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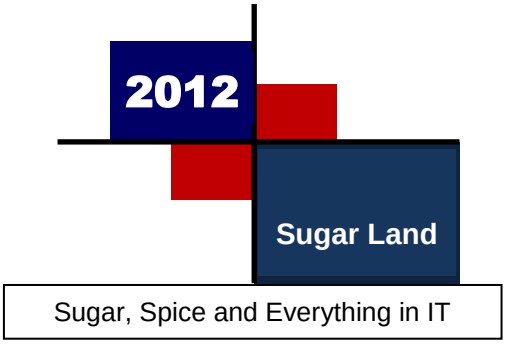

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Mobile Application Development

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Android is a software platform for the development of mobile device applications that is currently maintained by the Open Handset Alliance and Google. It is composed of (1) the Linux kernel for its hardware abstraction, (2) libraries that are open source and custom written, (3) an Android runtime environment that includes the Dalvik Virtual Machine and Java runtime environment, (4) an application framework that includes system services and system managers for application to interact with, and (5) the mobile device applications themselves. This work is about developing mobile applications using the Android platform. Mobile applications are generally not developed on mobile devices because they are too small, and it is very inconvenient to develop application on them. So the approach is to develop mobile applications on a computer and launch them using the Android Virtual Machine. Once an application is running as intended in its design, it may then be run on a mobile device. The presentation will include a demonstration of how to download the needed software components, and use them to develop mobile applications for both Windows and Linux environments using the event driven paradigm.

Keywords: Android programming, java programming, android application development

Building a Model Curriculum

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As computing technology becomes increasingly ubiquitous, the need to both understand how computers solve problems and what types of problems are best solved with a computational tool is becoming increasingly relevant, in a wide variety of academic and commercial fields. This paper describes a computational thinking curriculum development project. The purpose of this one-semester course is to introduce computational thinking to undergraduate students who are not computer science majors. This course was designed to engage a broad group of students, including those not ordinarily accustomed to using computation as a tool. The course includes skills such as problem abstraction and decomposition, understanding fundamental programming concepts, and appreciating the practical and theoretical limits of computation. With these goals in mind, problems from a diverse set of fields were developed to demonstrate how computational thinking can be applied in a variety of academic and real-world problem domains. These sample problems were then used to build a new course in computational thinking targeted at non-computer science majors. After testing and refining the curriculum, the course was evaluated in two instructional settings to establish its effectiveness. This investigation revealed that formal training in computational thinking decreases computer anxiety while increasing the participants' ability to use computational thinking as a problem solving strategy.

Keywords: Computational Thinking, Curriculum Development, Pedagogy

Positive and Negative Impacts of Virtual Communities

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Although many people participate in virtual communities and numerous virtual communities exist to choose from, there are both positive and negative responses to these online communities. Virtual communities can often be beneficial to individuals. Taking a break from reality for a short period of time can be a healthy alternative to today's hectic world. Virtual communities allow us to take that break.

Unfortunately, some individuals cannot seem to break free from the strong hold certain aspects of the Internet and the virtual world produce. There are some dark clouds that hover over virtual communities with the online suicides, obesity, and bullying associated with these areas. Virtual communities produce and will continue to produce more positive results than negative. Research is necessary, however, to determine ways and methods of reducing the addictive impact of virtual communities and virtual game situations to the often confused yet pliable minds of the young.

Keywords: virtual, community, online, addictive

Enhanced Student Learning with Online Course Materials

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In today's universities, it's commonplace for college students to have the access to computing devices with Internet connection in the classroom. On one hand, computers facilitate student learning during class sessions. Computers are used for taking notes, reading electronic textbooks, and searching references online. On the other hand, the computer provides a variety of distractions that fragment the learning experience. Students surf the web, check email, and use Facebook in class from time to time.

Recently more and more top-notch universities have been offering online courses to masses for free. Given that tendency, we can expect, with the advancement of software, hardware, and web hosting platform, it will become more convenient to prepare, upload, and access online course materials.

Online course materials can be integrated into classroom teaching, offering enhanced interactive engagement for students in the class. Interactive engagement makes students focus on class, thereby helping student learn more effectively. The online course lectures are delivered as short video clips, each video covers just one topic. Between video clips, students are offered live quizzes with instant feedback on their work. Delivering lectures as video clips allows students to learn at their own pace through course contents. Therefore, the class time can be used to review hard-to-understand topics and discuss exercise questions. Automated exercise questions engage students in lecture and provide them with immediate performance feedback.

Keywords: IT Pedagogy, Online Teaching, Student Learning

Online Training and Assessment Courseware for Microsoft Office Applications

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Pearson publishing offers a number of computer introductory textbooks with the adoption option of the fully online MyITLab courseware that seamlessly matches each textbooks' concepts and step-by-step Word, Excel, Access, and PowerPoint lessons and exercises with a series of engaging online hands-on simulations that include pre-tests, training modules, post-tests, homework assignments, Grader projects, self-tests, and both objective-based tests and hands-on project-based or skill-based assessments.

This paper describes MyITLab courseware that could be fully integrated into introductory computer courses of all delivery modes to enhance students' Microsoft Office 2010 learning outcomes. In addition, a computer introductory course that uses MyITLab will be demonstrated, and advantages and disadvantage of using such courseware will be discussed. Moreover, MyITLab's hardware, operating systems, and browser requirements; security and monitoring schemes; database configuration, and ease of use, advantages and disadvantage of using such courseware will be discussed.

Keywords: Computer Introductory Course, Microsoft Office, MyITLab, Online Courseware

Teaching a Web Programming Class from a Jump Drive

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This presentation is a follow up to another one, presented two years ago during the 46th ACET. In the last two years, there was a major upgrade to XAMPP, free and downloadable software. It contains all needed technologies including Apache Server, MySQL engine, PHP interpreter, and phpmyadmin. Teaching a class of Web programming continues to be a daunting task and a security risk to many institutions. A professor can easily teach a web programming class with all the required software directly from a jump drive. A professor can activate XAMPP with all the required software, tools, directories and files to run directly from a jump drive. This will alleviate the fear of IS directors and provide both professors and students all the freedom to be creative, without any inhibition associated with accessing the college's primary server. This presentation will demonstrate a full example of how to use these tools together from a jump to produce a productive e-Commerce application, without any fear, time or physical restriction.

Keywords: teaching web programming, XAMPP, e-Commerce application

Service Learning in Online Education

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High impact experiences have been shown to improve the educational experiences of students, improve student retention, and increase degree completion. Therefore, many colleges and universities are encouraging and promoting the implementation of high impact experiences across the curriculum. Some high impact experiences provided at the University of Houston – Downtown are: a common freshman experience book reading, peer-led team learning, senior projects (including presentations of undergraduate research on campus as well as at conferences), service learning and supplemental instruction.

While there has been an encouragement of high impact experiences, there have recently been serious budget constraints in higher education throughout the state of Texas as well as elsewhere. Lack of funding has led some school administrators to push for increasing the number of online, hybrid and ITV courses. Student enrollment in online courses has been increasing. Students in online courses usually prefer not to be on campus. Thus, they are a very difficult population to engage in on-campus high impact experiences.

In this presentation we will look at various documents in the course Blackboard account developed for a high impact experience that has been successful with online students in a pre-service teacher education course. Because the five hours of tutoring required in the pilot program with an extensive list of possible locations seemed to be too arduous for the students, the requirement in the fall semester of 2012 was decreased to three hours of tutoring and changed to a local school of their choice. Three hours would not be considered sufficient for a service learning program so the 20 point assignment (out of 100 points for a Time-and-Effort grade) was called a Practicum. This model will be expanded to other courses starting in the spring 2013 semester. For this one example course, we will look at the Practicum Directions, Practicum Sign-up Form, and Practicum Documentation forms. There were four required essays submitted based on four different writing prompts. Sample documents are available upon request from leveillen@uhd.edu.

Improving Teaching

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In this talk I will concentrate on improving teaching from two aspects: First I, briefly, describe my teaching philosophy. Then I will continue on creating or bringing in new courses that can help computer science education.

a. My Teaching Philosophy and Strategies

My teaching philosophy is focused on the following: (i) to develop skills in students, (ii) to create a proper attitude in students towards the subject matter, (iii) to create interest in the subject matter in students, (iv) to help students become creative, (v) to help students develop subject matter maturity, and (vi) be in contact with my colleagues (locally and nationally) to learn, to discover new teaching methods, and gauge my teaching and knowledge of the subject matter.

On the other hand, I have been trying hard to create:
1. proper strategies and teaching methods that help students achieve the best that they are capable of achieving.
2. the best atmosphere possible for students to enjoy learning and achieve what they are best capable of achieving.
3. establishing programs that will both attract students to the subject matter, and help students advance their knowledge.

b. Benefit of some courses on Education

- Operations Research (Linear Programing)
- Quantum Computer and Nano devices

Linear Programing in general will help optimum decision-making. These decisions range from designing an efficient and optimum network to delivery, transportation, dynamics programing, flows, and more. Such a course could deepen computer science students' knowledge and help them be very effective in their profession.

Keywords: Computer Science Education

Technology in Action

Kendall Martin, Ph. D.

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Invited Speaker

Sponsored by Pearson

A Study to Identify Influences of Financial Aid on the Enrollment and Retention of Hispanic Students in Higher Education

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In fall 2009, three professors, realized that attrition was high among Hispanic university students and felt there was a need for a study to identify factors that influence Hispanic students' experiences in higher education. The purpose of this study was to identify factors that influence Hispanic students' experiences in higher education via a model that associates enrollment and retention levels with student satisfaction concerning financial aid. More specifically, this study attempted to capture students' perceptions of the financial aid office concerning the performance of services and the level of satisfaction related to human interface. Factors were targeted in this study based on identified concerns expressed by students in two Hispanic focus groups.

Keywords: Enrollment, retention, attrition, Hispanic, satisfaction

Hit! You Sunk my Submarine Aircraft Carrier?
(An Object – Orientated Case Study)

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Teaching object-oriented concepts and implementations can be very challenging at the undergraduate college level. Today's students are used to highly visual computer interaction found in modern graphical user interfaces and mobile applications. The level of complexity needed to implement a highly graphical object-oriented case study example for beginning programming students using the C++ language would be overwhelming. The challenge is to provide students with a manageable and straight forward example that demonstrates the desired concepts but still appeals to their imaginations.

This presentation will explore an example designed to teach inheritance in C++ using a variation of the game of battleship. The goal of this case study was to incorporate several object-oriented concepts including single and multiple inheritance, polymorphism, virtual functions, constructors, static data members, and pointers. The presentation will also discuss the presenter's experience in using this case study in a college level computer programming course.

Keywords: inheritance, object-oriented, battleship

Sugar, Spice and Everything Strategic:
Post-secondary Partnerships in the New Millennium

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Blinn College, whose district covers the Brazos Valley in central Texas, has enjoyed a very positive relationship with Texas A & M, the land grant university of Texas. Today's presentation will focus on several different aspects to our partnership that all involve a level of innovation and cooperation that is certainly the new standard for postsecondary education in our nation.

In 2001, Blinn College and Texas A & M University entered into a dual-enrollment program for qualified freshman called Transfer Enrollment to A & M (TEAM). What started with 300 students now enrolls over 1,000 each fall. In spring 2010, U.S. Secretary of Education, Arne Duncan, paid a visit to Blinn College and A & M to gain a deeper understanding of this program. He agreed it is a national model for two and four year school partnerships. This presentation will focus on the TEAM program and several other examples of one of the most effective postsecondary institution partnerships in the nation.

Keywords: Postsecondary education, transfer partnership model, Transfer Enrollment (TEAM)

Travel to Chile: An International Business Course Recap

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In this presentation, the presenter will discuss a class, “Business and Enterprise Information Systems in Chile”, offered thru the International Business program in a 4 year undergraduate program at a mid-size urban institution. The course was designed to provide students with knowledge of how international businesses must adapt and change as technology and market forces change, using Chile as the example.

The class included face to face in-classroom instruction and a trip to Chile. The purpose of the class included giving students a study abroad adventure by traveling to Chile and visiting many companies and nonprofit organizations that conduct business in the USA and/or Chile, at the conclusion of the course. The students learned from a current perspective, the trials and tribulations of firms moving into and operating in a fast-moving global economy. The course included an introduction to the history of Chile; a study of past, present and current events; case studies; articles in the popular press; and presentations. Instruction was supplemented with tools readily available to students through the university’s library and other online resources.

The basic design of the course included an introduction to global technology, presentations which focused on the history of Chile and the study of current Chilean business, culture, and social topics. Students, also, worked on teams and presented case studies on topics related to business and business information systems environments in Chile. Several businesses were visited. The businesses included: technology, copper, wine-making, transportation, public and governmental organizations.

Keywords: information systems, study abroad, Chile, international business

Motivation and Retention of Technical Instructors

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The need for more effective schools and the centrality of the technical teacher's role in any substantive school improvement plans are well known. Educators, political factions, and policymakers are engaged in a lively debate as to whether performance pay schemes or more substantial increments across the salary schedule are more likely to motivate teachers to boost student learning outcomes. Neither side questions that some type of financial incentive is necessary for robust results. Since the economy has made local districts less able to provide either type of financial incentive, this study examines whether expensive pay-related motivators are as essential as the current discussion would suggest. It finds that virtually cost-free motivators such as positional respect, positive working environment, personal meaning, job security, and positive challenge may each be more effective in attracting, retaining, and inspiring quality technical teachers than any restructuring or improvement of financial compensation.

Keywords: technical instruction, motivation, teaching excellence.

The Path to Innovation and New Products on the Market

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How do products of the past predicate innovations in the future? What innovations have influenced the greatest changes in the industry? In this session, we will discuss the cycle of innovation and see how it has steered IT products and services. We will explore how the development of infrastructure has given birth to new possibilities within IT and eliminated boundaries. And finally, we will discover some new products which are re-defining the industry and demonstrating the limitless possibilities of Information Technology.

Information on SoftLayer: http://www.softlayer.com/about/

Keywords: IT innovation, SoftLayer

Testing Test-First First

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Many beginning students fall quickly into habits of programming by trial-and-error: quickly writing out a solution, then iterating through error messages until it compiles, then iterating through a series of executions with sample data until a seemingly correct state is achieved. In our CS1 class, we introduced “test-first” assignments to teach students to think through a problem before coding. For these problems, students are first asked to create and submit a test suite which should thoroughly test the correctness of a proposed implementation. This test suite is required to be comprehensive before a student begins writing code. We theorized that students who created and understood both normal and edge case sample input would consider the problem more holistically and therefore encounter less difficulty when programming solutions.

Keywords: CS1, testing, debugging, test-driven development

Student Presentations

Student Presentations Third Place (3-way tie)

Cross – Platform Webpage Template for Interactive Campus Map

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Our work presents a cross-platform webpage template for interactive campus map. Most universities have their campus maps available online. Usually each building on the map has a name and a number. The building numbers, rather than the names, are shown on the map, indicating the location of the buildings. The building names, together with corresponding numbers, are presented as a list in alphabetical order.

Given a building name, the user needs to go through the list to map the name to number, and then search the number on the map to determine the building location. If the user wants to figure out the name of a specific building on the map, he needs to search the list for the building number and then map the number to name. For a large campus with many buildings, it's time-consuming to pinpoint a building on the map based on the building name. It is also inconvenient to find out the building name from a building number.

Our work presents the methodologies and software for constructing an interactive webpage of university campus map. The webpage can automatically identify building locations on the map and determine building names for users. Our webpage template is built with standard web technologies to ensure it works properly on multiple platforms. We have built an interactive map website for our university, which is available at http://mars.umhb.edu/~cgong/UMHBMap/. Besides being helpful to construct interactive campus map websites, our work can be also used as a term project in web development courses.

Keywords: Web, Webpage Template, Map

Student Presentations Third Place (3-way tie)

Navigation Systems for 3D Models

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The purpose of this project is to create a program using Microsoft XNA that will allow a user to upload any 3D model and be able to navigate through the model. Model navigation will include collision detection to make movement experience more realistic. This program can be used for familiarization with facilities prior to visitation or as a training simulator for personnel in case of emergency situations. In addition, this program would be useful in previewing a facility model and determining functionality and aesthetics before construction.

In order for the developed collision detection algorithm to function properly, the 3D models uploaded must be drawn in a specific way. Another issue encountered was how to ensure that models would load without the camera object initially detecting a collision. Due to this issue, another algorithm was created that uses model vertex information to determine initial load position of the camera.

With the algorithms for collision detection and camera loading, the program created was successful with user navigation and collision detection. Several different models were tested and it appears that any bugs in the program have been resolved. We plan to continue testing with different models and implement GIS data in order to allow program interaction with a developed path finding application.

Keywords: navigation, collision detection, simulator

Student Presentations Second Place Winner

Exploring Ephemerality on Social Media with Facebook Timebomb

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and Johnson C. Smith University

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Online social networking has become prevalent in the lives of many individuals. People share information with little acknowledgment that their personal posts remain online indefinitely. To further explore this privacy vulnerability, we conducted an interview study that exposed perceptions and behaviors surrounding the permanence of posts. We found that 14 out of 15 interviewees admitted to deleting posts made on their wall, for reasons such as removing ads, games, the misuse/misspelling of words and redundant posts. However while participants occasionally removed offending posts, many did not consider the long term consequences of what they may post and rarely removed old information. We posit that reducing the effort in removing posts will provide additional privacy protection. We have developed a prototype application on Facebook's platform that enables users to post status updates and photos to Facebook with an additional option of a time when the post will automatically be deleted. This app allows users to predetermine when their posts will be deleted; serving as an effortless mechanism to control the longevity of their posts. With this prototype, we are conducting a controlled user study to examine whether users change their sharing habits and perceptions with this new deletion option and how it impacts their perceptions of the temporality of their online information. The results of these two studies provide guidance for the design of privacy-preserving features and interfaces on social media sites.

Keywords: privacy Facebook

Student Presentations Third Place (3-way tie)

An Empirical Study on the Effectiveness of Security Code Review

Anne Edmudson, Brian Holtkamp, Emanuel Rivera, Matthew Finifter, Adrian Mettler and David Wagner

Cornell University; University of Houston – Downtown; Polytechnic University of Puerto Rico; University of California, Berkeley; University of California, Berkeley; and University of California, Berkeley

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With the rise of the web as a dominant application platform, web security vulnerabilities are of increasing concern. Ideally, the web application development process would detect and correct these vulnerabilities before they are released to the public. This research aims to quantify the effectiveness of soft- ware developers at security code review as well as determine the variation in effectiveness among web developers. We hired 30 developers to conduct a manual code review of a small web application. The web application supplied to developers had seven known vulnerabilities, including three different types: Cross-Site Scripting, Cross-Site Request Forgery, and SQL Injection. Our findings include: (1) none of the subjects found all confirmed vulnerabilities, (2) more experience does not necessarily mean that the reviewer will be more accurate or effective, and (3) reports of false vulnerabilities were significantly correlated with reports of valid vulnerabilities.

Keywords: security, web applications

Student Presentations First Place Winner

Mobile Applications for GeoVISTA Crime Viz

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The purpose of this project was to develop an extensible Android-based Map application that supports Geo visual exploration and sense making about criminal activity in real time. Google Maps is used as the primary interface in addition to other tools such as: Twitter APIs, Google Search APIs and Places APIs.

Leveraging Google Search and Places API, the application identifies the location of the crime's address by forward Geo-Coding the address into its coordinate equivalent on Google Maps. A function is used to place each individual coordinate on the map along with its respected marker. Using data-mining, the application stores the address, time, coordinates (latitude, longitude), and the radius of the crime in a SQLite database after successfully parsing them.

The benefit of using a SQLite database is the fast retrieval of data. The user is able to create a query to the database when the user wants to view crimes within a restricted time frame. The visuals of the application provide a rich experience for the user as they begin to observe and make assumptions about certain demographics when data (criminal activity) are displayed on the map.

Keywords: Android, Crime, Real-time, Data-mining

Student Presentations Honorable Mention

Engaging High School Students in a Game Computing Academy

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Despite the size of the Computer Science field and the vast number of career opportunities afforded to those who pursue it, high school students often graduate without adequate exposure to the field. In recent years, many organizations have attempted to engage students using fun hands-on activities such as robotics and game programming. One such group was a team of undergraduates at Lamar University who released game-based instructional materials for a five day computing academy in 2011 which they had taught from during the summer. The materials teach basic Java programming and object oriented design concepts by using a graphical and intuitive Java-based game development environment called Greenfoot in which students are required to work in hands-on labs to complete simple two-dimensional games. That Academy was successful in increasing the interest and knowledge in computing of eighteen rising high-school students who had self-selected as being interested in computing.

The objective of this work is to measure the effectiveness of this approach in engaging students who self-select as being interested in math but not necessarily computer science. This project describes the experience of a different team of undergraduates using the game-based instructional materials to engage 23 high-school students enrolled in a two week residential math academy in the summer of 2012. A formal assessment found that the high-school students' interest and knowledge of computing was significantly increased. A description of each session, samples of our material, and our results so far are presented.

Keywords: high school computing academy, game computing, hands-on learning, computer-science, game-programming