

Student Research Symposium 2002

Abstract Proceedings

Prepared by
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**Math, Science and Technology
Farquhar Center for Undergraduate Studies
Nova Southeastern University**

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Keynote

Bridging the Licensing Gap Between Academia and Industry

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Abstract

The difficulty that academia experiences in licensing technology to industry often lies in the lack of appreciation for what industry requires to justify in-licensing. Considerations such as stage of development, technology niche, value, competitive position, and risk factors will be discussed, and licensing and partnership scenarios presented.

Dr. Thuning-Roberson received her Bachelor of Arts degree in Biology from St. Mary-of-the-Woods College, Indiana, in 1967, Medical Technology certification at St. Vincent Charity Hospital, Cleveland, Ohio, in 1968, and Ph.D. degree in Biological Sciences from Nova University, Florida, in 1982. Dr. Thuning-Roberson first published with Dr. William Whalen in the field of physiology with special emphasis on autoregulation of the microvascular system at St. Vincent's.

She joined Goodwin Institute for Cancer Research in 1974 where her research efforts focused on immunology and pharmacology with emphasis on autoimmune diseases and drug synergism in cancer. She was appointed Director of the Institute in 1989, managing a team of 36 people, directing the physical expansion and construction of its operations, and procuring over \$8 million in contracts with government and industry. In this position, she was instrumental in the establishment of a GMP manufacturing facility including development of its initial documentation system and filing of three Drug Master Files with the FDA.

In 1992, Dr. Thuning-Roberson was responsible for conceiving the business strategy for and co-founding of Goodwin Biotechnology Incorporated, a for profit spin-off from the Institute. As President of GBI, she directed the design and construction of GBI's GMP Manufacturing Core, thus providing a full integration of services, and managed operations. The company was successful in procuring over 35 industrial contracts for development and manufacture of product for clinical trials.

Dr. Thuning-Roberson joined Sunol Molecular in 2000 as Vice President of Product Development and Compliance and manages pre-clinical and clinical development. She is also Chairman of BioFlorida, the state affiliate for BIO, the biotechnology industry organization.

Behavioral Sciences

Prevalence of InterCouple Relationships on a College Campus

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Abstract

This study investigated the dating practices of undergraduate students at Nova Southeastern University, more specifically, InterCouple relationships. We define InterCouple Relationships as those where the two individuals in the relationship differ in either faith, cultural, and/or race. The researchers developed and distributed a survey to Nova Southeastern University undergraduate students which explored such topics as the prevalence of InterCouple relationships, which types of InterCouple relationships are most preferred, and which gender engages the most in InterCouple relationships. Over 475 surveys were completed, and the tallied results will be disseminated. The results presented will encompass a multitude of areas in undergraduate dating practices.

The Effect of Countershading with Respect to Solar Orientation on Perching Behavior in Birds: An Interspecies Comparison

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Abstract

Many species of birds display a countershaded (dark dorsum and light ventrum) pattern of coloration, while other species display a more uniform pattern of coloration. A countershaded pattern of coloration would make a bird more conspicuous when facing toward the sun and less conspicuous when facing away from the sun. Therefore, in birds, countershading may serve an adaptive function, making them less conspicuous to predators by orienting away from the sun and more conspicuous to mates at the appropriate times. It was hypothesized that countershaded birds would have a tendency to face either toward or away from the sun and that the orientation of non-countershaded species would be independent of the sun. The solar orientation tendencies of 20 common North American species of birds have been reported previously; here we present data from four additional species. Solar orientation is significantly non-random in eight species (primarily countershaded birds facing the sun). However, aside from orientation behavior, there is no clear common thread associating these species with each other.

Does Perception of Economic Status Affect The Way One Is Treated?

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Abstract

Links between economic status and stereotypic behaviors were investigated by setting up two staged scenarios. The main premise of the scenarios was to distinguish between treatment of individuals who present themselves to be in a higher economic range and those of lower status ranks. In the first scenario, two female students drove a high status car up to a stop light and failed to proceed when the light changed from red to green. This part of the scenario also included two male students in the same situation driving a late model car. In the second scenario, the same female and male students, driving the same cars, drove into a car dealership. Both scenarios were videotaped to determine reactions of individuals involved. Studies show that stereotypes affect judgment when little else is known about individuals or when additional obvious information shows a particular level of status. Thus, stereotypes come into play when this information is obvious and affects the behavior of those observing what they believe to be correct information. Results indicated that situations where economic status is evidenced as high elicit behavior that is different from those where the status is believed to be lower. Behavior of individuals involved in the scenarios was decidedly different toward the higher status individuals than the lower-status targets. Gender differences were also noted and were exacerbated by the perceived status. In both scenarios, females believed to be in higher status categories were better treated than the males.

To Fear Or Not To Fear: PHOBIAS

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Abstract

In an attempt to understand how phobias develop, introduction to psychology class members were surveyed about their susceptibility to different types of fears or phobias. Evidence indicated that fears and phobias may emerge in either direct or indirect conditioning and in individuals who possess a particular psychological or emotional makeup. Those more prone are either highly emotional or extremely shy. Those less susceptible are more independent, career oriented and highly educated. Class survey results revealed that the number one fear in this particular class was Entomophobia or fear of bugs or insects. In fact, 44% of the class admitted to this phobia, while 19% were afraid of heights (Acrophobia). Another 11% evidenced Thanatophobia or fear of being in situations where death could result or anything to do with death. Seven percent expressed a fear of needles and the remaining few cited various other fears or phobias, such as fear of drugs, speaking before crowds, and love.

Biology and Chemistry

Thin Layer Chromatography Analysis of Capsaicins in Chilis and Chili Sauces

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Abstract

Capsicums have received more attention recently in the realm of natural remedies for arthritis nerve pain. There is also the age old question of which of two chili peppers or sauces is the hottest. The poster presents the extraction and analysis of capsicums from chili peppers and chili sauces such as Tabasco sauce by Thin Layer Chromatography, TLC. The TLC was carried out on both normal and reverse phase plates. Analysis was done visually and with the Kodak Digital Science Image Analysis software package. The combination of the two types of TLC plates allow for quantitation of total capsums and the separation of capsaicin from dihydrocapsiacin. TLC offers an inexpensive alternative for a low number of samples compared to High Performance Liquid Chromatography, HPLC.

The Determination of the Acid Dissociation Constant of 7-hydroxycoumarin in Artificial Sea Water

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Abstract

7-hydroxycoumarin also known as umbelliferone, is a monoprotic acid that is nonfluorescent in its acidic form and fluoresces in its basic form. The pKa of this acid is approximately 8 in aqueous solution. This is the pH of most natural seawater samples. This poster explores the advantages of using a fluorescent indicator for the determination of seawater pH. In order to apply this technique to the analysis of sea water pH, the dissociation constants need to be determined in sea water matrix. The determination of the acid dissociation constant in artificial sea water over a range of temperatures and salinities is presented.

Chemically Influenced Recruitment and Metamorphosis of Scleractinian Corals in Ft. Lauderdale

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Abstract

Previous research has shown chemical inducers extracted from certain species of red crustose algae initiates the settling and metamorphosis of certain scleractinian corals. The suspected inducer is extracted from the algal cell of *Hydrolithon boergesenii* by mechanical hydrolysis and chromatographic separation. The inducer is then attached to a stable inert substrate and evaluated for its ability to attract and induce the metamorphosis of two species of scleractinian corals, *Acropora cervicornis* and *Montastrea annularis*. Also presented is the application of chemical morphogens to artificial reefs, coral mariculture and reef rebuilding efforts.

Use of FTIR and Fluorescent Tracers for Product Identification in Quartz Aggregate Pool Plasters

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Larry Stevens

Southern Grouts and Mortars, Pompano Beach Florida

Abstract

Diamond Brite, a registered trademark of Southern Grouts and Mortars, is the industry standard for quartz aggregate pool finishes. Southern Grouts and Mortars also confidently extends a 10 years warrantee on the material. Other manufacturers of pool plasters emulate the Diamond Brite finish. Some less than scrupulous installers will sell a Diamond Brite pool plaster finish and then substitute lower cost materials produced by these other manufacturers. If the plaster has a failure, the pool owner, believing they have a Diamond Brite pool out Southern Grouts and Mortars for the warrantee. This presentation describes the use of Fourier Transform Infrared (FTIR) spectroscopy to discern differences in the polymers used in the manufacturing process. This study also demonstrates additional product identification through the use of ultraviolet, UV, fluorescent tracers.

Development and Application of Near Infrared Reflective Pigments in 1 Part Cementitious Decking Materials

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Abstract

New Techniques in the preparation of certain pigments used in the colorant industry have revealed a natural Near Infrared, NIR, reflectivity. The use of these pigments as colorants increases the reflection of radiation in the NIR that dramatically decreases the surface temperature of the materials when exposed to solar radiation. Traditionally, colored decking materials usually resulted in the deck reaching feet burning temperatures in the southern tier of the United States, (Florida to California). While white decks are cooler, the reflectivity in the visible region results in glare and creates a stark appearance to the pool deck. The reduction in absorbance of NIR radiation using these pigments is presented. Applications of these pigments in other construction materials and the energy reduction that result are also discussed.

Adhesion of Lysozyme to FDA Group I Contact Lenses and Vials

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Abstract

Lysozyme is the major protein adhering to contact lenses. Lysozyme adhesion to contact lenses and glass vials was examined with bicinchoninic acid (BCA). Contact lenses were placed in vials on day 0, and some lenses were removed every day thereafter for five days. The concentration of lysozyme in the vials, and its adhesion to the lenses, was monitored daily. Lysozyme adhesion to FDA Group I lenses showed an up-down pattern, with high levels of adhesion after 1 day of incubation, and progressively lower levels of adhesion after 2, 3, and 4 days of incubation. These differences were not statistically significant ($P > 0.05$), but appear to be due to initial adhesion and subsequent de-adhesion processes occurring as the incubation proceeded. The concentration of lysozyme in the vials was not different after four days of incubation, compared to the start of the experiment ($P > 0.05$).

Adhesion of Lysozyme to FDA Group II Contact Lenses and Vials

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Abstract

Lysozyme is the major protein adhering to contact lenses. Lysozyme adhesion to contact lenses and glass vials was examined with bicinchoninic acid (BCA). Contact lenses were placed in vials on day 0, and some lenses were removed every day thereafter for five days. The concentration of lysozyme in the vials, and its adhesion to the lenses, was monitored daily. Lysozyme adhesion to FDA Group II lenses showed a cyclical pattern, with high levels of adhesion after 1 and 3 days of incubation, and lower levels of adhesion after 2 and 4 days of incubation. These differences were all statistically significant ($P < 0.05$), and reflect both adhesion and de-adhesion processes occurring as the incubation proceeded. The concentration of lysozyme in the vials was not different after four days of incubation, compared to the start of the experiment ($P > 0.05$).

Adhesion of Lysozyme to FDA Group III Contact Lenses and Vials

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Abstract

Lysozyme is the major protein adhering to contact lenses. Lysozyme adhesion to contact lenses and glass vials was examined with bicinchoninic acid (BCA). Contact lenses were placed in vials on day 0, and some lenses were removed every day thereafter for five days. The concentration of lysozyme in the vials, and its adhesion to the lenses, was monitored daily. Lysozyme adhesion to FDA Group III lenses showed an up-down pattern, with high levels of adhesion after 1 day of incubation, and lower, but stable, levels of adhesion after 2, 3, and 4 days of incubation. Lens adhesion was significantly lower after 1 day of incubation ($P < 0.05$), but not different thereafter ($P > 0.05$). The concentration of lysozyme in the vials was not different after four days of incubation, compared to the start of the experiment ($P > 0.05$).

Ruthenium Tetroxide Oxidation of Iodoalkanes

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Abstract

At present there are a few methods available for a direct oxidation (without a hydrolysis to the alcohol) of an iodoalkane to the corresponding carbonyl compound. This work is an attempt to improve a previously described method for oxidation of iodoalkanes by treatment with ruthenium tetroxide.

Experimental

- 5 - 20 mol% of hydrated RuO_2 and 4.1 equivalents of the co-oxidant (NaIO_4 or H_5IO_4) were used.
- The reactions were run at room temperature, for 3 hours, with vigorous stirring. Extended reaction times did not change the yields.
- Hydrated RuO_2 should be used as a RuO_4 precursor. RuCl_3 gave a relatively large amount of chloroalkanes.¹
- NaIO_4 and H_5IO_4 were the best co-oxidants. Other co-oxidants (NaClO , KBrO_3 , Bu_4NIO_4) did not work well. A co-oxidant should be added in 3-4 portions in the course of the reaction.

Conclusions Oxidation of primary iodoalkanes in good yields was accomplished. Secondary iodoalkanes give mixtures of ketones and carboxylic acids and further work is needed to establish whether the conditions exist under which they can be oxidized to predominantly give either ketones or carboxylic acids.

Life Cycle Assessment of Aluminum and Polystyrene Food Packaging: A Closer Look at Restaurant “To-Go” Containers

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Abstract

The objective of this project is to formulate an environmental assessment of the performance of aluminum (mined from bauxite) and polystyrene (petroleum based) single-use food containers commonly used by the restaurant industry. The Life Cycle Assessment (LCA) method will be employed as the means of product comparison throughout the entire life cycle. This LCA includes an inventory analysis (taking into account the various inputs and outputs of the manufacturing process), an impact analysis (taking into account various emissions and their effect on the environment), and an improvement analysis including an evaluation matrix (which reports on the preferable product and makes suggestions for improvement in the manufacturing process). This approach uses a “cradle-to-grave” methodology to determine costs and benefits of manufacturing, use, disposal, and recovery of products. Additionally, the impacts on human health and safety as well as the costs of manufacture, recycling, and consumer-cost of the finished product are evaluated. At the primary production level polystyrene appears to be a more environmentally preferable and slightly more economically sound choice. However, aluminum is a highly recyclable material, which leads to lower secondary market price and possible reduced emissions.

Common Presentation of Adult Celiac Disease in the United States*

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Abstract

OBJECTIVES: Epidemiological studies primarily from Europe document that adult celiac disease is common and frequently lacks the classic childhood presentation of steatorrhea, weight loss and failure to thrive. However, adult celiac disease is not commonly diagnosed in the United States. Untreated celiac disease may impair quality and duration of life. We sought to foster physician awareness of adult celiac disease by providing survey data.

METHODS: Questionnaires of demographic and diagnostic data were sought from members of a patient support group from 1993 to 2001 (n=1032). A detailed description of adult presenting symptoms was also obtained via Internet e-mail (n=134). All had diagnosis confirmed by small bowel biopsy.

RESULTS: At diagnosis, median age was 46 years and only 12% were less than 10 years old. In adults 32% were underweight (body mass index = 18.5) and 14% overweight (BMI = 25). Physician diagnosis was often delayed (median 12 months) with 21% over 10 years. Frequent presentations were non-specific: fatigue (82%), abdominal pain (77%), bloating or gas (73%), and anemia (63%). Weight loss was reported in 55%, but 21% had weight gain. Diarrhea was common in 52%, but 31% reported constipation or both. Frequent initial diagnoses were irritable bowel syndrome (37%), psychological disorders (29%) and fibromyalgia (19%).

CONCLUSION: In the United States, celiac disease presents primarily in adulthood with non-specific symptoms frequently mimicking irritable bowel syndrome or psychological disorders. The lack of classic childhood symptoms may account for the under-recognized and delayed diagnoses.

**These data were presented in part at the Plenary Session of the American College of Gastroenterology 66th Annual Scientific Meeting, October 22-24, 2001, Las Vegas, NV.*

Determination of Histamine Levels in the Yellow Stingray, *Urobatis jamaicensis*

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Abstract

Histamine, *5-imidazole-ethylamine* (MW = 111), is an important mediator of the immune system and is most often found in the initial phase of an anaphylactic reaction. In previous studies histamine molecules have been found to be synthesized and released by mast cells and the basophilic leukocytes upon an exposure to allergens. In mammals, the primary physiological effects of peripheral histamine include bronchoconstriction and vasoconstriction. Although much work has been done examining histamine levels in higher vertebrates and teleost fishes, to date, we found no published research on histamine levels in elasmobranchs. We examined circulating histamine levels in elasmobranch blood, specifically in the yellow stingray, *Urobatis jamaicensis*. Enzyme Linked Immunoabsorbant Assay (ELISA) was used to determine the levels of histamine in whole blood, blood plasma, and white blood cells of three stingrays. White blood cells were isolated from red cells and plasma by differential centrifugation. Results indicated the presence of histamine in the whole blood, plasma, and white blood cells. However, the dramatically higher levels of histamine in the white blood cell fraction over the other blood fractions supports the hypothesis that like other vertebrates, histamine in elasmobranchs originates in white blood cells.

Computer Science and Computer Information Systems

Information Entropy of Probability Distributions*

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Abstract

Entropy is the crucial concept of thermodynamics and statistical mechanics. In recent years, the entropy of probability distribution has been used as a traffic descriptor in ATM networks. The thermodynamic entropy of an ATM traffic stream is a useful tool for predicting cell-loss ratios and cell-delay. In this paper we determine the entropies of classical continuous probability distributions. Using Java programs, we implement a numerical algorithm to compute various information entropies of probability distributions. Our results are also demonstrated interactively through a data-driven Website.

**Accepted for 2002 International Congress of Mathematicians (ICM)*

Survey Central: A Survey Infrastructure

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Abstract

Would you like to be able to create and publish a professional survey in minutes? Are you tired of begging someone, anyone, to develop a survey website for you?

Or are you a developer who cringes at the thought of designing and administering yet another survey website? One that you are secretly sure nobody will ever use?

There is now a solution that can satisfy everyone! This presentation will be on Survey Central, a single website that removes the need to re-invent the wheel for every new survey. With one website, students can create surveys for their own use, and faculty or administrators can create official surveys for campus-wide events. Unlike other survey websites available on the Internet, Survey Central is free to all NSU students (and their friends), supports multiple questions, and contains no advertising.

This presentation should be of particular interest to students who need to give quick surveys to their class, school administrators who need to periodically create new surveys (e.g., on graduating seniors, term scheduling, class evaluations, etc...), and anyone who is interested in seeing how a database-driven website works.

This presentation will discuss how Survey Central can work for you, its most important and unique features, and some details on the database design.

Virtual Labs: Online Physics Simulations

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Abstract

Did you miss a class? Were you unable to complete the lab? Is your lab report hopeless because you forgot to write down a crucial number?

Or perhaps you loved a certain experiment and wished you could try it again at home?

Virtual Labs is the answer! During this short demonstration, a few classic experiments will be performed with the Virtual Labs online physics laboratory prototype. This software currently runs as a Java applet on the web. With only a web browser, anyone can perform physics labs without time constraints or fear of damaging equipment (or themselves!).

Although not complete, this project demonstrates how mathematics, computer science, and physics can be integrated to provide out-of-classroom tutorials for both traditional and distance learning students. The simulation is designed to provide students with a full physics lab experience.

The demonstration will include simulations of any of the following: (audience dependent)

- Electric fields from conductors, via the carbon paper experiment
- Geometric optics, via a light table
- Newtonian forces, via a force table
- Thermodynamics, via the “metal shot in calorimeter” experiment
- Electric fields from particles, in a theoretical style
- AC & DC electronics, via creating and measuring circuits

Questions about math, computer science, physics, and programming will be answered.

Visual SIC Assembler

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Abstract

Assembly language can be hard to understand and harder to write without the proper tools. This demonstration will show how a Java applet can be used to provide real-time visual feedback on the results of assembly. This applet targets the Simplified Instructional Computer (SIC) described in Leland L. Beck's text on system programming, "System Software: An Introduction to Systems Programming."

Beowulf Project

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Abstract

Academic computing has long relied on supercomputers, such as Cray, to provide the computing power needed for complex scientific computations. Even though such computers in many cases supplied the computational power needed, such systems were also very expensive, and relied upon proprietary components. Beowulf systems offer a new, inexpensive solution to the problem of limited processing power. Consisting of networked desktops and commodity components Beowulf systems attempt to provide supercomputer performance at a reasonable cost.

A NASA contractor built the first Beowulf to address problems associated with the large data sets in space science applications. Since then the system has been put to use to try and tackle various scientific problems ranging from nuclear engineering applications to applications for the Center for Disease Control. Government agencies and universities are major factors in the system's proliferation into mainstream technology culture.

Beowulf recipes vary in accordance to their creators. Most Beowulf systems utilize publicly available software such as a Linux operating system, GNU compilers and programming tools, and MPI and PVM message passing libraries. Pentium processor machines connected by 100Mbit/s Ethernet and 100Mbit/s Ethernet switches generally make up the hardware components of a Beowulf system.

In recent years, Beowulf has gained recognition as a parallel processing multi-system high performance computing solution. This presentation will include what has been learned about Beowulf, the necessary components for a Beowulf system, Beowulf installation and Beowulf Project goals.

Software Engineering: Development of a Three-Dimensional Videogame

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Abstract

We report on the status of our videogame project for the upper-division software engineering course (CSIS 3750) at Nova Southeastern University's undergraduate computer science program.

We have designed and partially implemented a three-dimensional videogame called "Crystal Racer." The videogame is intended for an audience of both teens and young adults, and may be classified as an "action-based" game (as compared to a "strategy-based" game). Classical videogames in this genre include the numerous games on the market which use race cars (or other vehicles) driving around a predefined race track. The goal of this type of game is to avoid obstacles or traps, bypass competing vehicles, reach a destination and/or traverse a certain distance under a time limit.

Crystal Racer is graphically unique in that it is set on an alien landscape, using crystalline vehicles and barriers. Both the special effects and music take on a science fiction flair. Furthermore, the game is Internet-based and can be played by several participants over the network.

Our development team used an incremental life cycle model for software development. Use-cases were performed for requirements analysis. State-based diagrams were used to model behavior. Object-oriented design techniques were used for the overall software design, and the implementation was coded in C++ using the DirectX programming library. The UML notation was used to document the software design process.

We present a brief summary of our development efforts, and provide a demonstration of the videogame.

Customer Loyalty in the Internet Age

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Abstract

Customer loyalty is very important in e-commerce. Once you have sold a product to a customer you want that customer to return and buy more from you, that way it will decrease your acquisition costs and to increase profitability. E-commerce will continually increase but not all web sites will gain the rewards they want. Today competition is high, and customers expect more online capabilities. The best way to obtain customer loyalty is by knowing how to separate functions of sales, marketing, customer service, and keeping a common theme of improving customer loyalty. There will be three parts:

1. A brief introduction to customer relationship management in the Internet. The Internet has changed the competitive landscape. Customer loyalty is more important than ever, and it is very important to focus on the right customers.
2. The customer loyalty business process. The different strategies and approaches that you can take to obtain customer loyalty. There are different types of customers and treating them differently will help develop a better relationship with the customer and increase profit.
3. Customer loyalty infrastructure. The best thing to do is to personalize your marketing efforts and gather customer information. You need to understand your business that way you will be able to sell anything and extend your sales. Organizing the customers data will help provide a better customer service. You need to provide the customer with a secure web site and protect them from privacy intrusions.

E-mail Spam Reduction & Elimination Solution Proposal

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Abstract

Current technologies of reducing spam rely on massive filtering of questionable words, DNS replies to spot spoof SMTP servers, and use of a Database, which is now in a legal battle, of public SMTP servers which allow spammers to hide in cyberspace. These are all server based technologies which users have to rely upon, and never have been given the opportunity to do anything other than press the delete key a bunch of times a day when those few spams make their way past the filtering firewall. I thus propose adding a new innovative user-end role to this frontier. This user-end role will allow, by integrating with today's filtering technologies, to not only improve upon our spam filtering precision, but change the way we e-mail to a positive and more intelligent process forever.

Linux Device Driver Wizard

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Abstract

I will be presenting my directed project which ran in the Winter Semester 2002 at Nova Southeastern University with Dr. Salazar as the advisor. My project was to create a program for the Linux operating system. This program was designed to make it easier for kernel programmers to make device drivers. The program acts as a wizard, requiring users to enter data for a number of questions at different steps along the way. When the wizard completes, the user may view a file in C code representing the results of the wizard, or go back and change or review fields entered. I will also describe my process of choosing a programming language for this assignment and my challenges along the way.

Optometry

Air Quality In Two Primary Eye Care Clinics

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Abstract

Air quality in health care facilities has become a major priority in recent years, due to the fact that poor air quality can lead to illnesses and prolonged recovery. To test the quality of air, a sample of air is taken and is then analyzed for pollutants and organisms. The quality of air is measured by the number and type of pollutants or organisms in a given volume of air. Thus, an environment with many harmful pollutants or organisms in a small volume of air has poor air quality and could pose a health risk to those in the facility. Commonly measured pollutants are carbon monoxide, sulfur dioxide, and nitrogen dioxide. Organisms commonly studied are bacteria and fungi.

In this study, there were two goals: (1) to determine the number and type of microbes in two eye clinics and (2) to compare the air quality in two eye clinics, one built before 1970 and a second built after 1990.

The data suggests that higher levels of microbes were found in the North Miami Beach clinic. The Conference room of this clinic showed to have the highest number of microbes. In the Davie clinic, the examination room contained the greatest number of microbes.

Industry Presentation

Visual Studio .NET --Next Generation of Program Development Environment

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Outline

1. What is .NET? The .NET technology overview

- 1.1. Object Oriented Programming
- 1.2. Good Design
- 1.3. Language Independence
- 1.4. Better Web-based applications support
- 1.5. New XML-based data management
- 1.6. Illuminates DDL Hell
- 1.7. Strong Security
- 1.8. X-copy installation
- 1.9. Garbage Collector
- 1.10. Advanced error handling (Exceptions)
- 1.11. Web-Services feature
- 1.12. New VB.NET and C# languages.

2. VS.NET - great development tool

- 2.1. First view on VS.NET - new screens - new abilities
- 2.2. Let's create an application.
- 2.3. All layers - through debugger
- 2.4. Toolbox cool features - "Clipboard Ring" and customization
- 2.5. Advanced search system