.m. – 3:00 p.m.	<b>BREAKOUT SESSIONS</b> NYIT 16 W. 61st Street, New York, NY 10023
3:15 p.m. – 3:45 p.m.	<b>CERTIFICATE PRESENTATION</b> Interim President Rahmat Shoureshi NYIT Auditorium on Broadway

<b>Breakout Sessions</b> <b>1:30 p.m.- 2:15 p.m.</b>	<b>8th Floor Room 822 Moderator: Gavin McStay</b>	<b>10th Floor Room 1026 Moderator: Dorinamaria Carca</b>	<b>10th Floor Room 1029 Moderator: Michael Hadjiargyrou</b>	<b>11<sup>th</sup> Floor Auditorium Moderator: Navin Pokala</b>
<b>1:30 p.m.</b>	“Tackling Shelter Concerns while Cultivating Global Citizens in Nicaragua”	“Knock Knock On China's Great Firewall”	“NYIT Nanjing School of Management 2016 GFSRC Project”	“Mylab”
	Chanelle Sears	Zhipeng Zhang, Jingyao Sun, Shilin Yan, Yunnan Yu, Jingji Zang	Hui Yang	Lucas Rizzotto
<b>1:45 p.m.</b>	“Surviving on Mars”	“Social Media Improves the Access of Intercultural Communication”	“Audience”	“APOE Genotype and Creativity”
	Karine Genadry	Qian Zhang	Adlina Anthony, Shane Ramjutton, Deval Mistry	Samantha Gottlieb
<b>2:00 p.m.</b>	“Potential Epilepsy Drug Effects on Cell Function”	“Music - The Purest Art Form”	“The Future of the PR Industry is Global Using New Forms of Communication to Operate”	“Characterization of Cancer-associated Caspase-3 Mutations”
	Roua Araim, Nabila Siddiqui	Christine Aberyuf	Han Gao	Uzayr Arif, Tafheem Nayeem
<b>2:15 p.m.</b>	“Functions of a Pesticide Drug, Code-named H1”	“An Analysis of Chinese Culture Symbol in Zhang Yimou’s Films”	“PRSSA Is Here: NYIT/MA!”	“Functional Analysis of Chemotherapeutic Drug, D1”
	Ali Haidery, Khizer Kahn	Jing Xie	Pakkaporn Chathaworn, Lipigarn Chaitieng, Deval Mistry, Haoming Xu, Wannicha Photongkanong, Naphapatch Gatwongcha, Ratiporn Watcharasuchai	Tafheem Nayeem, Sirat Zafer

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<b>2:30 p.m.</b>	“H1”	“Perception, Phenomenology, and Painting”	“The Effects of Mass Media in the Racism Against Muslims in the American Society”	“Demonstration of Quadruplex DNA in the Mammalian Eye Globe”
	Jatinder Bassi, Umay Mughal	Shayna Abramson	Saleh Bin Khulayf	Maryam Rabbani, Suhani Shah, Neha Raza, Stephanie Campos, Astha Desai, Almeet Kaur
<b>2:45 p.m.</b>	“Ethical Considerations Regarding Disclosure of Off-Label Drug and Device Use as a Component of Informed Consent in a Resident Training Program”	“Chinese Traditional Opera from the Perspective of Semiotics”	“Diversity: Effects of Bias in Newsrooms and Reporting”	“A Zimbabwean in China”
	Jordan Fakhoury	Xiaomeng Wang	Maylan Studart	Haobang Geng

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“Chinese Character Recognition”	Qiao Zhu, Yiming Huang
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“Promoting Safe and Healthy Work Environments: Issues Impacting Ergonomics and Musculoskeletal Disorders among Nurses”	Neel Joshi, Pegah Shahbazi, Alen Soofirzadeh, David Biblo, Kevin Gonzalez, Irfan Aslam, Jerrin Chacko, Onyinye Joy Nwosu, Kwame Ntiako-Antwi, Maria Angeles
“Nursing Self-Care”	Joseph Rivera, Jocelyn Mendoza, Jennifer Renous, Jillian Arevato, Elaine Livingston, Agata Ziemba, Nahaleth Rolon, Rachel Villiongco, Napoleon Mejia
“Advance Practice Nursing Roles, Continuing Education and Certifications and the Impact on Patient Care Outcomes”	Katherine Wright, Samantha Montana, Christina Moore, Christian Lauchner, Shivani Verma, Ashley Higgins, Pallvi Sharma
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# Medical Case Study: Diagnosing Celiac Disease in Patients with Diabetes Mellitus Type I

Student Name: Michael Chang  
Faculty Mentor: Qiangrong Liang  
Department: Biomedical Sciences  
School/College: College of Osteopathic Medicine, Old Westbury

In Europe, studies done in Diabetes Mellitus Type I adult populations have approximated the prevalence of Celiac Disease to be 2% to 4.1%, which is significantly greater than the 0.5% to 1% overall prevalence witnessed in the general population. Therefore, all patients suffering from Diabetes Mellitus Type 1 should be screened for celiac disease. In this case study, we discuss a 16-year-old female with Diabetes Mellitus Type 1 who presented to be a pediatric gastroenterology clinic for Celiac Disease screening. Multiple diagnostic tests for Celiac Disease are discussed in this study, including serum auto-antibodies, specific HLA markers, and gastrointestinal biopsy. Risks and benefits of each diagnostic test are discussed, along with the most currently recommended diagnostic algorithm for Celiac Disease. We also discuss the type of diet our patient should follow while awaiting the results of her diagnostic tests.

# Plant Nitrogen Cycling and the factors Affecting Absorption, Assimilation, and Accumulation: A Study with *Lycopersicon* Sp.

Student Name: Sarah Caltabiano  
Faculty Mentor: Sarah Meyland  
Department: Environmental Technology and Sustainability  
School/College: School of Engineering and Computing Sciences,  
Old Westbury

In Nitrogen is an essential element to plant growth, it can be found in every organ from root to shoot to seed. Nitrogen is cycled through the plant by the processes of absorption, assimilation, and accumulation. These processes are affected differently by physiological and environmental conditions. Absorption is the uptake and movement of nitrogen within the plant. Assimilation is the use of nitrogen for growth processes, and accumulation is the movement of nitrogen into storage. Two different varieties of tomato plants, *Lycopersicon esculentum* 'Orange Jubilee' and *Lycopersicon esculentum* 'Roma' were grown outdoors in soil less medium and 1 tablespoon nitrate nitrogen solution was added to the medium weekly for 10 weeks. Plant sap was collected each week and tested for the level of nitrate nitrogen. The relationship between absorption, assimilation, and accumulation was demonstrated in this experiment with the Roma tomatoes showing slowly increasing nitrate level over the 10 weeks, while the nitrate levels in Orange Jubilee stayed the same for 6 weeks before increasing. These results were likely due to the environmental conditions that the plants were under before being brought outside. Understanding the role of nitrogen cycling in plants is important with nitrogen becoming a pollutant of concern in the atmosphere and in the water.

# Histone Deacetylase 9 (HDAC9) is Associated with Increased Lysine Acetylation Levels in Diabetic Mice Kidneys: a Potential Mechanism Underlying Renal Impairment in Type 2 Diabetes.

Student Name: Simran Polce  
Faculty Mentor: Maria Carrillo Sepulveda  
Department: Biomedical Sciences  
School/College: College of Osteopathic Medicine, Old Westbury

Diabetic nephropathy is one of the major complications faced by patients with type 2 diabetes (T2DM). It is characterized by fibrosis, mesangial matrix expansion, loss of proper glomerular filtration, and marked renal vascular dysfunction. The mechanism by which diabetic milieu promotes renal dysfunction is not entirely understood. Recent studies have demonstrated that nephropathy in type 1 diabetes is correlated with high levels of renal lysine acetylation. Importantly, histone deacetylase 9 (HDAC9), a class II subclass IIa mammalian HDAC that catalyze the removal of acetyl groups from  $\epsilon$ -amino groups of lysine's, has been linked to T2DM complications. Thus, we hypothesize that T2DM increases levels of renal lysine acetylation, which is associated with down regulation of HDAC9. To address our hypothesis, male fourteen-weeks-old db/db mice, an experimental model of T2DM, and same age-matched heterozygous nondiabetic (ND) mice (db/m+) were utilized in this current study. As expected, db/db mice exhibited robust increase in body weight (39.8g vs. 19.5g ND,  $p < 0.05$ ,  $n = 7$ ), kidney weight (238.8mg vs. 163.9mg ND,  $p < 0.05$ ,  $n = 6$ ) and blood glucose levels (265 mg/dl vs. 104.5mg/dl ND,  $p < 0.05$ ,  $n = 7$ ). Together these results confirm the diabetic state in the model utilized. Further, to determine whether HDAC9 and lysine acetylation are altered in kidneys from diabetic mice, western blot analysis was performed. Kidneys from diabetic mice exhibited markedly increases in lysine acetylation levels (80% increase vs. ND,  $p < 0.001$ ,  $n = 5$ ), which was correlated with significant reduction in HDAC9 expression (60% reduction vs. ND,  $p < 0.05$ ,  $n = 5$ ), suggesting that decreased HDAC9 may contribute to the elevated levels of lysine acetylation. Of note, no changes in others HDAC class II subclass IIa, including HDAC4, HDAC5 and HDAC7 were found in kidneys from db/db mice. Our results demonstrate that diabetic milieu increases lysine acetylation in kidney and down regulated HDAC9 epigenetic enzyme expression. Thus, targeting HDAC9 may offer novel therapeutic strategies for treating diabetic nephropathy. Studies using overexpression of HDAC9 has been initiated to confirm the role of HDCA9 in the diabetic renal dysfunction.

# Chinese Character Recognition

Student Names: Qiao Zhu, Yiming Huang  
Faculty Mentor: Sonali Chandel  
Department: Electrical and Computer Engineering  
School/College: School of Engineering and Computing Sciences, Nanjing

The low accuracy rate of Chinese Characters Recognition has triggered a dilemma in Chinese handwriting input method, especially in the recognition for the original complex form of simplified Chinese character, which has largely restricted the spread of Chinese culture. Furthermore, the resolution of strokes isn't stable enough to be user-friendly, and the conformity varies from person to person because of their different styles of handwriting. Aimed at improving the matched-degree and broadening the recognition range, we have devised a program for Chinese character recognition. To begin with, we have imported a prewritten Chinese-English dictionary as a reference to compare the written characters with system characters. In our main matching algorithm, strokes were recognized one by one according to their relative length and radian, and the program will form a list of the resembled characters for users to choose from. In this part, we have solutions to improve the matching rate, and widen the restraints of character writing to adjust various fonts, especially for complex form of simplified Chinese character. Our algorithm is based on the law of Bayes classifier and edge detection, and the normalization of strokes and size is implemented eventually. Besides that, an evaluation model is created by us to judge the matched-degree for the recognition. Users also have the ability to adjust the degree of restriction in Chinese character recognition according to their own handwriting type, so that cursive script can also be recognized if users lower the degree of restriction. Our demerit in this algorithm is that the less the degree of restriction, the lower the recognition speed is. However, the speed is certainly in a normal range for us to use the program, and the difference of speed is hard to detect.

# Security Research on Social Payment Apps

Student Name: Jasmeen Saini  
Faculty Mentor: Ahmed Awad  
Department: Computer Science  
School/College: School of Engineering and Computing Sciences, Vancouver

Social Payment Apps now-a-days have become an integral part of individual's life and business operations because of its reliability, easiness and pace of transferring money. However with development of new technology, the security related issues have also increased drastically.

In this research, many problematic issues have been observed in various apps that are in use these days. Both technical and social vulnerabilities were observed, that would allow adversary to steal individual's credential information or leak it. The concerns involved are mainly confidentiality, integrity and availability of the data such as personal bank/account information in the perspective of user and what if security policy is violated and privacy is not maintained. Moreover, a usable and secure payment guidelines and steps will be provided to make a better payment application which will gain users' trust and e-commerce business.

To measure performance of the used payment app, one needs to dive off the boat in order to understand the flaws. It is anticipated that more than there 70% of users in world will make payments through social payment applications by the end of 2017. Venmo, Google Wallet and Apple Pay are the key apps that are analyzed and risks are observed in relation with social engineering. Moreover, a secured payment protocol using Tokenization method is proposed that will keep transactions more secure. This research enlightens the security challenges and possible mitigations to prevent data breaches.

# Preventing Prescription Drug Abuse by Nurses in the Workplace

Student Names: Athena Thomas, Annalie Baumann, Rachel Ng, Jean Cha, Jacqueline McDevitt, Megan Decoursey, Djonvi Santos, Samantha Delaunay-Keith, Shoshana Ibragimova, Eukane Gabriel

Faculty Mentor: Susan Neville

Department: Nursing

School/College: School of Health Professions, Old Westbury

Prescription drug abuse by nurses in the workplace is an increasing issue that leads to medication errors, threatens the safety of patients, and causes a decline in productivity and professional performance (National Council of State Boards of Nursing, 2011). This presentation focuses on providing information on the scope of the problem, the behavioral and physical signs of prescription drug abuse exhibited by nurses in the workplace setting, the protocol involved in addressing and reporting compiled evidence regarding a co-worker, and the support measures offered to nurses returning to the workplace after treatment. It is a common belief that nurses are immune to all substance abuse disorders. However, the American Nurses Association (ANA) estimates that six to eight percent of nurses use alcohol and drugs to the extent that their professional performance and judgment is negatively compromised (National Council of State Boards of Nursing, 2011). This translates to one in ten nurses struggling with a substance abuse disorder. With easy access to prescription drugs on the hospital units and ambulatory care clinics (PYXIS systems and medication carts), nurses are especially at risk for prescription drug abuse. In order to identify and prevent prescription drug abuse in the workplace, it is first important for nurses to know what behavioral and physical signs to look for in identifying coworkers with substance abuse disorders. An awareness of different programs for treatment, such as disciplinary alternative-to-discipline programs, allows nurses to know that there are nonthreatening treatment and support solutions. This poster documents the scope of the problem, the physical and behavioral signs of substance abuse, preventive strategies that can be implemented in the workplace and assistive programs offered to nurses in need. These programs, such as The NYS Statewide Peer Assistance for Nurses (SPAN), provide resources to nurses and play a significant role in preventing drug abuse in the workplace. An increased awareness of alternative-to-discipline programs could encourage nurses to seek assistance and treatment without fearing permanent loss of professional licensure. Preventing drug abuse by nurses in the workplace setting is vital in decreasing medication errors, increasing patient safety, and increasing productivity and professional performance in the workplace.

# Promoting Safe and Healthy Work Environments: Issues Impacting Ergonomics and Musculoskeletal Disorders among Nurses

Student Names: Neel Joshi, Pegah Shahbazi, Alen Soofirzadeh, David Biblo, Kevin Gonzalez, Irfan Aslam, Jerrin Chacko, Onyinye Joy Nwosu, Kwame Ntiako-Antwi, Maria Angeles

Faculty Mentor: Susan Neville

Department: Nursing

School/College: School of Health Professions, Old Westbury

Health care professionals, especially nurses tend to think of everyone but themselves. It is important for healthcare professionals to be physically, mentally, and emotionally healthy for themselves, their families, and their patients. Nursing at the bedside puts a considerable strain on the human body. Due to this, musculoskeletal injuries have become all too common in the discipline of nursing. The high prevalence of injuries in the profession puts the health and wellness of nurses at risk but it also hinders the ability of nurses to care for clients. Nurses have the sixth highest rate of Musculoskeletal Disorders such as strains and sprains due to lifting and maneuvering patients (de Castro, 2004). These injuries, depending on the severity and location, can result in increased medical leave and lost work time. This not only affects unit staffing patterns but may impact the quality of care delivered to patients in hospital and community settings (Davis & Kotowski, 2015). The purpose of this presentation is twofold: (1) present the scope of injury risk to nurses when moving patients without using correct body mechanics (2) discuss the interventions that were implemented to promote caretaker safety on hospital units.

## Nursing Self-Care

Student Names: Joseph Rivera, Agata Ziemba, Nahaleth Rolon,  
Rachel Villiongco, Napoleon Mejia, Jocelyn Mendoza,  
Jennifer Renous, Jillian Arevato, Elaine Livingston

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School/College: School of Health Professions, Old Westbury

Nursing is a very challenging and demanding profession often placing nurses at risk for decreased self-care practices. This presentation will focus on the importance of individual self care and the practices used by nurses to maintain their health and well-being. Self-care is essential to a nurse's personal health, ability to care for others, and professional growth. Most importantly, applying appropriate self-care helps the individual nurse cope with life stresses. According to various literature sources provided by the American Nurses Association (ANA) and the International Journal of Nursing Studies (IJNS), lack of personal self-care among nurses contributes to an increase in job absenteeism, professional burnout, decreased time management skills and unhealthy nutrition. In conjunction, all of these outcomes lead to a decrease in job satisfaction. According to Lina Daouk-Oyry, (2014), "one way to deal with burnout in the work field is by allowing for proper unit planning and staffing that will in turn decrease the workload for employees, reducing absenteeism and burnout". To assist nurses in improving their self-care practices the ANA established a campaign called, "*Healthy Nurse, Healthy Nation*", which works toward improving over 3.6 million nurses' lives in five key areas such as: physical activity, rest, nutrition, quality of life and safety (ANA, 2017). Once implemented, these changes suggested by the ANA will improve nurses' ability to maintain their quality of life, which in turn will enhance their ability to deliver safe and competent care to their patients.

## Advance Practice Nursing Roles, Continuing Education and Certifications and the Impact on Patient Care Outcomes

Student Names: Katherine Wright, Samantha Montana, Christina Moore,  
Christian Lauchner, Ashley Higgins, Pallvi Sharma,  
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Faculty Mentor: Susan Neville

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As clients with increased co-morbidities and complex health problems increase in the acute healthcare setting, nurses must return to school to receive degrees with a higher skill set, certifications and research to be able to meet the needs of each one of these patients. “These competencies require increased education at all levels. At this crucial point for the nursing profession, educational strategies and a plan for implementation is needed to build a nursing workforce to meet these challenges. Without a more educated nursing workforce, the nation’s health will be further at risk (Tri-Council for Nursing, 2010).” Research findings support that BSN educated nurses are better prepared to influence patient outcomes because they use evidence based research skills and knowledge to care for each patient as compared to diploma and associate degrees. Many hospital incentives such as paid education, support from our leaders, goal of magnet status and flexible timing for class are all ways in which we can encourage current nurses to receive advanced degrees and ultimately provide better patient outcomes. The article, “Advanced Practice Nursing” by Angela P. Clark, PhD, RN, CNS, FAAN, FAHA, defines the four roles that fall under the umbrella of advanced practice nursing. Those roles include, Clinical Nurse Specialist, Nurse Practitioner, Certified Nurse Midwife, and Certified Registered Nurse Anesthetist. The demand for evidence based best practices and safe patient care is increasing and nurses’ need to meet these challenges through the attainment of advanced educational degrees, role expansion and clinical specialty certifications. Advanced Practice Registered Nurses (APRNs), particularly Nurse Practitioners (NPs), exemplify how nurses are leading the transformation of healthcare delivery by becoming primary care providers for patients, assisting them to manage their care holistically. Additionally, APRNs are at the forefront of health promotion and disease prevention in the community. To ensure that healthcare delivery keeps pace with increasing demands and a continuously changing disease processes of society there is an increased need to embrace advanced practice nursing and continued education (O’Connell, 2014). This presentation focuses on the correlation between educational incentives that have encouraged nurses to achieve advanced degrees and certifications and the impact on patient care outcomes

## Average Annual Temperature of 40 Major Global Cities

Student Name: Charles Werner  
Faculty Mentor: Patty Wongpakdee  
Department: Digital Art and Design  
School/College: College of Arts and Sciences, Manhattan

I chose the topic of global temperature because it is controversial. Many people may believe that global warming is real, while some believe it is a myth. I chose to display the averaged annual temperature of forty major cities (from 1995-2015) to show the different temperatures of places that people are familiar with. The cities range from 6.2° C (43.13° F) to 29° C (84.2° F). That means the over the past twenty years the average annual temperature has been at a pretty high temperature. Three-quarters of the major cities on this infographic are at least above 12° C (53.6° F). According to NASA ([climate.nasa.gov](http://climate.nasa.gov)), the average global temperature in 2013 was 14.6 °C (58.3 °F), which is 0.6 °C (1.1 °F) warmer than the mid-20th-century baseline. The average global temperature has risen about 0.8 °C (1.4 °F) since 1880, according to the latest (January 2014) analysis from NASA's Goddard Institute for Space Studies (GISS).

According to the Environmental Protection Agency, temperature is the primary measurement for describing the climate, and temperatures in specific places around the world can have many different effects on human life and ecosystems. Increases in air temperature can lead to more intense heat waves; heat waves can cause illness and death, especially in vulnerable populations. Changes in temperature can disrupt a wide range of natural processes, particularly if these changes occur more quickly than plant and animal species can adapt.

When going through the temperatures of each country, I was looking to see if there was a real increase in the average temperatures over the years. In my conclusion, I believe that there weren't many drastic changes in the temperature, they fluctuated up and down over time. Even though the temperature increases may not be too noticeable right now, we should still take action to reduce global warming in any way we could.

I found the temperature data on the website [TuTiempo.net](http://TuTiempo.net); it provided me with data of all weather and climate related things. I chose to take twenty years of data (1995-2015) and average it out for each major city. I found the information of some statistics from NASA Goddard Space Flight Center Scientific Visualization Studio. And information about temperatures effects on people and the environment from the Environmental Protection Agency's website ([epa.gov](http://epa.gov)).

## Procedure in which to Coat Medicine under Hot and Humid Conditions

Student Name: Zahran Kabir  
Faculty Mentor: Roger Yu  
Department: Physics  
School/College: College of Arts and Sciences, Manhattan

Something that is overlooked while making medicine is the coating process. For medicine to be effective, it is incredibly important for the materials to dissolve in the right region of your body. For example, some soft-gel tablets are useless if they dissolve in the stomach, so manufacturers make sure that the capsule remains intact in the stomach while correctly dissolving in the stomach intestine. For small coating companies, however, it is difficult to coat certain products in certain temperatures or environments. The purpose of this study was to look into ways in which to coat products in warmer and humid climates (where there is a lot of problems with coating soft-gels) and make sure that there was no damage done to the core tablet.

Through our studies, it was found that a certain procedure must be used to coat these products under certain conditions. This procedure included the purchase of cooling machines which were retrofitted to be used with the coating machine with certain specific parameters depending on the outside condition. It also included constant changing of speed of coating along with constant temperature adjustments to make sure that none of the soft-gel tablets fused or broke during the coating process. Thus, the report concludes and explains a beneficial coating process for small companies to be able to perform coating on certain products all year long (which was previously limited to the Fall and Winter seasons).

## Transforming the Airport Typology

Student Name: Yara Mourtada  
Faculty Mentor: Matthew Krajewski  
Department: Architecture  
School/College: School of Architecture and Design, Manhattan

An airport is a very complicated space to design although there are many rules that dictate what are required of the space. Many architects get caught up in designing a sculptural element that will get them recognized but forget that airports must work efficiently along with being beautiful buildings. There are three factors that must be considered when trying to make a successful airport and they are the straightforward plan, the geometry of the building, and the natural light quality. These in conjunction with each other create a very efficient and beautiful airport which is ultimately the goal in airport design. However, over the years I have come to recognize that all buildings should serve more than one purpose. An airport is such a large community space and it is a shame that the community does not get to use it for anything more than travel. For that reason, I believe that airports should be designed to function but, should also have spaces that are meant to be used by the community.

## Cell Biology

Student Name: Sumiti Kumar, Shiffoni Sukhlal  
Faculty Mentor: Navin Pokala  
Department: Life Sciences  
School/College: College of Arts and Sciences, Old Westbury

We are currently researching the function of an immunosuppressant drug, code-named F1 in the NYIT Drug Collection. F1 has demonstrated substantial ability to kill yeast cells when plated on glucose and sucrose containing media. This indicates that the drug might affect certain regulatory pathways that are needed for the survival of the yeast culture. We will analyze the effect of F1 on metabolism with biochemical assays of secretion and mitochondria function. We will also use Tetrahymena endocytosis and chemotaxis assays to probe for possible effects on the cytoskeleton and cell-signaling machinery.

## Immunosuppressant F1's Cellular Effects on Mitochondrial Function

Student Names: Austin Sanu, Robin Varghese  
Faculty Mentor: Navin Pokala  
Department: Life Sciences  
School/College: College of Arts and Sciences, Old Westbury

We are investigating the mechanisms of an immunosuppressant drug, code named F1 in the NYIT Drug Library. The drug kills yeast in all media, but most powerfully on the glycerol containing media, suggesting that it might inhibit mitochondria function. Thus we will examine F1's mechanism using yeast assays of mitochondrial function, and observe the effect of this drug on the electron transport chain and proton gradient function.

# The Effect an Epilepsy Drug Can Have on the Eukaryotic Metabolism of Tetrahymena

Student Names: Sophia Ahmad, Mohammed Khan  
Faculty Mentor: Navin Pokala  
Department: Life Sciences  
School/College: College of Arts and Sciences, Old Westbury

The goal of our research is to study how a candidate epilepsy drug – referred to as E1 in the NYIT Drug Library – can affect eukaryotic metabolism. E1 inhibited yeast growth on glycerol and sucrose containing media suggesting that it may affect mitochondrial function, secretion mechanisms, or invertase enzyme regulation. The next phase in our research is to test the drug on live tetrahymena, a ciliate which would allow us to see the effect the drug has on secretion via monitoring endocytosis and exocytosis. Finally, an invertase assay would be conducted to observe the effect the drug may have on invertase secretion metabolism.

## Simulated Forensic DNA Analysis from a Crime Scene

Student Names: Tina Stefanovic, Maryann Assaf  
Faculty Mentors: <sup>1</sup>Claude Gagna, <sup>2</sup>Andrew Costello, <sup>1</sup>Navin Pokala  
Departments: <sup>1</sup>Life Sciences, <sup>2</sup>Behavioral Sciences  
School/College: College of Arts and Sciences, Old Westbury

The main focus of this research project is extracting and analyzing DNA (i.e., unknown samples) from nails gathered from a crime scene, which is part of an NYIT class with Dr. Andrew Costello (Organized Crime, CRIM-354) and Dr. Claude Gagna (Biomedical Research I – BIOL-425). Using the polymerase chain reaction (PCR), we will amplify one copy of DNA obtained from the crime scene in order to make multiple copies, by using a naturally occurring enzyme to copy a specific stretch of DNA. After analyzing the DNA, we can match our crime scene evidence with the suspects and national data bases. In order to process the unknown DNA sample, we will perform PCR, employing the “Forensic PCR Investigation Amplification and Electrophoresis Kit with CarolinaBLU” kit (i.e., 1. Extraction, 2. Quantitation, 3. Amplification, 4. Separation Analysis 5. Interpretation 6. Quality Assurance). Next, we will perform the gel electrophoresis process, which will help us separate the DNA mixture through a gel with an electric current. The DNA investigation procedure provides the investigator with a scientific chart called an electropherogram. This chart displays the genetic material present at each loci tested. When extracting DNA, as part of the crime scene investigation, our main goal is to characterize the biological material we obtained in order to determine a DNA profile, which will result in the arrest and trial of the individual who is accused of committing the murder.

## How Cancer Drug L1 Functions

Student Names: Briana Sosa, Simran Kaur  
Faculty Mentor: Navin Pokala  
Department: Life Sciences  
School/College: College of Arts and Sciences, Old Westbury

We are studying how a cancer drug, code-named L1 in the NYIT Drug Library, functions. L1 kills the same amount of yeast on all the media (sucrose, glucose, and glycerol), suggesting that it may affect metabolic regulation. We will examine L1's function using yeast assays of enzyme regulation and secretion, and probe cytoskeleton function using Tetrahymena assays of exocytosis and chemotaxis.

## Potential Epilepsy Drug Effects on Cell Function

Student Names: Nabila Siddiqui, Roua Araim  
Faculty Mentor: Navin Pokala  
Department: Life Sciences  
School/College: College of Arts and Sciences, Old Westbury

We are studying how a potential epilepsy drug, code named E1 in the NYIT Drug Library, functions in cells. E1 kills yeast cells most efficiently on glycerol-containing media, suggesting that it may affect protein secretion or metabolic regulation. We are following up on these preliminary data with experiments using yeast assays of enzyme regulation and secretion, and Tetrahymena assays of exocytosis and chemotaxis to probe potential cytoskeleton function.

## Bio-Art Project # 1: The Biological Sciences and Their Integration into Canvas-based Arts

Student Names:               Suhani Shah, Astha Desai  
Faculty Mentor:             Claude Gagna  
Department:                 Life Sciences  
School/College:             College of Arts and Sciences, Old Westbury

As part of Dr. Gagna's Biomedical Research I and II classes, we helped him organize, dissect and process eye globe tissues to be used by him to create his Bio-Art. Two groups of NYIT students (Project 1: Suhani Shah, and Astha Desai) (Project 2: Neha Raza, Stephanie Sawyer, and Almeet Kaur) will exhibit two completely different of groups of Bio-Artwork. Eye globe tissues were obtained from a wide variety of organisms (e.g., mammalian and non-mammalian), and processed by special histological chemicals. Additionally, novel procedures were performed to obtain tissue-based paint and DNA-based paint. These BioArt projects deal with the manipulation of mammalian and non-mammalian eye globes and all their internal parts, such as the cornea, ocular lens, retina, sclera, choroid, ciliary body, optic nerve, ora serrata, pupils, vitreous humor, and external ocular muscles and glands. Since art is viewed via our naked eyes, we believe that people would find the relationship between their visualizing art, and art based on eyes and DNA very interesting. These canvases exhibit perfectly preserved whole and partial eye morphology, and perfectly dissected eyes that display the organ in both naturally simple and aesthetically pleasing forms (e.g., flowers, flattened eyes, the double-stranded helix of DNA and chromosomes), and creative ideas based on novel eye tissue/DNA paint. We will present several of Dr. Gagna's canvas-based BioArt projects and explain the process behind each piece of artwork.

# The Utility of Zip Ties for Thoracostomy Tube Management

Student Names: Kyle Hitscherich, Danielle Vanderet, Patricia Philipps  
Faculty Mentor: Gerard Baltazar  
Department: Surgery  
School/College: College of Osteopathic Medicine, Old Westbury

**PURPOSE:** To investigate the use of zip-ties, as an alternative to medical tape, in connecting thoracostomy tubes (TT) to drainage devices (DD).

**METHODS:** From the Saint Barnabas Hospital, Bronx NY, trauma registry we identified patients who had TT placed from April 1, 2014 to May 31, 2016. On April 1, 2015, a hospital wide protocol was enacted that required use of plastic zip-ties to secure TT to DD rather than the standard medical tape method.

After accruing the list of trauma patients, two populations were identified, one prior to date of institution protocol change, and one following. From these two populations, demographic and clinical data was obtained via retrospective chart review. Points of examination included number of TT placed, length of time of TT placement, disconnection and related complications. Statistical analysis was performed utilizing ANOVA, student's t-test and Chi-square analysis.

**RESULTS:** Of our original population, a total of 145 patients met inclusion criteria, of which 24 were disregarded based on exclusion criteria. Of the patients analyzed, 43 (35.5%) had their TT placed prior to institutional protocol change and 78 (64.5%) had TT placed after. We identified no statistically significant difference between patient populations regarding gender, race, ethnicity, BMI or type of trauma (blunt versus penetrating). Our analysis revealed the population prior to change in management had an elevated injury severity score ( $p=0.022$ ) but a statistically insignificant difference in abbreviated injury severity score ( $p=0.41$ ).

Regarding outcomes, no statistically significant difference was identified in patients requiring more complex surgical interventions such as thoracotomy ( $p=1$ ) or laparotomy ( $p=0.331$ ). There was a statistically significant decrease in the number of TT disconnections from DD following utilization of zip-ties (6 versus 1,  $p=0.008$ ). Following protocol change, a larger number of TT dislodgments from thoracic cavity were reported, however these events did not reach statistical significance (0 vs. 3,  $p=0.31$ ). Overall, our review did not identify a significant difference in rates of morbidity or mortality regarding utilization of zip-ties.

**CONCLUSION:** There is limited research into the optimal means of preventing TT disconnection from DD. Our investigation uncovered a significant reduction in the number of unintentional TT disconnections from DD following utilization of zip-ties as a fastening device.

# Improvement of the “Drug Discovery” Portion of the “Drug Discovery and Development Process” Using Next Generation Alternative and Multistranded DNA and RNA Microarrays

Student Names: Nabila Siddiqui, Stephanie Sawyer  
Faculty Mentor: Claude Gagna  
Department: Life Sciences  
School/College: College of Arts and Sciences, Old Westbury

Conventional, commercially available DNA microarrays are powerful biomedical research tools that allow scientists the ability to study gene expression in normal and diseases tissues. These microarrays are based on hybridization of two denatured, labeled single-stranded DNA molecules, one of which is immobilized to the microarray surface (i.e., *probes*), and the other being the *target*. Our novel next generation alternative and multistranded DNA and RNA microarray’s goes beyond the limitations of conventional, commercially available nucleic acid microarrays. These novel DNA microarrays immobilize intact, unaltered, non-denatured canonical DNA (e.g., B-DNA), alternative DNA (e.g., Z-DNA), and multi-stranded DNA (e.g., triplex and quadruplex) and RNA molecules. These immobilized DNA and RNA molecules can be tested under different environmental conditions (e.g., temperature, ionic conditions) in order to discover new drugs and biologics, that can bind directly to the anchored DNA. Discovering drugs that bind to DNA *in vitro* can then eventually be used one day to inhibit gene expression, i.e., clinically DNA-targeted therapeutics (e.g. drugs/biologics) to treat and or cure disease. The novel DNA microarrays offer a platform that can reduce the time and money needed by pharmaceutical companies to bring new pharmaceuticals to market.

## 3-Dimensional Model of a Quadruplex DNA Molecule

Student Name: Shozab Kazim  
Faculty Mentor: Claude Gagna  
Department: Life Sciences  
School/College: College of Arts and Sciences, Old Westbury

Quadruplex DNA (i.e., four-stranded DNA) is an exotic, alternative form of double-stranded DNA that plays a critical role in maintaining our normal physiology. It has also been implicated in cancer and the aging process. To date, no one has ever created a 3-D model of quadruplex DNA. We were successful in printing a quadruplex DNA monomer molecule, using a ProJet 1500 3-D printer, PLA filament, and Makerbot software. In addition we expanded this 3-D printing project to create other forms of the quadruplex which included the dimer and the tetramer forms. We started off with trying to understand how 3-D printing works along with what software would be best to accomplish our objectives. With help from the engineering department and specifically Mr. Peter Kouretsos, we were able to print the 3-D models. Peter was able to teach us about the software, how to use the printer and help us edit our final schematics on the program to make it feasible to actually 3-D print the models. We are now considering publishing the data in an appropriate journal.

# The Application of Osteopathic Manipulative Treatment in Plantar Fasciitis- A Case Study

Student Name: Melissa Foy  
Faculty Mentor: To Shan Li  
Department: Osteopathic Manipulative Medicine  
School/College: College of Osteopathic Medicine, Old Westbury

**Hypothesis/Background:** Plantar fasciitis, characterized by pain in the plantar region of the foot, is responsible for approximately one million doctor visits annually in the United States. More invasive treatments, including glucocorticoid injections, are used when initial conservative measures fail to relieve symptoms. We hypothesize that Osteopathic Manipulative Treatment (OMT), including a fascial distortion model (FDM) approach, offers an efficacious and non-invasive treatment option to alleviate symptoms of plantar fasciitis.

**Case Description:** A 60-year-old female, diagnosed with plantar fasciitis 3 months ago, presented with 1 day of increased left heel pain radiating to the distal left leg. The pain increased significantly overnight to 10/10 from the patient's baseline severity of 4/10. The patient received 3 glucocorticoid injections since diagnosis with moderate improvement. The patient had a guarded gait and limped to avoid weight bearing on her left foot. Osteopathic examination revealed somatic dysfunctions in the lumbar spine, pelvis, and left lower extremity.

**Methods:** OMT aimed to remove fascial restrictions and decrease muscle tension. Treatments included pelvic muscle energy, piriformis counterstrain, and FDM to a herniated trigger point, trigger band, and folding distortion in the left distal lower extremity.

**Results:** After the OMT session, the patient had immediate pain reduction, from a 10/10 to a 4/10 in severity, and improved mobility. Two weeks after treatment, the patient reported continued improvement.

**Conclusion:** This case identified OMT as a safe and advantageous treatment option in managing symptoms of plantar fasciitis. Further studies should investigate the long-term benefits of OMT for plantar fasciitis.

NCY3/NCY229  
Yeast Transformation, Growth, Staining, and Protein Analysis of Fzo1  
Gene Containing Varying Amino Acids

Student Name: Zoha Mian  
Faculty Mentor: Gavin McStay  
Department: Life Sciences  
School/College: College of Arts and Sciences, Old Westbury

Mitochondria are dynamic organelles whose function is required for efficient energy production in most eukaryotic cells. The dynamic nature of mitochondria is essential for function and is mediated by proteins involved in mitochondrial fusion and fission. These include the protein, Fzo1, the yeast homolog of the human mitofusin proteins. The expression of Fzo1 is controlled by post-translational degradation involving the amino terminal amino acid of the protein. In this study, 2 strains of yeast lacking the Fzo1 gene, NCY3 and NCY229, were transformed with varying DNA plasmids with different amino terminal amino acids. The impacts of each amino acid were determined by growth tests specific for mitochondrial function and analysis of colony size. Further analysis was done with big and small colonies from each variant; R, M, Y, WT, that showed larger colonies grew more efficiently than smaller colonies, which implies stronger mitochondrial function in larger colonies. Lastly, a protein extraction and SDS-PAGE was done to analyze any differences in the protein production of the big and small colonies. The study continued with the staining of big colonies from the NCY3 strain, which showed strong green fluorescence to demonstrate mitochondrial fission and fusion and TMRE/mitotracker staining to analyze mitochondrial function.

# The Use of Ultrasound Technology in Quantifying the Effect of Osteopathic Manipulative Treatment (OMT) in Patellofemoral Pain Syndrome

Student Name: Ramza Shahid  
Faculty Mentor: Sheldon Yao  
Department: Osteopathic Manipulative Medicine  
School/College: College of Osteopathic Medicine, Old Westbury

**Background:** Patellofemoral pain syndrome (PFPS) results from biomechanical and musculoskeletal dysfunctions. Studies have shown that OMT is effective in relieving symptoms of various musculoskeletal dysfunctions including knee pain. Ultrasound technology has been employed in studying peripatellar soft tissues and diagnosing patellar tendinosis.

**Hypothesis:** Ultrasound technology may be used to quantify the effect of OMT in the treatment of PFPS.

**Case Description:** AL is a 23-year-old male presenting with left knee pain after running a half marathon 3 days prior. Bracing did not relieve the 4/10 dull pain. Patient did not take any medications. Physical examination revealed tenderness at the patellar tendon and bogginess in the soft tissue around the patella. Somatic dysfunctions were diagnosed in the cervical, thoracic, rib, pelvis, and lower extremity regions.

**Methods:** The patient's left patellar tendon was examined using ultrasound prior to OMT. The patient was treated with thoracic outlet release, cervical and thoracic HVLA, thoracic myofascial release, diaphragm doming, popliteal fossa release, counterstrain treatment of the patellar tendon tenderpoint, and pedal pump. The same patellar region was imaged immediately after treatment for quantitative comparison.

**Results:** The patient's pain decreased from 4/10 to 0/10 pain post OMT and he reported increased range of motion of the left knee. The ultrasound images showed decreased fluid collection in the patellar bursa and decreased inflammation at the patellar tendon following one session of OMT.

**Conclusions:** In this case study, ultrasound technology was used to quantify the effect of OMT on PFPS.

# Efficacy of Osteopathic Manipulative Treatment in Reducing Chest Pain Post Coronary Artery Bypass Graft: A Case Study

Student Name: Siddhant Kulkarni  
Faculty Mentors: Sheldon Yao, To Shan Li  
Department: Osteopathic Manipulative Medicine  
School/College: College of Osteopathic Medicine, Old Westbury

**Background:** The majority of patients that undergo a coronary artery bypass graft (CABG) experience chest pain post-operatively. The most common cause of chest pain is musculoskeletal pain that stems from the sternotomy. This pain can be detrimental to patient recovery psychologically and/or physically and may lead to increased opioid use. There has been limited research on the effect of OMT on long-term post-CABG chest pain.

**Hypothesis:** Osteopathic manipulative treatment (OMT) will reduce long term post-CABG chest pain.

**Case Description/Methods:** A 73-year-old male presents with a 2-month history of chest pain after two vessel CABG. Patient reported a 5/10, aching, throbbing pain in the sternal and upper abdominal region. Pain was exacerbated by movement, driving, and coughing. Pain was moderately controlled by taking Tylenol with codeine. Osteopathic structural examination found significant somatic dysfunctions in the cervical spine, rib cage, sternum and thoracic diaphragm. The patient received two OMT sessions over the course of one-week. Patient received suboccipital decompression, cervical myofascial release, thoracic inlet release, thoracic rib raising, thoracic diaphragm release, and sternal balanced ligamentous tension. The patient's pain was tracked using the Short-Form McGill Pain Questionnaire (MPQ).

**Results:** MPQ scores were 9 pre-treatment, 3 post-treatment, 5 twenty-four-hours post-treatment, and 5 one-week later. The patient reported taking less pain medications and had pain reduction during movement.

**Conclusion:** This case study shows the potential benefits of incorporating OMT in the management of post-CABG chest pain. Future studies can help establish OMT as an adjunctive treatment and potentially decrease the need for pain medications.

# Effect of Knockdown of One Tight Junction Protein on Contents of Other Tight Junction Proteins

Student Name: Nileena Johnkutty  
Faculty Mentor: Kurt Amsler  
Department: Research  
School/College: College of Osteopathic Medicine, Old Westbury

Renal epithelial cells are organized into tubules of cells. The human kidney contains about 1,000,000 tubules (nephrons). Blood plasma is filtered through the glomeruli (one per nephron) into the nephrons where it is sequentially modified by transporting compounds into and out of the forming urine to yield the final urine which is excreted from the body. During this process, it is essential to maintain separation of the forming urine from the renal interstitial fluid. Passage of fluid and compounds between the renal epithelial cells of the tubule (paracellular permeability barrier) is limited by the circumferential tight junction structures present at the apicolateral membrane of adjacent renal epithelial cells. The tight junction is a multiprotein complex comprised of membrane proteins, e.g., occludin and claudins, and cytoplasmic proteins, e.g., ZO-1, ZO-2, ZO-3 and cingulin. Although these proteins form a multiprotein complex at the tight junction, it is currently unclear if the expression level of one tight junction will affect the cellular content of other tight junction proteins. There are two distinct hypotheses that can be proposed.

Hypothesis 1: Decreased expression of a single tight junction protein does not affect the expression of any other tight junction protein.

Hypothesis 2: Decreased expression of a single tight junction protein does modulate the expression of one or more other tight junction proteins.

To examine this question, we have studied the effect of knockdown of a single tight junction protein on the expression of other tight junction proteins. For this study, we have focused on occludin, ZO-1 and ZO-2. Our results to date suggest knockdown of a single tight junction protein does not affect the expression of other tight junction proteins, consistent with Hypothesis 1 and arguing against Hypothesis 2. Future work will confirm and complete these initial results and will then determine the effect of knockdown of individual tight junction proteins on the permeability of the tight junction barrier.

# Osteopathic Manipulative Treatment (OMT) to Improve Vital Capacity in a Myasthenia Gravis Exacerbation: A Case Study

Student Name: Thomas Ng  
Faculty Mentors: Jayme Mancini, Sheldon Yao  
Department: Osteopathic Manipulative Medicine  
School/College: College of Osteopathic Medicine, Old Westbury

**Background:** Myasthenia gravis (MG) is characterized by a T-cell dependent immunoglobulin antibody G (IgG)-directed attack on the post-synaptic nicotinic acetylcholine receptors of the neuromuscular junction. It commonly presents as skeletal muscle weakness that worsens with usage. In generalized MG, the limbs and respiratory muscles may be affected. Pulmonary function tests (PFTs) and vital signs are used to gauge severity. Osteopathic manipulative therapy (OMT) has previously been shown to improve immune, muscular, and nervous system function.

**Hypothesis:** OMT can be an effective adjunctive treatment for acute MG exacerbations.

**Case description:** An 82-year-old female with a history of costochondritis and hypothyroidism, presented with dysphagia, fatigue, and worsening dyspnea.

**Method:** Treatment included diaphragmatic doming, rib raising, paraspinal inhibition, and myofascial release to target the muscles of respiration, decrease the labor of breathing, improve pulmonary function, and reduce pain.

**Conclusion:** Usually the effect of immunotherapy peaks at 48 hours and only improves PFTs. This patient's PFTs and pain showed improvement within one day. This case illustrates the potential of OMT in improving pulmonary function and pain in MG exacerbations.

## The Catalyst Project

Student Names: James Docherty, Sara Benerofe, Rachel Coffey,  
Katherine Daly, Shreen Desai, Rebecca Grohman,  
Jonathon Katz, William Wong, Zoe Li

Faculty Mentor: Barbara Capozzi

Department: Clinical Education

School/College: College of Osteopathic Medicine, Old Westbury

Primary Care Progress (PCP) is an organization determined to improve primary care through leadership skills and community involvement. The NYITCOM chapter, in conjunction with PCP national, three other school chapters, and the Wright Center for Graduate Medical Education, piloted The Catalyst Project over the past year. The Catalyst Project aims to inspire student leaders to develop their skills while positively influencing the local community by sparking discussion about primary care transformation.

The project started with forming a team of student leaders and exploring multiple Community Health Need Assessments (CHNAs) in Suffolk County. The Suffolk County CHNA written by Stony Brook Medicine was selected and the most apparent health needs were obesity, substance abuse, and behavioral medicine. Through our analyses and conversations with local stakeholders, we found barriers related to behavioral health including communication between different health care providers and continuity of care to be the most pressing and underrecognized. We want to work collaboratively with stakeholders in our community and our goal is to host a focus group at our institution to further explore the current state of behavioral health care in this region and catalyze discussion towards primary care transformation.

## Utilizing Small Group Learning with Real Patients in an Osteopathic Manipulative Medicine Lab Setting

Student Name: Konstantinos Damiris  
Faculty Mentors: Theodore Flaum, J. Christian Belisario  
Department: Osteopathic Manipulative Medicine  
School/College: College of Osteopathic Medicine, Old Westbury

**Context:** In preparation for clinical rotations, third year medical students participated in a required osteopathic manipulative medicine (OMM) workshop that included real patients in a laboratory setting. In 2015, groups of 12 were lead by an attending facilitator. Each group subsequently presented their pre-assigned case and patient case to the remainder of the class (approximately 100 students). In 2016, groups of 12 were also utilized; however, each group discussed their cases with one other group, utilizing a small group learning (SGL) approach.

**Objective:** To compare student perception on the efficacy of OMM workshops involving SGL versus large group learning.

**Hypothesis:** Students will find SGL more beneficial and therefore will be more likely to utilize OMM on their clinical rotations.

**Methods:** In 2015 and 2016, 292 and 299 students, respectively, were emailed a survey following the OMM workshop; a 5-point Likert Scale was implemented to compare several aspects of the workshop.

**Results:** In 2015 and 2016, 78 and 103 students responded, respectively. In comparing, the results between 2015 and 2016: there was a 3.6% increase in the rating of the session as “extremely useful”; there was a 6.5% increase in students who thought the course’s format was “user friendly” or “very user friendly”. In 2016 compared to 2015, there was a 16.5% increase in students who indicated that they would “definitely” and “probably” use OMM techniques from the workshop during clinical rotations.

**Conclusion:** Students self reported a higher likelihood to utilize OMM in their future clinical rotations following implementation of SGL.

## Bio-Art Project # 2: The Biological Sciences and Their Integration into Canvas-based Arts

Student Names: Neha Raza, Almeet Kaur, Stephanie Sawyer  
Faculty Mentor: Claude Gagna  
Department: Life Sciences  
School/College: College of Arts and Sciences, Old Westbury

During our Biomedical Research I and II classes here at NYIT, we assisted Professor Claude E. Gagna with his Biological Art project. Two groups of NYIT students (Project 2: Neha Raza, Stephanie Sawyer, and Almeet Kaur) (Project 1: Suhani Shah, and Astha Desai) will exhibit two completely different of groups of bio artwork. As a team we helped him dissect and process cow eyes, sheep eyes, pig eyes and fish eyes to be used by him to create his Bio-Art. Skills we learned from our mentor were used to dissect ocular tissues, and extract DNA and other biological molecules for the purpose of creating Biological Art and bio art paint. The Bio-Art canvas-based art deals with the management of eye globes and all their internal parts, such as the cornea, ocular lens, retina, sclera, optic nerve, ora serrata, and vitreous humor. It also deals with the four external ocular muscles and its lacrimal glands. Art is seen via our eyes, and our group believes that people would find the relationship between their viewing art, and art based on eye globes and isolated DNA to be very fascinating. These canvases exhibit completely preserved whole and partial eye globe morphology, and perfectly processed and dissected eye globes that display the sensory organ in naturally simple and aesthetically pleasing shapes, such as flattened eyes, flowers, abstract forms, the helix of DNA and human chromosomes, and creative ideas based on novel eye tissue paint and DNA paint. We will present several of his canvas-based BioArt projects and explain the process behind each piece of artwork.

# An Implantable System for Continuous Monitoring of Gastric Bioelectrical Activity

Student Names: Amir Javan-Khoshkholgh, Zaid Abukhalaf  
Faculty Mentor: Aydin Farajidavar  
Department: Electrical and Computer Engineering  
School/College: School of Engineering and Computing Sciences,  
Old Westbury

**Introduction:** Gastric contractions are initiated and coordinated by an underlying bioelectrical activity, termed slow waves (SWs). Monitoring gastric electrical activity (GEA), by electrically stimulating the gastrointestinal tract and recording directly SWs, is the key parameter to obtain real time characteristic data on dysrhythmic patterns and as a result, to provide appropriate treatment. The critical limitations of the current GEA mapping are the large number of cables required to connect the electrodes to the data acquisition system and cables traversed the abdominal wall or a natural orifice which may cause discomfort or increase the risk of infection for the patient. Wireless recording system is an emerging solution to overcome the aforementioned obstacles. We have developed a power efficient wireless system for acquisition of GEA, and validated the system on bench-top.

**Methods:** The system is composed of three subsystems: an implantable unit (IU), a wearable unit (WU), and a stationary unit (SU). IU is directly connected to SW acquiring electrodes and inductively powered through a rectified 13.56 MHz RFID downlink. IU amplifies and filters the recoding data, digitizes GEA, encodes them by differential pulse position (DPP) algorithm, modulates by load shift keying (LSK) technique and finally, transmits the data over reverse telemetry uplink. WU processes the received data, stores them locally on a memory card and transmits to SU connected to a PC via a 2.4 GHz transceiver for real-time display and analysis.

**Results:** The system was validated on bench-top. Based on matching the random data loaded to the microcontroller of IU and sequence of data received by WU, a custom-made application developed in Python verified the validity of the system.

**Conclusion:** A low-power non-invasive multi-channel wireless device for recoding and monitoring of the gastric slow waves has been developed and validated in bench-top. The implemented system has the potential to facilitate chronic monitoring studies and to detect gastric dysrhythmias.

## “Suspended Superparamagnetic Nanoparticles Driven by Ferromagnets”

Student Name: Ian Kelly  
Faculty Mentor: Dorinamaria Carka  
Department: Mechanical Engineering  
School/College: School of Engineering and Computing Sciences,  
Old Westbury

Superparamagnetic nanoparticles are currently being used in biomedical applications. Due to innovative ideas involving multi-ferroic materials on the nanoscale, new opportunities exist for the use of ferromagnetic materials instead of hard magnets to drive the motion of the particles. The nanoparticles ability to move in the fluid is dependent upon the magnetic properties of the nanoparticles and on the magnitude and frequency of the applied magnetic field, which in turns depend upon the geometry and size of the ferromagnetic nanostructure.

The goal of this research is to effectively develop a set of computational and theoretical tools to model and control the position and velocity of superparamagnetic particles in fluids of varying viscosity, driven by ferromagnetic engineered nanostructures.

# A Wireless Miniature System for Recording Gastric Bioelectrical Activity and Stimulating the Stomach

Student Names: Wahib Alrofati, Zaid Abukhalaf, Rui Wang  
Faculty Mentor: Aydin Farajidavar  
Department: Electrical and Computer Engineering  
School/College: School of Engineering and Computing Sciences,  
Old Westbury

We have developed a wireless system suitable for acquiring gastric slow wave activities and delivering electrical pulses to the stomach. The system is composed of a physically miniaturized front-end that can record slow waves from 3 channels and transmit the data to a back-end connected to a computer. A custom-made graphical user interface can display the slow waves in real-time and store them for off-line analysis. The user can turn on a switch on the back-end to activate electrical stimulation capability on the front-end. The electrical stimulation on the front-end is fixed at 10 mA, and the pulse width can vary from 1ms-31s. The front-end measures  $13 \times 44 \times 4 \text{ mm}^3$ , and consumes 67mW in recording and 209mW during stimulation. The system was successfully validated in bench-top testing and *in vivo* experiments in porcine model.

# Osteopathic Manipulative Treatment for Sleep Disturbances in Parkinson's Disease: A Case Study

Student Names: Briana Novello, Shannon Moriarty  
Faculty Mentor: Sheldon Yao  
Department: Osteopathic Manipulative Medicine  
School/College: College of Osteopathic Medicine, Old Westbury

*Intro:* Sleep disturbances, which include sleep fragmentation and excessive daytime sleepiness, are now understood to be a significant cause of morbidity in Parkinson's disease patients. An overlap in etiology ranging from PD-related motor and nonmotor symptoms, the improper management of nighttime dosages of antiparkinsonian medication, and other concurrent psychological or sleep disorders make a multi-disciplinary approach to treatment necessary. Osteopathic Manipulative Treatment (OMT) may offer an appropriate adjunct to the pharmacological and behavioral management of sleep disturbances in the PD patient.

*Case Description:* The subject is a 61 year old Hispanic male diagnosed with PD 17 years prior and his motor symptoms are medically managed. In our study he underwent 6 weeks of biweekly OMT sessions following a protocol designed to improve range of motion, reduce muscle hypertonicity, and normalize the autonomic nervous system. Sleep, pain, and quality of life were assessed before and after treatment and at a 10 week follow-up after a 4 week treatment-free period using the PDQ-39 and REM Behavior Disorder Questionnaire surveys.

*Discussion:* The subject experienced an improvement in nocturnal motor complaints, a reduction in negative psychological symptoms and an overall decrease in pain and stiffness after OMT, however, like the etiology of sleep dysfunction, the cause of the improvement may be multifactorial. An inability to change positions in bed due to pain and rigidity are major barriers to quality sleep in the PD patient. Myofascial, muscle energy, counterstrain and articulatory OMT techniques may address these issues and have been shown in prior studies to reduce acute and chronic pain. Cranial osteopathic therapy, such as CV4 decompression, has been shown to alter sympathetic nerve activity, reduce sleep latency, and alleviate pain. The PD patient is also at an increased risk for depression and anxiety which contributes to sleep problems. OMT has been shown to decrease stress, fatigue and anxiety in some studies.

Finally, the recent discovery of a lymphatic-like system in the brain, most active during sleep, provides a possible mechanism for the mis-accumulation of neurotoxins in similar neurodegenerative diseases, therefore, further research on the relationship of sleep on the "glymphatic pathway" may help us to understand and target future treatments for Parkinson's Disease. Studies on craniosacral osteopathic therapy and lymphatic pump OMT techniques, which have been shown to improve circulatory and lymphatic flow, may be of increased interest as we come to better understand the complex mechanisms behind sleep dysfunction and the PD patient.

## Determination of Unknown Drug B1

Student Names: Aasimahmed Shaikh, Andrew Chang  
Faculty Mentor: Navin Pokala  
Department: Life Sciences  
School/College: College of Arts and Sciences, Old Westbury

Currently we are researching the cellular effects of an herbicidal drug. The drug is code-named B1 in the NYIT Drug Library and uses the solvent DMSO. This drug according to our data did not kill yeast on the sucrose, glucose and glycerol media. This is indicated by the lack of halos present in our YPG, YPD, and YPS Halo Assays. We will continue to test the effects of B1 on yeast mitochondria, yeast cell cycle, yeast enzyme secretion, and tetrahymena endocytosis and chemotaxis to identify its possible target.

# A 32-Channel Wireless Bi-Polar Stimulator with Configurable Current and Pulse Width

Student Name: Zaid Abukhalaf  
Faculty Mentor: Aydin Farajidavar  
Department: Electrical and Computer Engineering  
School/College: School of Engineering and Computing Sciences,  
Old Westbury

Direct modulation of the stomach and neuromodulation of the vagus nerve are proved to be helpful in treating symptoms of functional gastric disorders, and the mechanisms of action underlying any beneficial effect remain unknown.

We have developed a 32-channel wireless bi-polar stimulator system with configurable stimulation pulse width and programmable stimulation current to study gastric electrophysiology. The system is composed of stimulator unit, which receives the commands wirelessly from a stationary unit (a computer) and then executes the stimulation commands as requested. The stimulator supports short pulse width of 80  $\mu\text{s}$  up to 60 seconds, and a programmable current in the range of 10  $\mu\text{A}$  to 10 mA in both directions by using a bi-directional current source (Howland Circuit) and a DAC. The stimulation circuit is capable of handling different load values up to 1.5K  $\Omega$ . The system supports stimulating two channels independently operating at the same time. Device is powered up by a 3.7V battery and an internal circuitry is responsible of boosting the voltage to  $\pm 15$  volts to support the load range and another circuit to drop the voltage to 3.3V to power up the microcontroller circuit.

# The Reliability of King Devick Visual Testing in Predicting Concussion Symptom Severity in Student Athletes

Student Name: Nicole Angelo  
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Departments: <sup>1</sup>Osteopathic Manipulative Medicine,  
<sup>2</sup>Family Medicine  
School/College: College of Osteopathic Medicine, Old Westbury

**Background:** The Symptom Concussion Assessment Test (SCAT) is a validated tool assessing the presence and severity of twenty-two post-concussion symptoms. The King Devick (KD) test has been shown as an effective sideline screening tool for concussion as validated by SCAT-2, Military Acute Concussion Evaluation (MACE), or Immediate Post-Concussion and Cognitive Testing (ImPACT). The accuracy of KD testing in the subacute setting in correlation with SCAT-3 severity scores has yet to be established.

**Objective:** To determine the reliability of KD testing scores in post-concussion subjects as an assessment tool in predicting concussion severity in student athletes.

**Methods:** This is a NYIT-COM IRB BHS-1139 approved study. This cohort study included participants (n=16) ages 18-50 recruited from the NYIT-COM Academic Health Care Center for evaluation post-concussion. Informed consent was obtained from all subjects. SCAT-3 and KD measurements were taken at the initial post-concussion evaluation visit. At follow-up 48-72 hours later, SCAT-3 and KD measurements were retaken. A Pearson correlation test and linear regression were utilized for statistical analysis.

**Results:** The results of KD Trials 1-3 statistically significantly predicted SCAT-3 symptom severity scores on the initial and follow-up visits. On initial visit, KD Trial 1  $F(2,13) = 8.425$ ,  $p = .005$ , KD Trial 2  $F(2,13) = 15.12$ ,  $p = .000$ , and KD Trial 3  $F(2,13) = 8.314$ ,  $p = .005$ . On follow-up, KD Trial 1  $F(2,13) = 9.123$ ,  $p = .003$ , KD Trial 2  $F(2,13) = 15.170$ ,  $p = .000$ , and KD Trial 3  $F(2,13) = 18.914$ ,  $p = .000$ .

**Conclusions:** KD Trials 1-3 demonstrated a statistically significant positive correlation with SCAT-3 symptom severity scores, showing the reliability of KD testing in predicting concussion symptom severity. Further research with larger sample sizes investigating the symptoms within SCAT-3 that correlate with KD scores should be considered.

## New York City's Green Slide

Student Name: Naweed Omar  
Faculty Mentor: Lawrence Sobel  
Department: Counseling and Wellness  
School/College: Student Affairs, Old Westbury

This will be a poster and learning document about New York City. More specifically it will be about the green centers in New York City from the Highline to Inwood Hill Park and even the botanical gardens. This poster will show how these green areas are helpful to the city in an environmental and economic way as well as background information on the park such as how they came to be and what they are known for.

## Exploring Stereo-Differentiation of “Rigid” Molecular Tweezers

Student Names: Malina Mohtadi, Alexandra Grala,  
Muhammad Adnan Ul-Haq, Fahad Albuobayd,  
Abdelrhman Soliman

Faculty Mentor: Ana Petrovic

Department: Life Sciences

School/College: College of Arts and Sciences, Manhattan

The tweezer methodology relies on a stereo-differentiating host/guest complexation between bis-porphyrin tweezer, which acts as a host, and substrate containing two sites of coordination, which acts as a guest. When bidentate coordination proceeds under stereocontrol, a formation of 1:1 host/guest complexes with a preferred inter-porphyrin helicity takes place. While several spectroscopic methods, such as UV-Vis, are commonly used to confirm the complex formation, the most critical chiral (handedness) information derives from ECD chiroptical spectroscopy. The observation of an intense exciton split CD band within the porphyrin Soret region (~420nm) unequivocally reveals that in solution prevail host/guest molecules with one preferred sign of chiral twist between the two porphyrins, which determines the sign of observed exciton CD. The traditional use of the tweezer methodology has been to aid determination of the Absolute Configuration (AC) of the chiral guest upon complexation and subsequent chirality transfer to achiral tweezer host. The exciton CD signal is diagnostic of guest's AC. This research reflects a Molecular Modeling effort with an objective to establish scope of applicability of a new family of more “rigid” tweezers which have propensity towards higher degree of stereo-differentiation relative to a traditional, more flexible tweezer. A more pronounced stereo-differentiation would allow a more definitive AC assignment of chiral guests, such as natural product used as drug leads.

## Chiral Switching & Stereo-Control of Molecular Tweezers

Student Names: Rena Daniel, Gabriela Alvim de Paula, Shiv Patel,  
Patrick Abruzzo  
Faculty Mentor: Ana Petrovic  
Department: Life Sciences  
School/College: College of Arts and Sciences, Manhattan

The traditional use of the tweezer methodology has been to aid determination of the Absolute Configuration (AC) of the chiral guest upon complexation and subsequent chirality transfer to achiral tweezer host. This research project digresses from the conventional use of the tweezer methodology and instead focuses on molecular parameters/features that can be exploited in order to govern the sense and degree of inter-porphyrin helicity (twist) as a results of complexation between chiral tweezer host with achiral guest. The preferred inter-porphyrin helicity of various host/guest complexes is predicted via Molecular Mechanics based modeling that utilizes a newly developed OPLS-3 force field implemented for Monte Carlo algorithm, as well as an implicit solvent environment. Overall, this research reflects a molecular modeling effort to justify and/or provide insight into possible mechanisms for induction of chiral switching (change in handedness) upon host/guest complexation involving achiral diamines of various lengths and steric sizes. The results of this research can find implementation in fabricating molecular switches and a binary code on a molecular scale.

## 32-Channel Wireless Implantable System for Gastric Slow Wave Recording

Student Names: Christopher Springston, Rui Bao, Zaid Abukhalaf,  
Faculty Mentor: Aydin Farajidavar  
Department: Electrical and Computer Engineering  
School/College: School of Engineering and Computing Sciences,  
Old Westbury

Abnormalities of gastric motility have been associated with gastric dysmotility in several significant gastric disorders, notably gastroparesis, and functional dyspepsia (FD). Patients suffering from these diseases may experience a range of symptoms from nausea, to stomach discomfort, to vomiting. As such, accurate diagnosis of gastric disorders can be challenging due to their common symptoms, and often requires lengthy diagnosis period.

The WiGR system is composed of a front-end module and a back-end that is connected to a computer. The front-end module features a 32-channel multiplexer (MUX), ADG732 (Analog Devices) connected to custom-made flexible sensors through a flexible printed circuit (FPC)/flexible flat cable (FFC) connector to collect GEA. Following the MUX, there is a two-stage circuitry for conditioning (amplifying and filtering) the GEA. The conditioned signal is then digitized at an ultra-low power microcontroller ( $\mu$ C), MSP430FR5728 (Texas Instruments (TI)) which features a built-in 10-bit analog-to-digital convertor (ADC) and a power efficient ferroelectric random-access memory (FRAM). The  $\mu$ C is also connected to a 1Gb non-volatile flash memory, as well as a sub-1 GHz RF transceiver before ending with a 433 MHz chip antenna, AM11DG-ST01 (Mitsubishi Materials).

In this paper, we presented a system which is designed and implemented for in vivo recording of GEA. Compared to the previous systems that were low resolution, the system in this paper can acquire signals from 32 channels, and can potentially accurately map the ectopic GEA. The front-end module of the system consumed less power compared to the previously built devices. The front-end module is small enough to fit within an endoscopic head, and can potentially be implanted through endoscopy. Finally, by utilizing the flash memory, the system can afford temporary loss of wireless communication between the front- and back-ends. Validation of the system in benchtop testing has shown promising results, however, rigorous in vivo experiments on appropriate animal models are required for further validation of the system, and before using the system in actual patients.

## MEMS capacitive sensors for Monitoring Gastric Motility

Student Name: Qi Kang  
Faculty Mentor: Aydin Farajidavar  
Department: Electrical and Computer Engineering  
School/College: School of Engineering and Computing Sciences,  
Old Westbury

The fed human stomach displays regular peristaltic contraction waves that are initiated and coordinated by an underlying bioelectrical activity known as slow waves. Slow waves are generated and propagated by interstitial cells of Cajal (ICC), which also act as intermediates between nerves and smooth muscle cells. Slow waves do not cause contractions of smooth muscle cells, unless their amplitude reaches a threshold. Thus, activity of the stomach can be detected through monitoring of slow waves, which represent activity of ICC, and contractions of smooth muscle cells. The goal of this study is to simulate and design a microelectromechanical (MEMS) capacitive interdigitated sensor that can monitor stomach motility in real time.

The interdigital transducers are composed of two comb-shaped structures, made up of metal (gold, silver or platinum), that are faced each other. Each comb is connected to a different voltage level (+V and -V), creating a capacitor between the fingers that are facing each other; because each finger represents a plate that has an opposite charge. The range of the stomach motility in the circumferential and longitudinal directions is approximately limited to 5 mm – 3 cm. We have developed various 3-D models of the interdigital transducer and simulated them in Comsol Multiphysics software, which is widely accepted in the modeling field, to determine the transducer parameters. Fixing the length, width and height of the combs to 23mm, 2mm, and 2mm respectively, when the distance between the electrodes changes from 5 mm to 30 mm, the total capacitance changes from 0.274 pf to 0.135 pf. This capacitance change gives us enough resolution to detect the stomach activity with approximately 5 mm resolution.

# Recombinant Protein DHFR Expression and Purification

Student Names: Balal Aslam, Malaq Alzanbqui, Jayson Balasico  
Faculty Mentor: Niharika Nath  
Department: Life Sciences  
School/College: College of Arts and Sciences, Manhattan

DHFR is an essential protein involved in the synthesis of essential molecules in our body such as nucleotides and amino acids, specifically for folate metabolism. As it is involved in the building of nucleotides DHFR is an essential target in the fight against cancer. Inhibition of DHFR is crucial in killing cells that are deemed to be overactive. Inhibition of DHFR will result in death of the cell, Drugs that target DHFR typically attack cells that are very overactive. In order to test drugs to inhibit the DHFR enzyme it is crucial to have pure enzymes to test the drugs with. The goal of our study was to induce cultures of Escherichia coli bacteria to produce Dihydrofolate reductase enzyme which are tagged with His- and GST- and then isolate and purify them for enzymatic activity. This project gave us the opportunity to purify DHFR enzyme which can then be sent to drug manufacturers in order to test inhibition of designed drugs. The studies started with growing cultures of BL21 E. coli bacteria which have a plasmid to produce the GST-DHFR-His tagged protein. This plasmid is pressured to remain within the cell when the antibiotic ampicillin is present. We standardized the induction of the protein synthesis by an inducer IPTG at various intervals ranging from 2 hrs to 24 hours. Subsequently, the cells were lysed, analyzed for protein production and overexpression of the induced protein by SDS-PAGE. Finally pure protein will be obtained via affinity chromatography and used towards anti-cancer cell biology studies.

# Expression of Mustn1 During MSC Chondrogenic Differentiation

Student Name: Anum Mitha  
Faculty Mentors: <sup>1</sup>Michael Hadjiargyrou,  
<sup>2,3</sup>Daniel Grande  
Department/School: <sup>1</sup>Life Sciences, College of Arts and Sciences  
<sup>2</sup>Orthopaedic Surgery,  
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North Shore LI Jewish Health System

**INTRODUCTION:** The Musculoskeletal Temporally Activated Novel Gene (Mustn1) was initially discovered through bone regeneration experiments. It encodes for a 9.6 kDa nuclear protein whose expression is restricted to the musculoskeletal system, specifically in osteoprogenitor cells of the periosteum, proliferating chondrocytes, myocytes and satellite cells, as well as mesenchymal cells [2,3,5]. It is also expressed in adult tendon and skeletal muscle. During, fracture repair it exhibits an up regulated expression, especially at post fracture day 3 and 5 [2,3,5]. Mustn1's restricted tissue specificity and strong promoter makes this gene an ideal candidate for utilization in cell lineage studies that could unveil cellular/molecular mechanisms responsible for musculoskeletal development and regeneration [2,3,5]. The objective of this study was to determine whether Mustn1 is expressed during mesenchymal stem cell (MSC) chondrogenic differentiation. TGF  $\beta$ -3 is a protein that's involved in development, cell differentiation, and embryogenesis and was used to induce MSC Chondrogenic differentiation. GDF 5, a member of the TGF- $\beta$  superfamily [1] is known to have a role in skeletal development, was also used to induce MSC chondrogenic differentiation. Kartogenin (KGN) is a small molecule that has been found to be effective in promoting the differentiation of mesenchymal stem cells into chondrocytes [6]. Studies show that KGN enhances cell proliferation in a concentration-dependent manner and induces a chondrogenic differentiation of stem cells, as demonstrated by high expression levels of the chondrogenic markers, Aggrecan, Collagen II, and Sox-9 [6]. Alcian blue staining is used to stain glycosaminoglycans present in cartilage. Thus, the overall hypothesis for this study is that Mustn1 plays a role in the differentiation of MSCs into chondrocytes and it was tested on bone marrow MSCs.

**DISCUSSION:** Mustn1 is an important factor in chondrogenic differentiation. Using the chondroinductive morphogens GDF5+ and TGF  $\beta$ -3 we observed biphasic responses with peaks at days 3 and 21 in both groups. Sox-9 (a pre-chondrocyte cell marker) was up regulated at day 5 in the positive control (GDF 5+). Collagen II is a target gene of Sox-9 and demonstrated a biphasic response when exposed to GDF5+ and Kartogenin with peaks at day 7 and 21. Aggrecan expression was up regulated significantly by day 21 by exposure to GDF 5+ and Kartogenin. As such, the expression of Mustn1 correlates well with previous data (2,3) as well as to further our understanding in its role in MSC differentiation.

**SIGNIFICANCE:** These experiments represent the first experiments to attempt to decipher the role of the Mustn1 gene in MSC chondrogenic differentiation and its relation to the induction of the archetype cartilage transcription factor Sox-9.

# The Effect of Real Time Auditory Feedback During Palpation of a Simulated Lumbar Spine in the Education of Physical Therapy Students

Student Name: Nick Andrei Peret  
Faculty Mentor: Mark Gugliotti  
Department: Physical Therapy  
School/College: School of Health Professions, Old Westbury

Physicians, physician assistants, and nurses worldwide have slowly introduced the use of educational technology and simulation-based training to help students, and licensed professionals practice their skills and learn in a safe and controlled learning environment. Physical therapists have not yet embraced this technology as a high-impact teaching tool, leaving students to learn in a more traditional, subjective manner with no objective feedback. The purpose of this study is to determine if the use of real time auditory feedback (RAF) during simulated lumbar spine palpation can improve the speed and accuracy of a student physical therapist's manual therapy skills. This study will be a mixed design and include 30 student participants from NYIT's Physical Therapy program. Students will be randomly assigned to either one of three groups: 1 receiving RAF while using the simulated lumbar spine during training, 1 that will not receive RAF during the same training, or control. A mixed analysis of variance (ANOVA) will be used to compare the mean differences within and between groups of this pretest-posttest study. We hypothesize that the utilization of RAF will improve the speed and accuracy of a student physical therapist's manual therapy skills during simulated lumbar spine palpation.

# Artificial Intelligence Consciousness and Ethics

Student Names: Minjie Tang, Zancheng Wang, Yimu Liu  
Faculty Mentor: Sonali Chandel  
Department: Electrical and Computer Engineering  
School/College: School of Engineering and Computing Sciences, Nanjing

In recent ten years, the application of artificial intelligence (A.I.) in various fields has become a highly debated topic among researchers. Yang Qiang, a computer science professor in Hong Kong University of Science and Technology, argues that A.I. is useful to a variety of businesses, with advertisements and financial decisions achieved with the help of big data analytics and machine learning technology. Productions in A.I. such as Alpha Go have proved that A.I.'s ability of rational thinking is superior to those of human beings. Nevertheless, the opinion about AI's potential for possession of emotions and consciousness not received adequate consideration. Our research will concentrate on whether A.I. has emotions and consciousness using the following questions: (1) What is the process for machines to handle typical information compared to that of common people? (2) What is the origin of consciousness for people and what is the possibility for machines to develop their own consciousness and emotions in the future? (3) If A.I.s generate their emotions, should they have the same rights as human beings? Based on a comprehensive review of recent peer-reviewed research, this project provides new interpretations of the existing issues about A.I. awareness and new definition of what is consciousness. The paper asserts that A.I. will have their own consciousness when the complexity of algorithms and the machine learning technology reach a higher level. Meanwhile, with the changing of social values, people will accept A.I.s and A.I.s should be given the same rights as human beings.

## A Comparative Study of Cyber Laws in China and the U.S.

Student Names: Ye Chen, Ran Zang  
Faculty Mentor: Sonali Chandel  
Department: Electrical and Computer Engineering  
School/College: School of Engineering and Computing Sciences, Nanjing

Nowadays, the Internet is everywhere. Nearly everyone enjoys the convenience which it brings while seldom we try getting to know the cyber laws. Cyber law is a system which maintains online order. Because of the difference of national conditions, cyber laws are not the same in different countries. Here we are going to compare the cyber law in China with that in the U.S.

Chinese cyber law pays more attention to control and blocks many famous foreign website while the U.S. emphasizes freedom of speech online. Mostly people prefer the latter, but we would like to find advantages and disadvantages in both of them.

In addition, copyright online is also a matter of concern. It may seem good to watch films or listen to music for free, but it does hurt someone else's right. We will see what the two countries have done in this regard.

What's more, the improvement of cyber law must keep pace with the development of technology, which is developing at a high speed these days. Besides, the maintenance of cyber order also needs the effort of every individual. We hope to bring more awareness to the people of U.S. and China about their rights as a netizen through this study.

# Research on Bluetooth Security

Student Names: Du Kejun, Lu Siyu, Chen Siting, Zhu Xueqi, Li Wanyue  
Faculty Mentor: Sonali Chandel  
Department: Electrical and Computer Engineering  
School/College: School of Engineering and Computing Sciences, Nanjing

Nowadays, with the development of technical communications, the art of connecting things is getting more and more complicated. Since 1994, Bluetooth has become one kind of common methods to connect and integrate with users by sharing voice and data, connecting to PCs and other machines around. Obviously, it is wireless, inexpensive, and upgradeable.

However, Bluetooth comes with a few disadvantages, including slow transfer speed, poor data security, short-range distance and short battery life. Among these, the most alarming one is undoubtedly the security issue. Hackers can control devices unconsciously by means of stealing mobile data and sending relevant information. Also, they read hardware identification number (IMEI) at their will. Numerous problems that creates potential threat for users' privacy and property have negative impacts on the Bluetooth's future. As a result, in this presentation, we will talk about some most common current security issues which Bluetooth is facing. Meanwhile, we are going to put forward our solutions for those problems, based on the basic concepts of Bluetooth technology, the network technology of Bluetooth system, the security mechanisms of Bluetooth and its loopholes, key components and functions, several threats to transfer security and some methods to guard against attack.

From our perspective, the password of Bluetooth is the vital factor for ensuring security. So we are looking forward to finding the solution for this problem through this research. There are two schemes to defense this invasion. The first scheme is to make the cost of deciphering the password exceeds the value of the encrypted information. The second scheme is to make sure that time to decipher the password exceeds the useful life of the information. We have thought about the solution of generating the password randomly and setting the combined passwords etc. We will test these solutions' practicalities and summarize the best one.

# Chatbot: Efficient and Utility-based Platform

Student Names: Yuan Yuying, Gu Yujie, Qi Xinyu  
Faculty Mentor: Sonali Chandel  
Department: Electrical and Computer Engineering  
School/College: School of Engineering and Computing Sciences, Nanjing

The aim of this paper is to analyze the technology of Chatbot which can simulate humans to interact with people and investigate the development of Chatbot which may replace utility which is a piece of computer software that has a particular use in the future. First of all, by using the example of Facebook, we will point out that Chatbot using artificial intelligence is the new trend. Then we will analyze the significance of the Chatbots. The salient features of the related techniques are discussed with the examples of 5 popular Chatbots based utilities. Also we want to know people's view of Chatbot and find if the popularity of this utility is rising or declining? The way they work and their advantages and disadvantages will be analyzed respectively through the arrangement and analysis of information, as well as statistics and conclusions. Further, we will introduce the design principle of Chatbots and use the examples of some popular utilities to specifically explain them. We will also try to find out a relationship between Chatbots and utility using the study of their time complexity and space complexity according to the experimental results. In future, humans will be more likely to use human-computer interaction instead of interacting with Chatbots rather than network connections or utilities. By this research, we hope we can provide more information for people to know better about the relationship between Chatbots and utility.

## **Breakout Session Presentations**

**16 W. 61st St., 8th floor**

**Room 822**

**Moderator Gavin McStay**

**1:30 - 3 p.m.**

- “Tackling Shelter Concerns while Cultivating Global Citizens in Nicaragua  
By: Chanelle Sears
- “Surviving on Mars”  
By: Karine Genadry
- “Potential Epilepsy Drug Effects on Cell Function”  
By: Roua Aram, Nabila Siddiqui
- “Functions of a Pesticide Drug, Code-named H1”  
By: Ali Haidery, Khizer Kahn
- “H1”  
By: Jatinder Bassi, Umay Mughal
- “Ethical Considerations Regarding Disclosure of Off-Label Drug and Device Use as a Component of Informed Consent in a Resident Training Program”  
By: Jordan Fakhoury

## Tackling Shelter Concerns while Cultivating Global Citizens in Nicaragua

Student Name: Chanelle Sears  
Faculty Mentor: Amy Bravo  
Department: International and Experiential Education  
School/College: Student Affairs, Old Westbury

On January 7 - January 15, 2017, an interdisciplinary group of students and staff from the New York Institute of Technology ventured to El Mojon, Jinotega, Nicaragua alongside the nonprofit organization Bridges to Community (BTC). El Mojon is home to approximately 1,200 people, many of whom do not have electricity or access to running water. Due to the climate, elevated heights, and terrain, farming cabbage, lettuce, corn, beans and coffee, is the community's primary occupation with a typically earning of less than \$5 a day.

This project sought to address the basic human need of shelter for a Nicaraguan family. Prior to the group's arrival, the Cruz Dia family, whose home was constructed from wood, with tin roofs and dirt floors, burned down in an unsuspecting fire leaving them with nothing, but the clothes on their backs. The family was able to find temporary shelter in a home that housed six families, twenty people, in a space designated for one single family.

The group of eleven from NYIT, under the leadership of three Nicaraguan masons and two BTC Staff members, constructed a 15' by 18' home using cement, cement blocks, steel, wood, tile, and tin.

The group conducted ethnographic research by immersing themselves in the Nicaraguan culture. They stuck to a diet of only Nicaraguan cuisine, which was prepared by Nicaragua women. Non-Spanish speaking members of the group engaged in Spanish lessons to increase verbal communication. During the nights, the group participated in reflection activities to challenge their critical thinking skills.

As a result of this project, the group was able to create a prosperous and hopeful future for the family, who now can live in a home "That they can be proud of." Each member of the group was able to gain a better perspective of the disparities that Nicaraguans face and the importance of being civically engaged global citizens.

## “Surviving on Mars”

Student Name: Karine Genadry  
Faculty Mentor: Matthias Altwicker  
Department: Architecture  
School/College: School of Architecture and Design, Manhattan

*“Going to Mars would evolve humankind into a two-planet species” Buzz Aldrin*

Humans from all cultures around the world have been curious about the Red Planet Mars since before recorded history. After NASA’s discovery of flowing water on Mars, the possibility of packing up and moving to the Red Planet seems more real than ever before. Realized during Spring 2016 in the American University of Beirut (AUB), this project focuses on the conquest and survival on Mars.

It is a design project where architecture is used to offer solutions to make Mars a habitable planet for mankind, by designing utilitarian shelters for future space habitats that can withstand Mars conditions: extreme cold, high radiation levels, lack of oxygen, frequent dust storms, etc.

For the project to be realized, the following criteria were exposed:

- study of the Mars Environment: conditions, location, survival needs, transportation systems, program;

- study of space innovation, rocket launchers and landers;

- study of structures, fabrication and construction systems;

- use of appropriate materials on Earth deployed to Mars;

- fabrication on Mars based on local materials;

- economic sense of the project in relation to finance and innovation from the business world perspective.

After studying Mars’ surface, an appropriate location was focused on (Meridiani Planum) for the designed rocket to land and the terraforming of Mars to begin.

## Potential Epilepsy Drug Effects on Cell Function

Student Names: Roua Araim, Nabila Siddiqui  
Faculty Mentor: Navin Pokala  
Department: Life Sciences  
School/College: College of Arts and Sciences, Old Westbury

We are studying how a potential epilepsy drug, code named E1 in the NYIT Drug Library, functions in cells. E1 kills yeast cells most efficiently on glycerol-containing media, suggesting that it may affect protein secretion or metabolic regulation. We are following up on these preliminary data with experiments using yeast assays of enzyme regulation and secretion, and Tetrahymena assays of exocytosis and chemotaxis to probe potential cytoskeleton function.

## Functions of a Pesticide Drug, Code-named H1

Student Names: Ali Haidery, Khizer Khan  
Faculty Mentor: Navin Pokala  
Department: Life Sciences  
School/College: College of Arts and Sciences, Old Westbury

We are studying the function of a pesticide drug, code-named H1 in the NYIT drug library. We will examine the function of H1 on the secretion of yeast invertase enzyme, cell cycle progression, and mitochondrial activity. We will also assay tetrahymena endocytosis and chemotaxis to identify possible effects on cellular signaling and cytoskeleton function.

# H1

Student Names: Jatinder Bassi, Umay Mughal  
Faculty Mentor: Navin Pokala  
Department: Life Sciences  
School/College: College of Arts and Sciences, Old Westbury

The purpose of this research is to understand the function of the pesticide drug, code-named H1, in the NYIT Drug Library. The H1 drug is known to kill yeast under all conditions, suggesting it may affect the cell cycle or basic metabolic processes. In our ongoing research, we will study H1's function using yeast assays of enzyme regulation and secretion, and probe cytoskeleton function using Tetrahymena assays of exocytosis and chemotaxis. Acquiring this information may help researchers understand why this drug is used as a pesticide.

# Ethical Considerations Regarding Disclosure of Off-Label Drug and Device Use as a Component of Informed Consent in a Resident Training Program

Student Name: Jordan Fakhoury  
Faculty Mentors: <sup>1,2</sup>Adam Bitterman, <sup>2</sup>Christopher Healy, <sup>3</sup>Michael Grosso, <sup>4</sup>James Gurtowski

Department/  
School/College: <sup>1</sup>Orthopedic Surgery, College of Osteopathic Medicine, Old Westbury  
<sup>2</sup>Orthopaedic Surgery, Hofstra Northwell School of Medicine: Plainview Hospital  
<sup>3</sup>Medical Affairs, Hofstra Northwell School of Medicine: Huntington Hospital  
<sup>4</sup>Orthopaedic Surgery, Hofstra Northwell School of Medicine: Huntington Hospital

Relatively few studies have evaluated the quality of informed consent in practice settings, and where such studies have been undertaken, large gaps have been identified.

The present study considers the issue of condition-specific Food and Drug Administration (FDA) approval status for drugs and devices employed in the practice of orthopaedics and its relationship to informed consent.

Twenty orthopaedic attending surgeons and twenty orthopaedic resident surgeons were surveyed across five institutions in this IRB approved study. The attending surgeons are regularly involved in resident education. These institutions include Level I and II Trauma Centers and community hospitals.

Knowledge deficits regarding the FDA-approved indications for drugs and devices contribute to non-disclosure of off-label use. Furthermore, some physicians may deem off-label disclosure unnecessary if its' particular usage has been well studied in literature. There is also a discrepancy regarding disclosure of allograft material amongst those in practice compared to those in training.

One can conclude that surgeons knowingly withhold or fail to volunteer information on a regular basis. Variances in informed consent disclosure from physician to physician may also be due to the lack of knowledge associated with particular medications or procedures, or the process of informed consent in its entirety. Additionally, we believe that physicians-in-training who will one day become responsible for obtaining informed consent should be educated on all aspects of the process.

## **Breakout Session Presentations**

**16 W. 61st St., 10th floor**

**Room 1026**

**Moderator Dorinamaria Carka**

**1:30 - 3 p.m.**

- “Knock Knock On China's Great Firewall  
By: Zhipeng Zhang, Jingyao Sun, Shilin Yan, Yunnan Yu,  
Jingji Zang
- “Social Media Improves the Access of Intercultural Communication”  
By: Qian Zhang
- “Music – The Purest Art Form”  
By: Christine Aberyuf
- “An Analysis of Chinese Culture Symbol in Zhang Yimou’s Films”  
By: Jing Xie
- “Perception, Phenomenology, and Painting”  
By: Shayna Abramson
- “Chinese Traditional Opera from the Perspective of Semiotics”  
By: Xiaomeng Wang

# Knock Knock on China's Great Firewall

Student Names: Zhipeng Zhang, Jingyao Sun, Shilin Yan, Yunnan Yu,  
Jingji Zang  
Faculty Mentor: Sonali Chandel  
Department: Electrical and Computer Engineering  
School/College: School of Engineering and Computing Sciences, Nanjing

The Great Firewall has been preventing internet users in China from visiting certain foreign websites ever since 2008, and some recent news about it caught our attention. Two months ago, the Ministry of Industry and Information Technology just introduced a series of policies banning the use of VPNs -- the only way to get across the wall -- regardless of people's protests.

We have chosen this topic for the following three reasons: First of all, we have met some difficulties in our study because the Great Firewall poses a limit on the academic work we can refer to. What's more, as members of the younger generation, the need for us to use social networks like Facebook, along with other popular sites, are not met. As students who plan to further our study in the U.S., not being able to communicate with foreign peers online is a great disadvantage. Last but not the least, we question the rationality of the "wall" and policies helping to enhance it.

Basically, we plan to develop the research chronically. Using knowledge from our courses we have taken and more general readings on national management and history, we will try our best to draw a grand picture of the Great Firewall, including its origin, development and social impact. We will make every effort to analyze the reasons why the country has developed rapidly while the "wall" has become higher and more impenetrable. In addition, we will conduct interviews on how different groups of people view the Great Firewall. While doing our research, we found it ironic that we have to use a VPN because we can barely find any reliable Chinese sources to refer to, which strengthened our commitment to conduct this project. The five of us started this research project with the wish for providing a fresh perspective to later studies on the topic, a perspective from a group of young people who live inside the "wall" but dream to knock down perhaps just one block from it.

## Social Media Improves the Access of Intercultural Communication

Student Name: Qian Zhang  
Faculty Mentor: James Fauvell  
Department: Communication Arts  
School/College: College of Arts and Sciences, Old Westbury

In the age of information and communication, an increasing number of social media platforms appear which changes the way of thinking, behavior and life of human's in daily life. Social media as if a wide and huge invisible net connects various kind of person and areas as well as countries even at the same time it also strength this kind of relation to some extent. It provides people with a far more easy and efficient way to receive the information which enables cognition clear and understanding even comprehension deep. It means that social media platform improves the ability of spread and blend as well as inclusiveness of different culture. Communication is shifting to a more universal language creating a new global communication. Social media has a great influence on the each country and culture which improve the access of intercultural communication indeed.

## Music – The Purest Art Form

Student Name: Christine Aberyuf  
Faculty Mentor: James Fauvell  
Department: Communication Arts  
School/College: College of Arts and Sciences, Old Westbury

Classical music and many other genres of music without lyrics, offer insights into life not available through other art forms. It possesses identifiable meanings, as well as symbolic content and should be considered as the purest form of art. It transcends time, cultures, and languages.

This paper will exam and update the following ideas from Suzanne Langer's text, Philosophy in a New Key and will apply those ideas to explain and improve our knowledge of music as a form of art.

- 1) What role does music play in our culture?
- 2) What is it about music that makes it pure art?
- 3) Music as a work of art vs. music as an artifact
- 4) The difference between good and bad music
- 5) The composer vs. the performer
- 6) The significance of the words or lack thereof.

# An Analysis of Chinese Culture Symbol in Zhang Yimou's Films

Student Name: Jing Xie  
Faculty Mentor: James Fauvell  
Department: Communication Arts  
School/College: College of Arts and Sciences, Old Westbury

Zhang Yimou is a Chinese artist who has been successful creating “global” art forms using universal signs and symbols.

As a filmmaker with high reputation, he is not a Chinese director, but a global one who is expert in telling Chinese stories to the world using representative Global cultural elements such as color (red/blue...), music (Chinese traditional opera/Chinese folk music), scene (similar to Chinese ink painting), props (red lantern/red cloth...) He has created a way to convey Chinese culture through images which can be understood globally. This could be the beginning of a new “globally understood” language. In my paper, I will focus on those four aspects to demonstrate.

## Perception, Phenomenology, and Painting

Student Name: Shayna Abramson  
Faculty Mentor: Anthony Dimatteo  
Department: English  
School/College: College of Arts and Sciences, Old Westbury

Phenomenology is concerned with describing human consciousness and one's state of awareness. In my paper, I frame phenomenology through the lens of Impressionism by analyzing the styles of a few artists including Chagall, Monet, Cezanne, and even Gaudí. As an artist, the viewer is shown different things that aren't actually real, but one can experience them as if they are through the portrayal of paint on the canvas. Creating the sensation and feeling of reality is more important than the minute details and accurate representation of any one object.

I show how these artists tried to express their raw perceptions, and convey the meaning of 'seeing' in their own ways. This new way of depicting things mirrors how humans perceive things in real life. When we look at a landscape, if we are focused on one thing, it is the only part that is truly clear to us. We do not see everything in sharp focus at all times, and this is what Impressionism tries to depict. We see what we want to see, and what society tells us is there.

## Chinese traditional opera from the perspective of Semiotics

Student Name: Xiaomeng Wang  
Faculty Mentor: James Fauvell  
Department: Communication Arts  
School/College: College of Arts and Sciences, Old Westbury

Chinese traditional opera has always been a kind of worldly and entertaining art, nevertheless, it also formed a superb artistic level. Traditional opera embodies the traditional Chinese culture everywhere, deeply implanted in the inner soul of China, influenced the ancient Chinese people's thinking about society and life. From the perspective of Susanne K.Langer, especially her book *Philosophy in a New Key : A Study in the Symbolism of Reason, Rite, and Art*, Chinese opera is a best example to discover the relationship between art and human being. Here are some basic feature of Chinese traditional opera, Langer's symbolism can be embodied by them. My analysis is foregrounded by four Susanne K. Langer's four concepts. I will discuss if the Chinese opera match Langer's concepts in the paper.

## **Breakout Session Presentations**

**16 W. 61st St., 10th floor**

**Room 1029**

**Moderator Michael Hadjiargyrou**

**1:30 - 3 p.m.**

- “NYIT Nanjing School of Management 2016 GFSRC Project”  
By: Hui Yang
- “Audience”  
By: Adlina Anthony, Shane Ramjutton, Deval Mistry
- “The Future of the PR Industry is Global Using New Forms of Communication to Operate”  
By: Han Gao
- “PRSSA Is Here: NYIT/MA!”  
By: Pakkaporn Chatthaworn, Lipigarn Chaitieng, Deval Mistry, Haoming Xu, Wannicha Photongkanong, Naphapatch Gatwongcha, Ratiporn Watcharasuchai
- “The Effects of Mass Media in the Racism Against Muslims in the American Society”  
By: Saleh Bin Khulayf
- “Diversity: Effects of Bias in Newsrooms and Reporting”  
By: Maylan Studart

## NYIT Nanjing School of Management 2016 GFSRC Project

Student Name: Hui Yang  
Faculty Mentor: Keh Kwek  
Department: Management  
School/College: School of Management, Nanjing

Despite the vast research on the relocation of manufacturers in mainland China to Southeast Asia, for example, Vietnam and surrounding countries, little is known about the detailed process of these complex decisions. The general perception that emerges from the existing research is that the trend of relocation is driven by cheap production costs, which is followed by other low value-added production processes.

GFSRC project details the factors considered in the relocation by conducting a feasibility study of enhancing the value-chain of Zhejiang Le Sueur Vidie Co. Ltd., a garment manufacturer, by relocating part of its production processes from Shaoxing, Zhejiang Province on the east coast to an economic zone in Dongxing, Guangxi Province on the west coast, on the border between China and Vietnam.

This project relies on existing scholarly research, as well as previously conducted field investigations of Shaoxing and Dongxing, an examination of operations, and interviews with government officials, management and workers which the presenter plays an active part in. As a result, it concludes that Dongxing's unique geographical location, abundant Vietnamese labor resources, and the favorable policies of both Dongxing Municipal Government and the Central Government of China make Dongxing a viable destination for textile and garment manufacturing plants and workshops.

However, the special cross-border economic zone is not yet in operation and the favorable policies have thus not been finalized. As a result, the most desirable benefit — the “Made in Vietnam” label — is currently not legal in the zone. Ultimately, the manufacturers are unable to take advantage of the U.S. preferential tax policies towards Vietnam-made products. As part of a growing body of research on the relocation of manufacturing to Southeast Asia and the surrounding countries, this project will shed important light on the capital investment in these regions and contribute to future research on similar topics.

## Audience

Student Names: Adlina Anthony, Shane Ramjutton, Deval Mistry  
Faculty Mentor: Paul Demonte  
Department: Communication Arts  
School/College: College of Arts and Sciences, Old Westbury

Based on a Brandwatch.com. 17% of Internet viewers use Instagram. Among the top 50 brands that are followed 53% of them are women. Women from the ages 18-25 in this century are actively following many brands on social media as well as posting pictures to create an identity that reflects on how they look or a perceivable image of themselves. 38% of women between the ages of 18-25 use Instagram on a daily basis according to the Pew Research Centre. We are centering this short film on the usage of Instagram and how young women battle with body image issues, eating disorders by using images and creating a different identity.

A wide perspective on the social media bias of young women in the 21st century. We are presenting a film that shows the life of two young women and how they live in our society where Instagram and Snapchat are the main filters of their lives. These women are from two different backgrounds and social groups. It is based on the conflicts and issues we have encountered within our circle of friends in and outside of the university. Image perception and the why the use of a fake identity to portray oneself on social media is the message we are extending in this short film. This film will be a 10-minute short and is in the process of pre-production. We will be using a SONY FS 7 camera for the shoot to gather close ups and wide angle shots of the characters behavior and actions throughout the film.

# The Future of the PR Industry is Global Using New Forms of Communication to Operate

Student Name: Han Gao  
Faculty Mentor: James Fauvell  
Department: Communication Arts  
School/College: College of Arts and Sciences, Old Westbury

According to the latest survey of PR week magazine, most people feel the future of the Public Relations industry is uncertain. With new technology and new media products coming out constantly, it's indeed hard to have a clear understanding of the need of PR companies in the future. This paper will utilize the Suzanne Langer ideas about language, music and symbolism to show how the Public Relations industry should adapt to this new global world of communications. The process includes drawing symbol modes, explaining the impact from music and arts, exploring unique language, and showing global connections to life symbols.

Hopefully, a whole new and differentiated understanding of PR industry will be generated after the process.

## PRSSA Is Here: NYIT/MA!”

Student Names: Pakkaporn Chatthaworn, Lipigarn Chaitieng, Deval Mistry,  
Haoming Xu, Wannicha Photongkanong,  
Naphapatch Gatwongcha, Ratiporn Watcharasuchai  
Faculty Mentors: Luvon Roberson, Youjeong Kim  
Department: Communication Arts  
School/College: College of Arts and Sciences, Manhattan

“PRSSA Is Here: NYIT/MA!” is a 2.49 minute promotional video presentation, created by a group of Communication Arts students. It was a key communications component of the “Looking For Jobs?” event, held on March 2, 2017, which formally launched the Public Relations Student Society of America chapter on the Manhattan campus. The primary event objectives of this launch event were to raise awareness of PRSSA NYIT/MA and to provide NYIT students who attended the launch event with tips and tools to land jobs and internships across the communications profession.

By creating a promotional video that showcases students from the target audience, sharing their experiences with PRSSA or their challenges in finding a job or internship, the video helps generate conversations – far beyond those who viewed the video. Through word of mouth, NYIT students share what they learn about the PRSSA chapter on the Manhattan campus and, in such story-sharing are inspired to become part of the PRSSA community on the NYIT Manhattan campus.

# The Effects of Mass Media in the Racism Against Muslims in the American Society

Student Name: Saleh Bin Khulayf  
Faculty Mentor: Youjeong Kim  
Department: Communication Arts  
School/College: College of Arts and Sciences, Manhattan

Racism and discrimination in the US have become a big phenomenon that hurts people who are facing it. A long time ago, the US saw the worst kind of discrimination which was about the individual's color. Nowadays, it has become against the groups instead of individuals, therefore, whatever the race you belong to, or the religion you believe in, some people might treat you differently based on their point of view about you. For example, Muslims, Latinos, African Americans and other minorities in the US society are facing some discrimination racial that makes negative impacts in their life. Those consequences include losing jobs and educational opportunities, health care, and social dislike etc.

Those beliefs have shaped from external factors such as school, friends, and families. However, from a communication perspective, media is the critical external factor that creates those opinions in the people's head. This done by exposing and repeating indirect negative messages that unconsciously creates a stereotype in the individuals' imagination. The theoretical framework of this paper will discuss the how the mass media influence the public view.

In doing so, the media represented other groups and minorities in a way that creates a stereotype about them. However, since I represent Muslims, this paper will be concentrating on **"The Effects of Mass Media in the Racism Against Muslims in the American Society"** Moreover, based on the research's hypotheses and questions, this paper will demonstrate how the media represented Muslims? And what are the consequences of that based on quantitative data collections? Why it's important to know that?

## Diversity: Effects of Bias in Newsrooms and Reporting

Student Name: Maylan Studart  
Faculty Mentor: James Fauvell  
Department: Communication Arts  
School/College: College of Arts and Sciences, Old Westbury

How diversity and diversity policies impact reporting and teamwork in the newsroom. Gender, age and cultural diversity are the focus.

Thesis statement: Diversity in the newsroom strongly impacts which stories get told and how they are covered. Strong diversity policies lead to more diverse coverage and less bias in the writing.

The paper that follows will examine and update the following ideas:

- diversity affects the way stories are told in the media;
- diversity affects which stories get put on the air;
- diversity makes for more liberal-leaning newsrooms;
- despite diversity not being a priority in many media companies, large media conglomerates tend to be more liberal and some conservative due to their diversity policies;
- a democratic process in story selection is necessary to best report the news;
- a balance of young and older reporters and producers is necessary to avoid bias and create a well-rounded story;
- diversity needs to reach upper management and executives in media;
- an analysis of how diversity and diversity policies impact reporting and teamwork in the newsroom. Age and gender is in focus.

## **Breakout Session Presentations**

**16 W. 61st St., 11th floor**

**Auditorium**

**Moderator Navin Pokala**

**1:30 - 3 p.m.**

- “Mylab”  
By: Lucas Rizzotto
- “APOE Genotype and Creativity”  
By: Samantha Gottlieb
- “Characterization of Cancer-associated Caspase-3 Mutations”  
By: Uzayr Arif, Tafheem Nayeem
- “Functional Analysis of Chemotherapeutic Drug, D1”  
By: Tafheem Nayeem, Siraat Zafer
- Demonstration of Quadruplex DNA in the Mammalian Eye Globe”  
By: Maryam Rabbani, Suhani Shah, Neha Raza, Stephanie Campos, Astha Desai, Almeet Kaur
- “A Zimbabwean in China”  
By: Haobang Geng

# Mylab

Student Name: Lucas Rizzotto  
Faculty Mentor: Rajan Khullar  
Department: Computer Science and Electrical Engineering  
School/College: School of Engineering and Computing Sciences,  
Old Westbury

MyLab is an educational tool that lets you explore an interactive periodic table through the power of holograms. Spawn atoms around your environment, view their atomic structures and explore the various types of elements that are the building blocks of your world.

Developed for the Microsoft HoloLens, the world's #1 Mixed Reality untethered computer, MyLab is a glance at what the future of classrooms can be like. It was developed using the Unity3D Engine and C#. Project was entirely designed and developed by NYIT student.

Video: [https://www.youtube.com/watch?v=MbOoeTIDG\\_w](https://www.youtube.com/watch?v=MbOoeTIDG_w)

# APOE Genotype and Creativity

Student Name: Samantha Gottlieb  
Faculty Mentor: David Tegay  
Department: Clinical Specialties  
School/College: College of Osteopathic Medicine, Old Westbury

## Background:

The *APOE* gene encodes the apolipoprotein E protein, essential for regulation of lipid metabolism in the body. Three common *APOE* polymorphisms exist: E2, E3 and E4. Multiple studies have associated the E4 polymorphism with an increased risk for late-onset Alzheimer's disease in comparison to the overall population risk and that of E3/E3 homozygotes. More recently, the *APOE* E2 polymorphism has been associated with increased linguistic ability at a young age as determined through longitudinal writing sample analysis, while *APOE* E4 was associated with decreased levels of certain cognitive functions. Some studies support a genetic component to aspects of creativity with a significant degree of heritability.

## Objective:

Null Hypothesis: There is no correlation between *APOE* genotype and quantitative measures of creativity characterized by the Creative Behavior Inventory (CBI).

Specific Aims: To determine the *APOE* genotype in a cohort of subjects, stratified by quantitative measures of creativity ascertained through the Creative Behavior Inventory (CBI).

## Methods:

*APOE* genotyping was performed through APOE\_RFLP analysis of 100 anonymized DNA samples from subjects completing the CBI obtained through an NYIT approved IRB protocol. Primer pairs for APOE\_RFLP were designed and a PCR protocol optimized for amplification of the *APOE* region containing the common *APOE* polymorphisms. Restriction enzyme digestion using HhaI followed by agarose gel electrophoresis was applied to determine sample genotypes.

## Results:

Of the 100 subjects enrolled, 56 had usable DNA samples isolated from buccal swab DNA collection kits and of those, 6 were unable to be genotyped, leaving a cohort of 50. Categorical *APOE* genotype frequencies were compared to continuous quantitative scores on the Creative Behavior Inventory using ANOVA with post-hoc analysis.

## Conclusion:

*APOE* genotype may contribute to a number of complex cognitive traits which could impact on certain quantifiable aspects of creativity.

## Characterization of Cancer-associated Caspase-3 Mutations

Student Names: Uzayr Arif, Tafheem Nayeem  
Faculty Mentor: Gavin McStay  
Department: Life Sciences  
School/College: College of Arts and Sciences, Old Westbury

Apoptosis, also known as programmed cell death, is a highly organized and regulated process of cell death crucial to the normal development and maintenance of multicellular organisms. The dysregulation of apoptosis can result in excessive cell death or uncontrolled cell proliferation, leading to the development of conditions such as neurodegenerative disease, autoimmune disorders, and many types of cancers. Caspases are a family of proteases, essential in the initiation and execution of apoptosis. In cancer genomic datasets, a number of cancer-associated caspase-3 missense mutants have been documented. We are studying the functional impact of several caspase-3 mutants from these datasets, chosen based on the severity and location of amino acid substitution relative to sites of catalysis or proteolytic processing. These caspase-3 mutants were successfully generated using site-directed mutagenesis of the wild-type caspase-3 gene within a bacterial plasmid. Accordingly, mutant caspase-3 protein was grown using *E.coli*, and will be tested both in bacterial extracts and in purified caspase-3 samples for changes in peptide cleavage activity. This investigation may elucidate whether specific missense mutations in caspase-3 could result in functional changes of the protease, possibly resulting in the dysregulation of apoptosis and subsequently contributing to the disease process of pathologies like cancer

## Functional Analysis of Chemotherapeutic Drug, D1

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We are studying the function of a chemotherapeutic drug (code-named D1 in the NYIT Drug Library) using yeast and tetrahymena as model systems. Our early findings indicate that D1 was effective at killing yeast plated on a variety of media, with the most marked cell death occurring on glycerol-containing yeast growth media; this suggests that this drug may target a cellular process which impairs mitochondrial function. We will also examine the impact of D1 on enzyme regulation, function and secretion using assays on yeast, as well as on the processes of exocytosis and chemotaxis using assays on tetrahymena.

## Demonstration of Quadruplex DNA in the Mammalian Eye Globe

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Our group has demonstrated for the first time, the presence and distribution of quadruplex DNA (i.e., four-stranded DNA) in the normal adult rabbit eye globe (e.g., cornea, lens, limbus, iris, retina). Additionally, this project represents the first attempt to correlate the effects of cell death on quadruplex DNA gene expression. We have initially focused our attention to the ocular crystalline lens. The ocular lens is perhaps the most interesting tissue in the mammalian body, since it is the only tissue that does not develop cancer, and contains many different cells undergoing a variety of special biological functions. The lens's simple structure, different biological processes and small size make it an ideal tissue for researchers to investigate cell growth, embryological development, epithelial function, cancer and aging. Normal adult rabbit eyes were processed in Davidson's fixative [30 ml 95% ethanol, 30 ml 10% neutral-buffered formalin], for 48 hours and then histotechnological developed to obtain formalin-fixed paraffin embedded tissue sections cut on a microtome at 3  $\mu\text{m}$  thick. Tissues were immunohistochemically stained with primary anti-quadruplex DNA IgG monoclonal (clone 1H6) antibodies (EMD Millipore), followed by a conjugated secondary antibody (i.e., avidin-biotin complex staining method) and a brief counterstain. Several controls were used. Other tissues were then stained with hematoxylin & eosin, and the Feulgen reaction (i.e., total DNA content), and then evaluated by light microscopy at different magnifications and photographs taken. The immunohistochemically stained tissue was then characterized [i.e., immunostaining intensities: Mean Optical Density (MOD) units] by using the Leica Quantimet 500+ (Q 500+) image-analysis system (Leitz, Cambridge, UK) with a 20 $\times$ /1.00–0.50 PI Fluotar objective (200 $\times$ ), in order to precisely quantitate the intensity of primary antibody binding to fixed tissue quadruplex DNA. We believe that the quadruplex DNA plays different roles in each of the molecular biological process (i.e., cell types) we discussed above. Knowledge pertaining to the expression of quadruplex DNA will prove valuable in developing drugs/biologics to treat cataracts. Additionally, it will shed light on the effect of cell death on the structure and function of quadruplex DNA in all types of tissue.

## A Zimbabwean in China

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As an economic powerhouse, China is attracting an increasing number of foreigners from around the world - especially Africans - who are seeking opportunities. China provides many things for Africans who are willing to work hard in their education and professional careers, but at the same time they encounter many unique difficulties. Many traditional Chinese people were unprepared for an influx of African migrants entering China, as in their mind, African black people are poor, rude and impolite.

Zico, a young overseas student from Zimbabwe, chose to come to Nanjing to start his university life. He used to think of China as a good place because there are a lot of friendly Chinese people in his home country helping local people construct infrastructure. But by the time he arrived, he began to think differently. He noticed that he was always treated suspiciously and discriminated against, which really hurt him a lot. The short documentary video I have made gives a brief introduction of the life of Zico, a representative of all black African people living and studying in China, hoping to make a call that "We are all the same."