



HONORS COLLEGE

The University of Texas at Arlington

HONORS RESEARCH SYMPOSIUM POSTER PRESENTATION ABSTRACTS

DECEMBER 4, 2020

COLLEGES OF BUSINESS, EDUCATION, HONORS, AND LIBERAL ARTS

10:00 AM – 11:30 AM

BASMAH ARSHAD, POLITICAL SCIENCE

Cultural Borders in China – Exploring Efforts of Social Control in Hong Kong, Taiwan, and Xinjiang

Faculty Mentor: Dr. Brent Sasley

China has, in recent years, exerted considerable efforts to police its cultural borders, and has persisted in the face of international criticism. Despite historical success in achieving social control over the Chinese citizenry during the Great Leap Forward (1958 to 1962) and the Cultural Revolution (1966 to 1976), the Communist Party is currently struggling to maintain that control. This capstone compares how the Communist Party manipulated cultural borders for successful control in the past to how its contemporary efforts at control have fallen short by examining Chinese policies in three case studies: Hong Kong, Taiwan, and Xinjiang. It utilizes a breadth of primary sources, including news articles, social media, and other content, while building upon existing literature. Taken in the context of the ongoing hegemonic competition between America and China, this recent failure to use cultural borders to achieve social control has startling implications and opportunities for American foreign policy.

JESSICA COSTA, HISTORY

Age and Modernity: The History of the Modern Art Museum of Fort Worth

Faculty Mentor: Dr. Gerald Saxon

The Modern Art Museum of Fort Worth is the oldest art museum in Texas. As such, it has a rich history that deserves to be explored. Photographs, newspapers, articles, videos, and books were analyzed to piece together the full story. Beginning in 1901 as the Carnegie Public Library Art Gallery, the museum changed names five times before it became the Modern 1987, and currently focuses on art from WWII to the present. The growth of the museum was influenced by its physical location within the cultural district and the two other art museums nearby (the Kimbell Art Museum and the Amon Carter Museum of American Art); the museum created a new identity for itself to stand out. Continuing this development, the museum moved to a new building designed by Tadao Ando in 2002. This institution is old and is well established as a part of Fort Worth's cultural district.

JILLIAN DAUGHERTY, MANAGEMENT

Diversity Matters: The Effect of Campus Racial Diversity and Cultural Competence on Job Choice

Faculty Member: Dr. Faye K. Cocchiara

The current study investigated the effect of campus racial diversity and level of cultural competence on students' post-graduate job choice. Two methods were used to answer the research question, 1) a survey of undergraduate students at two of the most diverse and two of the least diverse Texas public universities and 2) a review of relevant scholarly Management literature. The analysis revealed that the diversity of the university was an important consideration for students when choosing their post-graduate job. Similarly, analysis revealed that cultural competence is also an indicator of students' desire for diversity during their job search. These revelations suggest that interacting with students with different demographic backgrounds while in college will help develop more well-rounded students with high levels of cultural competence. Students who possess high levels of cultural competence have the potential to become more balanced professionals in the workplace.

VALERIE KILBURN, MUSIC

Influence of Music Education on Early Childhood

Faculty Mentor: Dr. Diane Lange

Music is considered an integral part of early childhood education. Early childhood music education can contribute to a child's vocal development, rhythm skills, and motor skills development. Vocal development is distinguishing between the different voices. Rhythm skills consist of developing an internalized beat. Motor skills is developing fine and gross motor abilities. These various aspects of childhood development in their relation to music education was outlined and elaborated in this paper. Although early childhood is defined as birth to age nine, this research paper examined children from birth to age four. Practical application with young children was discussed at length and sample lesson plans are included. It was found that music curriculum formatted to follow and assist childhood development created a positive influence on the three critical music aspects of vocal development, rhythm skills, and motor skills development in children.

MIKAYLA LUNSFORD, EDUCATION

Writing Program for Kindergarten Students

Faculty Mentor: Dr. Kathleen Tice

This internship research documented my experiences in implementing a writing program for a kindergarten student along with evidence that emphasizes how crucial daily writing programs are. I worked with one kindergarten student and gathered data two days every week over a period of two months on the Zoom platform. Data collected includes documentations of conferences with the kindergarten student, as well as with their parent and conferences with my faculty mentor at the University of Texas at Arlington. Data also includes journal entries written by myself which contains the stories the kindergarten student told me verbatim, as well as copies of the kindergarten student's work. One major finding was the importance in how the writing program was conducted and how often it should be implemented. Utilizing techniques I learned in LIST 4376, provided me with a well-rounded framework as did the guidance by Dr. Tice.

CARRINGTON MATTHEWS, POLITICAL SCIENCE

Securing Influence: An Analysis of the Relationship between Congressional Tenure and Voting Behavior

Faculty Mentor: Dr. Daniel Sledge

Congressional members are influenced by several competing factors when they cast their vote on a bill, including party influence, their desire to win re-election, and the concerns of their constituents. The literature provides reason to believe that newer members of Congress would be more likely to vote in support of a bill sponsored by a member of their own political party so as to secure influence in their political party and Congress. This project conducted a cross-sectional secondary data analysis of the voting behavior of Congress members during five congressional sessions over a 20 year period to determine if senior members of Congress were more likely to vote against a bill sponsored by a member of their party. Findings suggest that newer members are more likely to vote against their party; this could be to distinguish themselves and ultimately gain influence in their political party and Congress.

KELLE PLUMMER, INTERDISCIPLINARY STUDIES

The Struggle is Real: First-Hand Accounts of the Experience of Struggling Readers at The University of

Texas at Arlington

Drs. Sarah F. Rose and Catherine E. Corder

Institutions of higher education aim to graduate critical thinkers who are able to reach their full potential and contribute to society in today's diverse world. The University of Texas at Arlington has identified student success as a top priority in its current strategic plan, which impacts all the University's programs, services, and initiatives. Students who are struggling readers, first-generation students, and those with learning disabilities enter university with significant potential challenges to their ultimate success. While the university offers tutoring, disability accommodations, and other services to help remove barriers, many students still struggle. This thesis investigates students' experiences with reading by using oral history methodology. Interviews highlighted students' resiliency, patterns of frustration, perceived challenges and barriers, and suggestions to increase student success: improved access to diagnostic testing, especially for female students who are often diagnosed later; and greater awareness of support services: reading resources, useful accommodations, and interactive learning environments.

COLLEGES OF SCIENCE AND NURSING AND HEALTH INNOVATION

12:30 PM – 2:00 PM

FAITH AKINMADE, NURSING

Adolescent Birth Expectations and Psychological Birth Trauma: A Mixed Method Approach

Faculty Mentor: Dr. Cheryl Anderson

Published research often describes risk factors for birth trauma among adult populations; yet risks for trauma and stress disorders have been found to be higher in adolescents. The aim of this study was to explore birth expectations among a diverse group of low-income adolescents and determine if unmet birth expectations correlated with psychological birth trauma, and if younger age (13-16) adolescents held different expectation of birth than older age adolescents (17-19). The Impact of Event Scale, IES, was used to measure psychological birth trauma and written narratives reflected adolescents' expectations. Results indicated that birth expectations were not found to be significantly associated with psychological birth trauma; however, younger adolescents held different expectations than older teens. Interestingly, expectations were not necessarily congruent with the adolescent's perception of birth overall as positive or negative; yet promotion of a positive birth experience by healthcare providers is important, especially for the younger childbearing adolescent.

HANA ALI, BIOLOGY

*Determining the Role of Low Molecular Weight Penicillin-Binding Proteins in Carbapenem Tolerance in *Acinetobacter Baumannii**

Faculty Mentor: Dr. Joseph Boll

Antimicrobial resistance is a rapidly increasing threat to public health, where pathogens are no longer susceptible to antimicrobials prescribed to fight infections. Carbapenems are last-resort antimicrobials that bind penicillin-binding proteins (PBPs) and inhibit cell wall biogenesis, leading to death. Specifically, the pathogen *Acinetobacter baumannii* (*Ab*) demonstrated carbapenem tolerance, or the ability of bacteria to survive in the toxic concentrations without changing the minimal inhibitory concentration. These data represent the first study to understand carbapenem tolerance in *Ab*. Here, we investigated the physiological significance of low molecular weight (LMW) PBPs, which have not been extensively studied in bacteria and could represent a promising target for antimicrobial therapy. To understand factors that mediate carbapenem tolerant *Ab*, we engineered LMW PBP genetic mutations, imaged the cellular morphologies and tested meropenem susceptibility in the mutant strains. Our data suggest that molecular mechanisms regulate LMW PBP activity in response to cell wall damage.

MICHELLE BLAND, PSYCHOLOGY

Loneliness, Stress, and Quality of Life in Emerging Adults during the COVID-19 Pandemic

Faculty Mentor: Dr. Lauri Jensen-Campbell

Loneliness has always been a threat to human well-being, increasing risk of morbidity and mortality. In the United States, previously escalating loneliness was brought to a new height when distancing measures arose to contain the 2020 COVID-19 outbreak. In this unique context, emerging adults may be uniquely vulnerable to loneliness due to the transitions and instabilities this group faces. To further understand effects and predictors of loneliness, emerging adults responded to an online survey in spring of 2020 containing measures of personality, stress, and quality of life during the COVID-19 pandemic. After controlling for stress, sex, and trait neuroticism, loneliness was found to predict PTSD and depressive symptomology, reported interruptions to daily activity, feeling of anxiety, and low energy. Overall, the results illuminate the acute effects of loneliness on emerging adults and their daily lives within the COVID-19 pandemic, wherein future research might identify ways to buffer these negative effects.

MICHELLE BUI, PHYSICS

Comparing Approximate Total Current of the Dayside Magnetopause and the $J \times B$ Force to Solar Wind Pressure

Faculty Mentor: Dr. Ramon Lopez

The solar wind pushes against Earth's magnetic field to form a cavity called the magnetosphere, which contains Earth's dipole field. The magnetopause is the boundary between the interplanetary magnetic field (IMF) and Earth's dipole field, and its shape and location are dependent upon pressure balance. At the magnetopause, the Chapman-Ferraro current layer flows, balancing the pressure of the solar wind and accounting for the change of the magnetic field. The total current of the magnetopause fluctuates due to changes in the magnitude of solar wind magnetic field and the solar wind dynamic pressure. This study observes the approximate total current of the dayside magnetopause as a function of the solar wind pressure for both positive and negative z-components of the solar wind. Results show similar positive correlations between the total current of the dayside magnetopause to solar wind pressure during periods of northward and southward IMF.

ARCHIT JAISWAL, PHYSICS

Development of Methodology and Software to Ensure the Quality Performance of the Deep Underground

Neutrino Experiment High Voltage Field Cage

Faculty Mentor: Dr. Jaehoon Yu

The Deep Underground Neutrino Experiment (DUNE) is the U.S. flagship experiment being designed to study the characteristics of neutrinos that make up a quarter of the fundamental particle map. The DUNE detector will be built using various parts assembled according to the proposed design which enables accomplishing the precision measurements for the underlying physics goals. It is crucial to ensure the quality of every component before it is assembled into such a gigantic structure because a minor imperfection could compromise the precision and cause significant uncertainties to the scientific measurements. In this research, a methodology and a software tool to conduct the quality assessment of the DUNE High Voltage (HV) components are developed. The outcomes of this research will be used to conduct quality assurance and quality control for all the HV parts before using them to build the components of the detector.

BIBEK SINGH PARAJULI, BIOLOGY

The Influence of Consistent Exposure to Environmental Signals on the Strength of Transgenerational Plasticity in Daphnia

Mentor: Dr. Matthew Walsh

Transgenerational plasticity (TGP) occurs when environment signals influence the expression of traits across multiple generations. TGP allows for organisms to survive until genetic changes occur over multiple generations. This study examined the influence of consistent exposure to environmental signals on the induction and strength of TGP. It also examined the expression, behavioral, and life history traits in *Daphnia* from lakes in Wisconsin, USA that have experienced the invasion of a novel predator spiny water fleas (*Bythotrephes*). All clones were reared in the presence and absence of predator cues and the TGP was assessed at regular intervals over the course of the five-generation experiment. It is expected that after multiple generations of exposure to predator cue, *Daphnia* will exhibit stronger TGP, which will manifest as an increased phototactic response, as well as a larger eye and smaller body size.

JENNY PHAN, BIOLOGY

Analysis of Patterns of Gene Expression With-in Species and Between-Species of Daphnia

Faculty Mentor: Dr. Sen Xu

Hybridization in the freshwater microcrustacean *Daphnia* occurs naturally and the interspecific hybrids have been found between several species, occupying many different types of freshwater habitats (e.g., lakes and ponds). A comparative analysis of gene expression from crosses of different species of *Daphnia* is a powerful way to identify the evolutionary divergence of the genetic elements controlling the expression of genes. In this study, multiple within-species and between-species crossing experiments are performed. We then sequenced the transcriptomes of the obtained interspecific juvenile hybrids and to contrast the patterns of within-species gene expression divergence with between-species divergence. Transcriptomes were compared at 50 different sites on the genome to determine if crosses were true hybrids. We found that hybrid AroRL1 was a true cross and we plan on conducting further sequencing on hybrid AroWash1.

IVAN PONCE, BIOLOGY

Immunity Relationships between Human and Cnidarian Melanin Synthesis Cascades

Faculty Mentor: Dr. Laura Midlarz

With the rise of global temperatures, cnidarians are becoming more susceptible to disease within oceanic environments. Cnidarians rely on innate immunity through the melanin synthesis cascade using the pro-phenol oxidase (PPO) “tyrosinase” to combat pathogens. Although the function of vertebrate PPO immune response is well annotated, it is tragically used as a cascade model to understand cnidarian immunity. This study focuses on the relationship between cnidarian and human melanin synthesis cascades. Bioinformatic programs such as Composition Profiler, Mega-X, SWISS-MODEL, and PFAM were used to analyze these species’ tyrosinases. The data show that there were major differences between the species’ tyrosinases when observing enzyme morphology and phylogeny. This can be explained by modification of tyrosinase function along the evolutionary line to suit different environmental pressures. Comparisons between cnidarian and human PPO function may still lead to better *in vitro* and *in situ* studies that will benefit cnidarian species against disease.

ABBEY RAYMOND, MICROBIOLOGY

*Nodulation of *Aeschynomene indica*: BTAi1 vs. a Texas Stem Nodule Isolate*

Faculty Mentor: Dr. Woo-Suk Chang

Host-microbe interactions between legumes and rhizobia exemplify a symbiotic relationship; the rhizobia provide fixed nitrogen to leguminous plants via symbiotic nitrogen fixation, while they are safely harbored in plant root nodules. In this study, the nodulation of the legume *Aeschynomene indica* inoculated with BTAi1, a known rhizobium, was monitored and compared when inoculated with TSN2, a newly isolated rhizobium from Texas. Upon maturation, the physical characteristics of the plant were recorded, and nitrogen fixation abilities were measured. It was found that *A. indica* inoculated with TSN2 tended to have more root nodules and greater nitrogen fixation capability than those inoculated with BTAi1. In addition, the rhizobium isolated from these plants was sequenced. Taken together, TSN2 is a better symbiont for the *A. indica* growth compared to its counterpart.

OLIVIA WILLIAMS, BIOLOGY

*The Effect of Cyanobacteria on Transgenerational Responses in *Daphnia Pulicaria**

Faculty Mentor: Dr. Matthew Walsh

'Transgenerational plasticity' occurs when environmental cues alter the expression of traits in offspring and future generations. This experiment examined the influence of low-quality cyanobacteria (*Anabaena*) on across-generation responses in a common water flea (*Daphnia pulicaria*) to quantify whether changes in food quality from dietary cyanobacteria can induce transgenerational effects. Multiple clones of *Daphnia* from Lake Mendota (WI) were maintained at a 16:10 photoperiod until the third generation; animals from each clonal line were then reared for multiple generations on diets that contained varying amounts of cyanobacteria. General linear models and a post-hoc Tukey test (SPSS v. 25) were used to analyze life history data. *Daphnia* fed cyanobacteria developed more slowly, were smaller in size, and produced fewer offspring. However, such differences in life history traits largely disappeared following the removal of cyanobacteria in the subsequent generation. Thus, exposure to low-quality cyanobacterial food did not induce strong transgenerational responses in *Daphnia*.

OMAR YANOURI, PSYCHOLOGY

The Impact of Need for Cognitive Closure on Susceptibility to Framing

Faculty mentor: Dr. Daniel Levine

Need for Cognitive Closure (NFCC) is an individual’s tendency to dislike ambiguity and desire for *any* answer. Prior literature shows that, in simple judgements, this trait leads individuals to employ cursory information acquisition and superficial judgements. However, NFCC may lead one to more thoroughly analyze information when the data is challenging or the situation is understood to be important. In this study, participants answered a NFCC scale and three attribute framing problems. Some were randomly given an elaboration prompt. Results show NFCC did not affect one’s susceptibility to framing. However, the elaboration prompt reduced framing effects among those high in NFCC in the negative frame. These results suggest instructions emphasizing importance may be used to help some people avoid certain cognitive illusions.

COLLEGE OF ENGINEERING

3:00 PM – 4:30 PM

RAEY AGEZE, SOFTWARE ENGINEERING

The Effect of Racial Diversity on Hate Speech: A Study on the Black Lives Matter Movement on Twitter

Faculty Mentor: Dr. Shirin Nilizadeh

The spread of hate speech is one of the major issues social media platforms, like Twitter, have been facing as digital activism becomes more common. The spread of hate speech is often facilitated by the existence of echo chambers. To gain a better understanding of the type of users that engage in hate speech, tweets related to the Black Lives Matter movement were studied. Tweets that were for and against the Black Lives Matter movement were collected and labeled as hate, counterhate, and natural. The followers and friends of the selected users of each type were then examined to gather racial data. The racial diversity and homophily of the central users' egonets were analyzed to construct a model. The model suggests that users with egonets of high racial homophily and lower racial diversity are more likely to engage in hate speech related to the Black Lives Matter movement.

RAMTIN BEHBAHAN, BIOMEDICAL ENGINEERING

MR-Compatibility of an Isometric/Dynamic Plantarflexion Ergometer

Faculty Mentor: Dr. Georgios Alexandrakis

Plantarflexion Ergometry (PE), in conjunction with Magnetic Resonance Imaging (MRI), has shown to be a useful technique in the research and study of Peripheral Artery Disease (PAD) in patients' extremities. A number of studies have conducted PE experiments with favorable results. The devices reviewed however, lack the MRI compatibility option, and often are not designed to measure angular displacement, which accounts as the displacement variable within the calculated torque and work function. In this research, a fully MRI compatible PE was constructed using commercially available parts. To reduce interference and imaging noise during MRI PE, RF (Radio Frequency), magnetic shielding were designed, constructed and implemented. Mathematical models that quantify effectiveness of magnetic shielding and interference were derived and analyzed. The combination of the constructed MRI shielding materials and mathematical modeling may enable researchers to perform more complex and precise measurements, in the hopes of expediting diagnostics and treatment for PAD.

BINOY GEORGE, ELECTRICAL ENGINEERING

Using Ultra Wide Band Sensor for Robot Localization

Faculty Mentor: Dr. Yan Wan

While GPS stands as the most popular localization tool in our present world, its feasibility in technologies like self-driving cars comes into question due to its unreliability in certain environments and weather conditions. In this research, Ultra Wide-Band (UWB) is explored as an alternative localization technology. Using a 4-anchors 1-tag UWB system, a localization algorithm in three-dimensional space will be developed and implemented on a moving robot. For this experiment, the Decawave's DWM1000 UWB transceivers and the Turtlebot2i will be used. The position of the robot calculated by this algorithm will be observed, first when the robot is kept stationary and then when the robot is allowed to move. The results of both states will be analyzed to determine the precision of this UWB system and to see if there is a correlation between the accuracy of the estimated position and other parameters like speed in a moving robot.

CHIDOCHASHE RINNA PASIPANODYA, BIOMEDICAL ENGINEERING

An 'Invisible' Crisis: Addressing the Neglect of Mental Health Burdens in Alzheimer's Caregivers

Faculty Member: Dr. Georgios Alexandrakis

Alzheimer's is a progressive disease characterized by a gradual loss in memory, thinking skills, and the ability to carry out simple tasks. As a result, patients require caregivers to play a critical role by managing household tasks, aiding in personal care, and performing medical procedures. Caregivers often balance family life and/or a career while averaging between 14-34 hours weekly on patients. This develops into high levels of depression, anxiety, and low quality of life. Limited resources have left this demographic to suffer alone while bearing the burden of caring for a loved one. A mobile application was created to simultaneously collect data for patient care planning and to alleviate mental stress in caregiving. This resource provides a platform where caregivers can seek professional assistance, record social activity, and track mental health. Additionally, Google Analytics was implemented to track user traffic and engagement to provide insight for data collection/application improvement.

KUNAL SAMANT, COMPUTER SCIENCE ENGINEERING

Beverage Management

Faculty Mentor: Dr. Chris Conly

A common problem is keeping track of products in our kitchen/pantry. This work aims to tackle that problem by providing an inventory for these products, with a specific focus on beer. An android application was developed which uses a built-in barcode scanner (via a phone camera) to detect the barcode number of a beer that is scanned. The application sends the scanned barcode to the database which searches the beer dataset for the information associated with that number, and the dataset can also be updated if a particular beer is not found. This process automates the way users can add and remove inventory from their kitchen/pantry. Users can also add an expiration date associated with the beer to allow the application to send notifications when it is about to expire. With additional modifications, this application can be further developed to keep an inventory of a variety of beverage products.

ANURA SHRESTHA, BIOMEDICAL ENGINEERING

Solid Phase Synthesis of Peptide-Labeled Amphiphiles for Generating Agglutination-Based Sensors

Faculty Mentor: Dr. Justyn Jaworski

Polydiacetylene (PDA) are a class of polymer consisting of double and triple bonds and are formed when diacetylene amphiphiles become closely packed and undergo UV polymerization. PDA when properly designed form vesicles which, when simulated, give a colorimetric change due to rotation of the ene-yne alternating backbone. PDA-based vesicles in which the pendant side-chains possess a recognition moiety for a target of interest have thus been implemented as biosensors for the successful detection of different biomolecules. Here we report a means for rapidly generating a PDA-based biosensor by direct solid phase peptide synthesis of a peptide recognition moiety appended with 10,12 pentacosadiynoic acid. In this study, we utilize the well-known streptavidin-biotin interaction to demonstrate the sensor activation by ligand-receptor binding stimulus arising from the biotin-mimetic peptide, VSHPQAPF, presented by the PDA vesicle when exposed to streptavidin to specifically investigate the capability of using these vesicles for agglutination assays.

SUSAV LAL SHRESTHA, ELECTRICAL ENGINEERING

Remote Sensing of Soil Moisture Content

Faculty Mentor: Dr. Saibun Tjuatja

Ex-situ measurement systems for dynamic soil properties have been well studied over the years; however, they require physical extraction of soil which is often laborious and undesired. A wireless remote sensing unit consisting of two stainless-steel probes were studied to correlate the changes in the input impedance to the soil moisture content. Theoretical simulations of this design were performed by modelling the soil using the complex dielectric permittivity and by using electromagnetic transmission line theory to compute the optimal spacing, length, and the frequency of operation. The analysis of the simulated results shows that a design with 50 cm probe length and 2 cm spacing would provide the most linear relationship between the impedance and soil moisture at an operating frequency of 1.5Ghz. This design, when connected to an antenna and a radar powered system, can act as a wireless sensing unit to measure the soil moisture remotely.

MARTHA TAFFA, SOFTWARE ENGINEERING

Emergency Alerts and the Application of Location Sharing

Faculty Mentor: Dr. Christopher Conly

With the advancement in technology, a lot of work has been done for the welfare and betterment of people globally. Nevertheless, there are not as many systems implemented to inform deaf or hard of hearing (DHH) people when an emergency alert is going off, or when another such situation is taking place. This project is about the implementation of a mobile app that gives different pop-up alerts when detecting emergency sounds. The paper mainly focuses on the implementation of the feature that lets a user share their location with family and friends. The Google Maps API is used to implement the location sharing feature of the app. It communicates with the android layer and an audio classifier layer of the application. The location-sharing is significant as it will be helpful for future feature implementations such as distance approximation and localization of emergency signals approaching user from a distance.

COLE TSCHITTER, ELECTRICAL ENGINEERING

Expansion of Software Defined Radio to Demodulate L Band Satellites Utilizing the Beagle Bone Black and HackRF
Faculty Mentor: Dr. Greg Turner

Satellite signals are an efficient means of receiving data in remote environments. By monitoring satellite signals, a device can be controlled in remote locations, long range communications intercepted, and local sensory data collected. It is possible to utilize a software defined radio that can sample the EMI spectrum and use code to demodulate instead of a typical hardware defined radio, allowing for a compact scalable system. This project will use a Beagle Bone Black as the controller and the HackRF for the software defined radio. Due to variance in modulation types, modulation methods, and frequency fall off; demodulating will be limited to a small sub-series of satellites within the L band. To interpret this data, we must receive the signal stronger than the surrounding noise, sample at twice the Nyquist frequency, and activity demodulate the data.
