



June 27, 2009

The Renaissance Washington DC Hotel

PRESENTATIONS

Joanna Goode, Jane Margolis

8:45 - 9:45 General Session

Stuck in the Shallow End: Education, Race, and Computing

In this talk, Margolis and Goode will discuss their research on why so few African-American, Latino/a, and female high school students are learning computer science. They will argue that their study of computer science education reveals how inequality is reproduced in this country, despite the national hope and wish for technology to be a great equalizer. Margolis and Goode will describe the building of a K-12/university interdisciplinary partnership with administrators and teachers of the Los Angeles Unified School District and the several interventions that have resulted.

Fran Trees

10:00-11:00 Concurrent Sessions

Inheritance, Polymorphism & Interfaces

Inheritance is arguably one of the most powerful features of an object-oriented language. Conceptually inheritance is easy to understand and is something that we encounter all the time in our lives. Unfortunately, that does not necessarily imply that inheritance is easy-to-teach or easy-to-learn in the introductory programming environment. This session will provide teachers with an overview of inheritance, polymorphism, and interfaces and provide usable classroom exercises and examples.

Cameron Wilson

10:00-11:00 Concurrent Sessions

Public Policy & Advocacy: The Long Road Ahead

Too few students have the opportunity to take engaging and rigorous computer science classes in high school. There is little diversity among those that do. And too few opportunities exist for professional development for teachers. Many factors contribute to these problems, but a critical one is getting policy makers at all levels of government to understand why exposing students to a rigorous computing curriculum is critical at the K-12 level and why it isn't happening now. This presentation will look at the complex education policy environment; discuss current strategies to get computer science noticed and counted; and the need for a long-term national, state and local strategy of engagement if we are going to reform computer science education at the K-12 level.

Michelle Hutton

10:00-11:00 Concurrent Sessions

Animate your Class with Adobe Flash

Adobe Flash creates splashy websites and animations, but it can also be used to teach important object-oriented programming concepts. This session will provide an introduction to Flash, from the interface to creating simple animations. It will touch upon basic ActionScript. Handouts are available to reinforce your own understanding or use with your own students. Recommended both for people who want to learn Flash and those who want to learn how to use it to teach basic computing concepts.

David Burkhart

10:00-11:00 Concurrent Sessions

CS for all Students Using Differentiated Instruction

We need to reach all students when teaching CS but how? Some students can be difficult to reach. Come learn how you might apply differentiated instruction to your classroom to reach those difficult students. Participants will have an opportunity to share and brainstorm how they might use differentiation in their CS classroom.

Barb Ericson, Deepa Muralidhar, Rob Cutler

10:00-11:00 Concurrent Sessions

Teaching Tips We Wish Someone Had Told Us Sooner

All teachers have a set of teaching tips that they pick up over the years. Barb, Robb, and Deepa will each share their top ten things that they wish others would have told them sooner. Then, we will open it up to the teachers in the audience to share their tips.

Anita Verno, Michelle Hutton & Dan Frost

11:15-12:15 Concurrent Sessions

Making CS Happen in K-8

Computer Science education should begin early and continue throughout high school and beyond. Successful computer science education in high school cannot exist without a solid foundation in K-8. Learn about CSTA's proposed K-8 computer science curriculum, join the discussion about its viability and appropriateness as preparation for high school course work, and provide final thoughts before the curriculum is complete.

Steve Cooper

11:15-12:15 Concurrent Sessions

Partnering with Local Colleges to Get Grants

Few K-12 school districts partner with their local colleges. Even fewer, partner with their local colleges to obtain federal grants. This session will explore National Science Foundation grant programs that are particularly appropriate to K-12 school district/university partnerships. Please bring your questions to this informational session!

Deborah Seehorn

11:15-12:15 Concurrent Sessions

SAS Programming for High Schools

Are you looking for a high school course that will provide your students with more rigor and relevance while preparing them for high skill, high demand career opportunities? SAS Programming for High School could be for you! SAS is the leader in business analytics software and services, and SAS programmers are in high demand in technology, marketing, financial services, and many other sectors. Attend this session to learn how North Carolina has integrated SAS Programming into the high school curriculum and how you can participate in the program.

Pat Phillips

11:15-12:15 Concurrent Sessions

Computational Thinking - A Problem Solving Tool for Every Classroom

Computational thinking is an analytical tool for problem solving with models and methods from computer science. It should be a subset of the analytical skills students have in math, science, social studies, the humanities and more. Computational thinking is a fundamental skill for everyone, not just computer scientists. Learn how to include computational thinking strategies in your classes and how to encourage your colleagues to engage their students in meaningful computational strategies.

Leah Buechley

11:15-12:15 Concurrent Sessions

Rethinking Cultural and Material Contexts for Computer Science

Computation can be beautiful, colorful, tangible, and expressive. Artifacts such as interactive, shape-changing dresses and programmable paper sketchbooks confound our assumptions about what technology looks and feels like, and when we put computer science in new material and cultural contexts like these, it becomes appealing and exciting to unusual and diverse groups of people. In this talk, I will demonstrate examples of interactive garments and paper computers, introduce tools we have developed that empower students, hobbyists, and educators to work in these new domains, detail how we have employed our tools to attract diverse audiences to computer science workshops, and describe how others can do the same.

Michelle Venable-Foster

1:30 - 2:30 Concurrent Sessions

Scratching the Surface Of Computer Science With Scratch!

This session will introduce a creative way of teaching computer science programming using the Scratch programming environment, a drag and drop programming environment created by the Lifelong Kindergarten group of MIT's Media Lab. Scratch can be used to introduce programming topics and problem-solving skills to students as young as 8 years old! Scratch provides a creative and intuitive way for instructors to present programming algorithms, and yet allow the students to express their autonomy by creating original computer games, digital stories, and interactive media. You will leave with a framework on how to engage students by using Scratch and its online community to foster an appreciation for programming without them even knowing it!

Gail Chapman, John Harrison, Stephanie Hoepfner & Deepa Muralidhar **1:30 - 2:30 Concurrent Sessions**

Building Effective Leadership at the Grass Roots

How do you build a community powerful enough to change the face of computer science education in your state? In its first year of existence, the CSTA Leadership Cohort has accomplished a great deal in terms of advocacy and outreach with various stakeholders responsible for computer science education. Panel members will discuss the activities in which they have participated and share practices that have been successful.

Pat Phillips & David Burkhart

1:30 - 2:30 Concurrent Sessions

Web Design Course: Creating Tool Builders

Explore the Introduction to Web Design Using Microsoft Expression Studio curriculum through a detailed tour of teaching and learning resources. Give your students the same powerful tools to create standards-based Web sites that professional Web designers use. The Introduction to Web Design curriculum is project-based, aligned to national standards, created by teachers, and tested with students. Learn how to provide your school and your students with Expression Studio free of charge and learn the details of participating in a national curriculum pilot program.

Ron Eglash

1:30 - 2:30 Concurrent Sessions

Teaching Computing with Culturally Situated Design Tools

This session explores ways of making math and computer science education more culturally relevant for students. Culturally Situated Design Tools (CSDTs) are an NSF-funded suite of free applets based on ethnomathematics: the mathematical knowledge embedded in cultural designs such as cornrow hairstyles, Native American beadwork, Latino percussion rhythms, and urban graffiti. CSDTs allow students to use these underlying mathematical principles to simulate the original cultural designs, create new designs of their own invention, and engage in specific math and computing inquiries.

Robb Cutler

1:30 - 2:30 Concurrent Sessions

Using Manipulatives to Enhance Pedagogy (aka Teaching With Toys!)

Teaching with toys, objects first, immersion, role plays, and game playing are just some of the techniques that have been successfully used in teaching object-oriented programming. Robb will provide concrete examples of these and other techniques that he has used quite effectively in his classroom. There will be time for questions and answers and audience participation will be encouraged!

Steve Cooper

2:45 - 3:45 Concurrent Sessions

Transitioning from Alice to Java

While Alice has taken off in popularity, it is still not considered a professional development language. Thus, for teachers wishing to give their students experience in programming with a “real” language, it is necessary to introduce a language such as Java. This session will cover transition issues moving between teaching with Alice 2 and then teaching with Java. These issues will be covered in general, and a specific solution that has worked well will be presented. Time-permitting, Alice 3 will be presented, which eases the transition by allowing students to program Alice in Java.

Anita Verno & Alfred Thompson

2:45 - 3:45 Concurrent Sessions

Navigating the Professional Certification Maze

Do certifications have a place in K-12 Computer Science? Join us for what we hope will be a lively discussion of the pros and cons of professional certifications. We will focus on the CompTIA A+, Oracle Certified Associate, and Microsoft certifications. Discussion issues will include vendor neutral vs. vendor specific certifications and the value of certifications in the job market.

Fran Trees

2:45 - 3:45 Concurrent Sessions

Using Game Maker to Motivate and Engage Students

Game development offers high school computer science teachers opportunities to teach computer science concepts through exciting and effective student-centered learning strategies. This session will introduce resources and techniques to add game development to your present curriculum. Gaming units can be added at the end of, or the beginning of, the introductory course you are now teaching.

Barbara Boucher-Owens

2:45 - 3:45 Concurrent Sessions

Attracting Girls to Computing: Strategies, Barriers and a Role Model Project

This session highlights the most successful strategies for attracting females to computing. After a brief recap of the depressing data, this session delineates steps that are leading to successful recruiting of students into the field, tempered by many caveats. The final focus will be on a role model project, the Computing Educators Oral History Project, which utilizes personal stories of females told through audio interviews. This project may serve as a template for garnering the stories of young women who have commenced on paths leading to computing careers. The audience will be given ample time to suggest further projects to encourage young women contemplating computing.

Dan Frost

2:45 - 3:45 Concurrent Sessions

Making Computer Science Normal

As a course in kindergarten through 12th grade, Computer Science isn't normal like Math, English, Art, and Physical Education are. Or is it? In this session we'll examine how and why CS is different, and discuss what can be done to make it more normal.

Debra J. Richardson

4:00 – 5:00 Closing Keynote

Bridging the Great Divide Between University and K-12: Why Everyone Matters

Bridging the divide between K-12 and higher education is our collective responsibility. Understanding this three-part divide – Knowledge, Information, Digital – helps to develop the tools required to build the bridge from both ends to meet in the middle. Bridging the knowledge divide attempts to educate K-12 educators about what students need in their toolbox in preparation for college. Bridging the information divide seeks to encourage two-way communications between the different levels in education. Bridging the digital divide addresses how to hurdle the challenges such as gender, race, culture, and economics. This talk will explore why it matters for K-12 teachers and principals, parents and counselors (both K-12 and college), and college faculty to communicate with each other and understand the computer science discipline at all levels.

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