Program

Friday Morning, 9:00 AM – 12:00 Noon, Workshops, Tutorials, and Field Trips

Pre-Conference A: Workshop   *Location: Ballston Center, Truland Auditorium*

Workshop: **Database Animations for Many Majors**
Author: Don Goelman, Villanova University; Suzanne Dietrich, Arizona State University

Pre-Conference B: Workshop   *Location: Ballston Center, Conference Center*

Workshop: **Digital Hardware Design using VHDL and Aldec Active HDL**
Author: John Robinson, Rowan University

Pre-Conference C: Tutorial   *Location: Ballston Center, Room 205*

Tutorial: **Teaching about Reference and Value Objects in .NET**
Author: Norman Brenner, George Washington University

Field Trips: *Location: Ballston Center, Lobby*

   XM/Sirius Radio (technology and music)

   Fairfax County Government Center (technology in local government)

Friday Afternoon, 12:00 Noon- 1:00 PM, Lunch   **ON YOUR OWN**

Friday Afternoon, 1:00 PM- 2:15 PM, Keynote Panel

Location: Holiday Inn, Ballroom

Business and Government Speak: Who Are We Hiring in 2012 and Beyond
   Speakers: Mayur Raichura, Vice President of Information Systems, Long and Foster
   Real Estate, and Jack Belcher, Chief Information Officer, County of Arlington, VA

Friday Afternoon, 2:00 PM- 2:35PM, Break

Location: Holiday Inn, Ballroom Lobby

Friday Afternoon, 2:45 PM- 4:00 PM, Concurrent Session 1

Session 1A: Papers   *Location: Ballston Center, Conference Center*

Paper 1:   **Utilizing ASP.NET MVC in Web Development Courses**
  Morgan Monger, Datatel Inc.; Ramon Mata-Toledo, James Madison University; Pranshu Gupta, Kansas State University

Paper 2:   **An XML Course As a Springboard For Teaching Fundamental Computer Science Ideas**
  Bonnie MacKellar, St John's University

Paper 3:   **A Data Mining Hypertextbook: Design, Implementation and Experience**
  Rakesh Verma, University of Houston; Ping Chen, University of Houston - Downtown

Session 1B: Tutorial   *Location: Ballston Center, Room 205*

Tutorial: **Exploring Agile Processes**
Presenter: Karen Anewalt, University of Mary Washington

Session 1C: Panel   *Location: Ballston Center, Truland Auditorium*

Panel: **Going Green with Computing**
Moderator: Donna Schaeffer, Marymount University
Panel Members: Tom Camerlinck, CIO, Greenpeace ; Dave Deal, CEO, Community IT Innovations Inc.; and Jeff Porter, IT Infrastructure Director, Fairfax County

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Friday Afternoon, 4:00 PM- 4:30 PM, Break and Vendor Exhibits

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Location Ballston Center, Truland Auditorium

Vendors:

BirdBrain Technologies
Pearson Education
Wiley

Friday Afternoon, 4:30 PM- 5:45 PM, Concurrent Session 2

Session 2A: **Papers**   *Location: Ballston Center, Truland Auditorium*

Paper 1:   **Defining Undergraduate Research in Computer Science: A Survey of Computer Science Faculty**
Rick Matzen and Rad Alrifai, Northeastern State University

Paper 2:   **Open Sharing of Course Content and Design**
Robert Terrell and Jason Caudill, Carson-Newman College

Paper 3:   **A Corporate/University Partnership for IT Professional Development**
Ken Abernethy, Furman University

Session 2B: **Tutorial**   *Location: Ballston Center, Room 204*

Tutorial: **Exploiting On-Line Data Sources in the Data Structures Course (and Elsewhere**)
Presenter: Peter DePasquale, The College of New Jersey

Session 2C: **Panel**   *Location: Ballston Center, Conference Center*

Panel: **Interdisciplinary Experiments in and Perspectives on Computational Thinking**
Moderator: Tina Kelleher, Towson University
Members: Samuel Collins, Charles Dierbach, Gerald Jerome, and William Kleinsasser, Towson University

Friday Evening, 5:00 PM - 6:30 PM, Posters

Location: Holiday Inn, Ballroom Lobby

Faculty and student posters (see page 10)

Friday Evening, 5:45 PM - 6:30 PM, Reception

Location: Holiday Inn, Ballroom Lobby

Friday Evening, 6:30 PM - 8:00 PM, Banquet

Location: Holiday Inn, Ballroom Lobby

Future Trends, Dr. Erwin Gianchandani, Director of the Computing Community Consortium and Computing Innovations Fellow Project, of the Computer Research Association

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Saturday Morning, 7:30 AM - 8:30 AM, Continental Breakfast

Location: Ballston Center, Truland Auditorium Lobby

Saturday Morning, 8:00 AM - 1:30PM, Programming Competition

Location: Ballston Center, Fourth Floor

Saturday Morning, 8:30 AM - 9:45 AM, Concurrent Session 3

Session 3A: Papers   *Location: Ballston Center, Truland Auditorium*

Paper 1:   **MindStorms as an Electronic Tangible Across the Computing Curriculum**
             Frank Klassner, Villanova University

Paper 2:   **Computer Applications for the Classroom: A Review**
             Heidi Webb, Penn State University

Paper 3:   **The Nine Rings Puzzle, 3 ways: A Rosetta Stone for Programming Paradigms**
             Carolyn Rosiene, University of Hartford and Joel Rosiene, Eastern
             Connecticut State University

Session 3B: Papers   *Location: Ballston Center, Conference Center*

Paper 1:   **Analysis of Privacy and Security in Html5 Web Storage**
             William West and S. Monisha Pulimood, The College of New Jersey

Paper 2:   **Security Enhancements for the Additive Cryptosystem**
             John Trono, Saint Michael's College

Paper 3:   **Experience with Video Games for Security**
             Mario Guimaraes and Huwida Said, Zayed University, Richard Austin,
             Southern Polytechnic State University

Session 3C: Tutorial   *Location: Ballston Center, Room 205*

Tutorial: **Understanding NSF Funding Opportunities**
Presenter: Suzanne Westbrook, National Science Foundation

Saturday Morning, 9:45 AM - 10:15 AM, Break and Vendor Exhibits

Location: Ballston Center, Truland Auditorium Lobby

Saturday Morning, 10:15 AM - 11:30 AM, Concurrent Session 4

Session 4A: Workshop   *Location: Ballston Center, Conference Center*

Workshop: **Scratch Programming for Undergraduates-Part** I
Author: Mona Rizvi,Thorna Humphries, Norfolk State University

Session 4B: Papers   *Location: Ballston Center, Truland Auditorium*

Paper 1:   **OS Project Implementation: Multiprogramming With Threads**
          Sean Goldsmith, Onkar Sharma, Marist College

Paper 2:   **The Right Balance: Restructuring the Parallel and Scientific Computing Course**
          Lubomir Ivanov, Iona College, NY

Paper 3:   **Coexistence of Functional and Object-Oriented Paradigms**
          Vijay Gehlot, Thomas Way, Frank Klassner, Villanova University

Session 4C: Tutorial   *Location: Ballston Center, Room 205*

Tutorial: **Introduction to Cryptography**
Presenter: Seth Bergmann, Rowan University

Session 4D: Nifty Ideas and Lightening Talks   *Location: Ballston Center, Room 203*

A variety of educators will address important issues in computing education. The list of short papers, together with abstracts, is shown on page 12.

Saturday Morning, 11:30 AM - 12:00 PM, Break and Vendor Exhibits

Location: Ballston Center, Truland Auditorium Lobby

Saturday Afternoon, 12:00 PM - 1:15 PM, Concurrent Session 5

Session 5A: Workshop   *Location: Ballston Center, Conference Center*

Workshop: **Scratch Programming for Undergraduates-Part II**
Author: Mona Rizvi and Thorna Humphries, Norfolk State University

Session 5B: Papers   *Location: Ballston Center, Truland Auditorium*

Paper 1: **A Comparison of the MIS and CIS Foundation Courses at the University of Mary Washington**
Marsha Zaidman and Gail Brooks, University of Mary Washington

Paper 2: **Improving Education Through Applied Learning**
Xiaohong Wang and Joshua Souders, Salisbury University

Paper 3: **Models For Teaching Healthcare Informatics: A Survey of Healthcare Informatics Programs**
Bonnie MacKellar, St John's University

Session 5C: Tutorial   *Location: Ballston Center, Room 205*

Tutorial: **Using and Developing Automatically-Generated Microsoft PowerPoint Slides To Facilitate teaching of Data Structures and Algorithms**
Presenter: Sen Zhang and James Ryder, State University of New York, College at Oneonta

Saturday Afternoon, 1:30 PM - 3:00 PM, Luncheon

Location: Holiday Inn, Ballroom

Best paper/poster awards, programming competition awards
Special Guest -- Thomas Edison, **Man of the Millenium**
Frank Attwood brings the essence of creativity & imagination of Thomas Edison's thoughts on science, technology, engineering, and math http://www.attwoodasedison.com/

Saturday Afternoon, 3:00 PM - 6:00 PM, Workshops

Post-Conference A *Location: Ballston Center, Conference Center*

Workshop: **Teaching CS0 With Mobile Apps Using App Inventor For Android**
Author: Franklyn Turbak, Wellesley College; Ralph Morelli, Trinity College; Eni Mustafaraj, Wellesley College

Post-Conference B *Location: Ballston Center, Truland Auditorium*

Workshop: **Reducing the Learning Curve in an Introductory Programming Course**
Author: Dee Gudmundsen, The College of Saint Rose; Lisa Olivieri, Chestnut Hill College; Namita Sarawagi, Rhode Island College

Post-Conference C *Location: Ballston Center, Room 205*

Workshop: **How To Deliver a Gentle Introduction to LR Parsing**
Author: David Middleton, Arkansas Tech University

CCSC-E 2011 Posters

Faculty Posters

COMTOR: Toward Automated Grading and Feedback of Student Source Code Comments,
Peter J. DePasquale (The College of New Jersey), Michael E. Locasto (University of Calgary),
and Miroslav Martinovic (The College of New Jersey)

On the Programming Oriented Approach towards Computer Architecture Education,
Weidong Liao (Shepherd University)

Developing and Enhancing a Biometrics and Information Security Curriculum, Weidong
Liao (Shepherd University) and Osman Guzide (Shepherd University)

Student Posters

**Translating Haskell to Clojure for execution on the JVM, Daniel Mead (West Chester
University),** Richard Wyatt (faculty advisor, West Chester University)

Developing a Trust Distribution Diagram Design Tool, Bogdan Copos (The College of New
Jersey), Michael Locasto (faculty advisor, University of Calgary), Peter J. DePasquale (faculty
advisor, The College of New Jersey)

Hybrid Chips versus GPU: A Comparison Study, Nairita Deb (Shepherd University), Weidong
Liao (faculty advisor, Shepherd University)

Feature Detection in Long Wavelength Infrared Images, Douglas P. Taggart (Rowan
University), Lauren Aguilera (Kean University), Jing Peng (faculty advisor, Montclair State
University)

Fault Tolerant Clustering in Dense Wireless Sensor Networks, Neal Shukla (Ursinus
College), Cassandra Chapman (Clarion University), Akshaye Dhawan (faculty advisor, Ursinus
College)

Implementing a Steganography Algorithm in the Java Environment, Edwin Dauber
(Widener University), Yana Kortsarts (Widener University)

jAmaseis: Using Software Engineering Principles to Transition from Beta to Release, Frank
Capobianco (Moravian College), Nicholas Yelito (Moravian College), Jordan Pesce (Moravian
College), Elliot Ronaghan (Moravian College), Ben Coleman (faculty advisor, Moravian
College)

Identifying Active Variables to Improve the Performance of Operator Overloading Automatic Differentiation, Drew Wicke (York College of Pennsylvania), Paul Hovland (faculty advisor, Argonne National Laboratories**)**

The NP-Completeness of MATH-N, Rebekah Overdorf (Moravian College), Matthew Lang (faculty advisor, Moravian College)

Enhanced Butterfly Topology in On Chip Network for a Multicore System, Etleva Jackson (Shepherd University), Osman Guzide (faculty advisor, Shepherd University), Weidong Liao (faculty advisor, Shepherd University)

Multipreference User Driven Quadsearch Solution, Matt Dellomo (Worcester State University), Hemant Pendharkar (faculty advisor, Worcester State University)

Quantum Cryptography: Security on The Edge, Christopher C. Wallace (Shepherd University), Osman Guzide (faculty advisor, Shepherd University)

CCSC Nifty Ideas and Lightening Talks

Schedule: Saturday 10:15 – 11:30, Room 201

10:45 AM

Title: How to make our computing science graduates more "employable"?
Presenters: Michelle Liu and Diane Murphy, Marymount University

Written communication has been listed as the top explicitly requested skill by employers for a long time. Despite pressure from industry, the gap still exists between the expectations and average written and communication skills of current computing science graduates.   Although academic organizations like the Association of Computing machinery (ACM), Computing Sciences Accreditation Board (CSAB), and ABET (formerly the Accreditation Board for Engineering and Technology) have updated their requirements to emphasize the importance of written skills, we believe that there is a continual need to evaluate where and when writing can be reinforced.

The proposal addresses the above issues and discusses incorporating written communication requirements into today's computing curriculum. After a brief introduction to the nation-wide university initiative of "Writing Across the Curriculum" (WAC) in 1980s, we will review our university's "Writing Intensive (WI)" course requirements. A gap was observed existing between the theory behind the WAC initiatives and actual implementation. The authors aim to share their experiences and lessons they had learned when they went through the process of transforming existing computing courses to be writing intensive. The proposal covers the rationale and strategy used to convert three existing courses in our Information Technology (IT) program into WI courses to meet university writing requirements. In the presentation, we will enumerate several assignments, cases, and projects that were designed or developed specifically for WI computing courses. Furthermore, the proposal discusses faculty preparation, and some lessons learned. Our goal is to give pragmatic guidance for educators in the computing discipline who want to enhance the writing and communication skills of their students.

10:55 AM
Title: When Half the Class Still Doesn't Get It: Turning a Test into a Community Learning Experience
Presenter: Dr. Dee A. B. Weikle, Eastern Mennonite University

When half of the class doesn't get the material what should a professor do? Being confronted with this problem is not uncommon, even at larger universities or research institutions. What

comes next may differ depending on the professor and the institution of higher learning. This nifty idea explains the presenter's response in a junior level data structures class where some students had complete mastery of mid-semester material, while others clearly did not. Reminding the class of the institutions dedication to community learning proved a key element of the response. The professor then reviewed common mistakes, paired higher achieving students with lower achieving students for a discussion/tutoring session, and reassessed. Several positive outcomes were achieved. These included increased student involvement in the class as a whole, identification of excellent peer tutors, and increased understanding on the part of lower level students, as well as improved relationships among students in the class. This talk would include details of this example as well as a class discussion of other techniques used by the presenter and other faculty.

11:05 AM

Title: Multicore Programming in C++ Using OpenMP
Presenter: Zahira Khan, Bloomsburg University

OpenMP is an Industry Standard for portable multithreaded application development. Through the use of APIs and compiler directives it supports shared memory parallel programming in C/C++ and FORTRAN. It provides opportunity for large performance improvements. Using C++ in Visual Studio 2010 and Intel multicore processors, parallel processing can be introduced in the Computer Science curriculum either as a separate course or as a topic in an operating system course. The talk will describe how to use OpenMP compiler directives to convert serial code for matrix multiplication to parallel code. The talk will also provide information on how faculty can apply for grants to get access to multicore processors and resources for executing, debugging and performance evaluation of parallel programs. This will create opportunities for faculty to involve their students in collaborating with faculty and students from other departments to conduct research.

11:15 AM

Title: The Use of Amazon Web Services to Teach System Administration
 Presenter: Charles Border, Ph.D., Rochester Institute of Technology

Last summer I taught a seminar in cloud computing to a cohort of MS students in our Networking and System Administration program at RIT Dubai. The course was a very exciting learning experience for me and helped me to gain a better understanding of the potential impact of cloud computing on our curriculum. There are two different audiences that our curriculum could focus on; the groups that deploy and run the clouds, and those who use the cloud to deploy both large and small scale applications.

While we have been discussing virtualization in our curriculum and students have implemented private clouds on their own architectures to accomplish course projects we have not included

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discussions of the types of technologies needed to deploy large scale wholly scripted architectures. Nor have we included discussion of the means by which services and applications are deployed in a cloud environment. When new applications can be deployed directly to the internet as quickly as we used to deploy them to an owned private server architecture we need to rethink both what we teach and the way that we teach it.

In this Nifty Ideas session I will discuss some of the lessons I learned from this experience and the impact they may have on the evolution of our curriculum.

Lightening Talk:

10:15 AM

Title: Enterprise Security in the Cloud Computing Era

Presenter: Charles Border, Rochester Institute of Technology

In 2005 we developed a MS degree program in Networking and System Administration. As part of this effort we developed a course entitled Enterprise Security. The course was meant to contrast with existing courses in computing security that were focused on maintaining control of the individual computers that made up a corporate network. The focus of the enterprise security class was meant to be the policies and procedures that go into maintaining the overall security posture of a large organization. The main body of the course dealt with subjects such as acceptable use policies, disaster recovery and architecting networks for security maintenance and documentation.

With the advent of the cloud computing era the topics that come under the rubric of enterprise security has substantially changed and we are planning to adapt the course to the new demands that cloud computing puts on enterprises as they attempt to enhance their security posture. When organizations adopt a public cloud for the deployment of an enterprise scale application they violate some of the basic tenets of enterprise security. They place their data outside the perimeter of their networks and delegate much of their former governance controls to a cloud service provider whose operations are only controlled by an inexact service level agreement.

How should this new reality be reflected in an enterprise security class? While we are still working on this some of the topics we are discussing include: data governance, compliance, and enterprise access and identity management. This will be a very different class from its previous version, but we are excited about the opportunities this change will bring to enhance the relevance of our curriculum and allow us to use this transition as a "teachable moment"