



Voice

The Voice of K–12 Computer Science Education and its Educators

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International CS

Cameron Wilson and Baker Franke to Keynote CS & IT Conference

Lissa Clayborn

AMONG ITS MANY WORKSHOPS and presentations, this year's Computer Science & Information Technology (CS & IT) conference will provide insights into how current efforts to shape education policy are impacting how CS is perceived by policy makers and the legislation being created at the federal and state level. In their morning keynote, *Policy Works and Teacher Advocates*, Cameron Wilson and Baker Franke will talk about their experiences as advocates for CS education.

Cameron Wilson is the Director of Public Policy at the Association for Computing Machinery (ACM) and has more than 17 years of in-depth understanding of the legislative process. Wilson joined ACM after spending 10 years on Capitol Hill, serving as Deputy Chief of Staff to Representative Vernon Ehlers (R-MI) and on Representative Nick Smith's (R-MI) staff. He also served as professional staff on the House Science Committee, where he oversaw technology, standards, and environmental issues. Wilson frequently advises members of Congress on various issues, specializing in education and science, and is an accomplished leader in driving and setting policy.

Baker Franke is a high school CS teacher at the University of Chicago Laboratory Schools. Franke started teaching in 2002, and with assistance from his colleagues at the Laboratory Schools, was able to institute a CS graduation requirement, resulting in the development of an introduc-

tory CS course that is taken by all ninth graders. Franke, as a teacher advocate and a member of the CSTA Leadership Cohort, has worked to increase visibility and awareness of the need for CS in K–12 education. He will talk about his experiences working for change in his school district, on Capitol Hill, and at the White House, where he represented CSTA when it was honored as an agent for positive change in education.

CSTA's CS & IT conference will also include three-hour workshops and break-out sessions on hot topics. Monday workshops will provide hands-on learning opportunities on Java; Bootstrap; Google Apps Script; Exploring CS; Big Data; Kodu; and SNAP! The day will conclude with a reception and tours at UC Irvine's Bren School of Information and Computer Sciences.

Tuesday concurrent sessions include: ECS, AP CS, Python, Game Design, Guided Inquiry Learning, CS Principles, Oracle Academy, Robotics, Advocacy, Computational Thinking, Broadening Participation, Middle School CS, HTML5, FRQs, Gaming, Nifty Assignments, Mobile Programming, and Fundraising.

The conference will be held at the Hyatt Regency in Irvine, CA, from July 9 – 10, 2012. (www.cstaconference.org).

The conference is sponsored by the Anita Borg Institute, Google, and Microsoft Research. This will be the twelfth year for this annual professional development event for CS and IT educators.

CSTA THANKS

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Phillipps**

for her years of dedicated
service as CSTA's
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Game-Changing PD in Chicago

Baker Franke

BEGINNING IN THE SUMMER OF 2011, the Chicago CSTA chapter (in coordination with several local universities) began professional development (PD) workshops for technology education teachers in Chicago Public Schools to transition them into computer science (CS) teachers. The results have been transformative—we're really doing it! The teachers love it and students are learning real CS.

Our PD work was preceded by successful CSTA advocacy efforts that convinced the Director of Career and Technical Education in Chicago to replace the curriculum of the introductory-level technology course in 35 schools with a real CS course and convinced the teachers to teach it. After our advocacy success, we were faced with two daunting questions: What should the curriculum include? And, how are we going to transform 75 technology teachers into CS teachers? We answered both questions with the *Exploring Computer Science* (ECS) curriculum.

ECS was designed especially for high school students and does a fantastic job of meeting teenagers where they are emotionally, culturally, and intellectually. These factors are especially critical in a large urban district. Supporting evidence shows that the ECS curriculum is welcoming to all students.

ECS was designed specifically for high school students and does a fantastic job of meeting teenagers where they are, emotionally, culturally, and intellectually.

The most important reason for adopting the ECS curriculum is that it specifically focuses on how the curriculum should be taught. To better engage learners, we need to understand the ways in which curriculum and teaching are intertwined. What's transformative about the ECS curriculum is not only the course content, but the inquiry-based instruction model that invites both student and teacher to participate, learn, and succeed with CS.

How is the PD model for ECS so different? It might seem obvious, but in our PD workshops the majority of time is spent on...wait for it...teaching! This is a major breakthrough: in the process of converting technology teachers into CS teachers, what they DO NOT NEED is to be taught CS. What they need is to discover how to teach CS, and feel empowered to do so without being a CS expert. The ECS PD model does just this.

During a typical day in the week-long PD workshop, the participants are divided into groups of four and assigned to create a lesson. The ECS curriculum suggests an activity for each lesson. Each group analyzes a curriculum activity and figures out how to make the lesson as engaging as possible. Then, they teach the lesson and the other workshop participants experience the activity as students. A debriefing

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CSTA Voice is a quarterly publication for members of the Computer Science Teachers Association. It provides analysis and commentary on issues relating to K-12 computer science education, resources for educators, and information for members. The publication supports CSTA's mission to promote the teaching of computer science and other computing disciplines.

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session follows, which provides an opportunity to ask about the actual CS content and to provide feedback. Each group gets an opportunity to teach, and at the end of the day, all have experienced a week's worth of curriculum as both a teacher and a student.

During the workshops, the teachers will only learn about 15 – 25% of the course — but that doesn't matter. What they really learn is how to teach it, and what they gain is the confidence they need to teach the curriculum successfully.

This is extraordinarily empowering for both new and experienced CS teachers, as well as for college professors, who report that the workshops completely transform the way they think about the CS classroom. Everyone leaves our workshops self-confident and proud, believing they are going to make a difference in their students' lives.

Learn more:

Exploring CS www.exploringcs.org
Chicago CSTA cstachicago.ning.com

Planning CS Workshops

Dos and Don'ts

Stephen Cooper

SINCE 2001, I have conducted professional development (PD) workshops for nearly 2,000 college, high school, and middle school teachers in nearly 30 states. I have taught workshops to Spanish-speaking, Portuguese-speaking, and Mandarin-speaking audiences (and have learned to speak slowly and take frequent breaks so that the translators could keep up). While many of my earlier workshops focused on the teaching of Alice, more recent workshops have focused on topics as diverse as how to write a federal grant and how to teach secure programming to novices. The bad news is that I have probably made more mistakes in running workshops than anyone else I know. The good news is that typically my audiences are forgiving, and that I am learning from my mistakes. While I'm not going to embarrass myself by sharing my mistakes here, I'd like to share with you eight recommendations for running a successful PD workshop.

1. Have a single administrative point of contact for all issues. Ideally, this person should not be you as the workshop leader. My colleague Dan Lewis calls this, "having someone make sure that the trains are running on time." You will be too busy with the details of the actual workshop to worry about administrative details. Having someone, preferably someone

"who sees the glass as half-full," as the contact person for all administrative issues, will make your life, and the life of your workshop attendees, much more productive.

2. If you are asking attendees to bring their own laptops to the workshop, have them install the needed software before the event. Invariably, 5 – 10% of the workshop attendees will come unprepared, but that is manageable.
3. A ratio of presenters to workshop attendees of 1 to 10 or 1 to 15 is ideal. Student assistants are helpful in workshops with greater attendance. Workshop attendees are going to get stuck, and the greater the ratio of helpers to attendees, the faster you will be able to get everyone back on track. It can ruin the workshop experience for an attendee to be stuck for an hour and unable to participate.
4. If you are running a day-long workshop, or a multi-day workshop, typically the most productive time for attendees is from 10:00 AM until noon, and from 2:00 to 4:00 PM. The time immediately after lunch is a generally less productive for many, as is the end of the day. Plan the most entertaining and interactive aspects of the workshop for these times. *continued on page 4*



**Let us know if
your contact
information changes.**

cstephenson@csta.acm.org

Contribute to the CSTA Voice

The editorial board of the **CSTA Voice** is dedicated to ensuring that this publication reflects the interests, needs, and talents of the **CSTA** membership. Please consider sharing your expertise and love for computer science education by contributing newsletter content.

Potential writers for the **CSTA Voice** should send a brief description of the proposed article, estimated word count, statement of value to members, author's name and brief bio/background info, and suggested title to the editor at: cstapubs@csta.acm.org. The final length, due date, and title will be negotiated for chosen articles. Please share your knowledge.

Volunteer today!

The **CSTA Voice** welcomes your comments.

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Letters to the Editor are limited to 200 words and may be edited for clarification.



ACM founded CSTA as part of its commitment to K-12 computer science education.

CS & IT CONFERENCE

July 9–10
Irvine, CA

Explore issues

Gain new
perspectives

Share strategies

Expand your
knowledge

Network with peers
and experts

Make new friends

Grow
Professionally!

Register today

www.cstaconference.org

PLANNING CS WORKSHOPS

continued from page 3

5. Provide workshop materials to attendees either prior to, or at the beginning of, the workshop. It is much easier for attendees to follow along and take notes when they have the materials at hand.
6. Prepare an agenda and keep to the schedule. It is better to list fewer topics on the agenda and cover them than to list more topics and actually cover fewer.
7. Use a variety of presentation methods. Workshop attendees don't particularly like lectures. Ideally, the purpose of a workshop is to have the attendees work in a supportive laboratory-like setting. So, the more attendees participate, the happier they'll be. It is generally not appropriate to teach the same content with the same materials you would use to teach students unless you are sure that the content is new to the teacher audience. Teachers are typically more interested in learning how to use the content and resources in their teaching.
8. Finally, follow up with your workshop attendees a few weeks to a few months after the workshop has ended. Either in-person meetings or a virtual meetings can help the attendees by enabling them to ask questions, share resources, or learn from others about their experiences using the workshop content.

Please feel free to share your suggestions with me—I'm always looking for new techniques for creating effective workshops. Or perhaps we could share disaster stories!

Putting Technology Last

Programming Takes a Back Seat to Learning

Emmanuel Schanzer

WHEN I RUN WORKSHOPS or speak at conferences, I regularly get asked what I think about a particular language or software tool. Parents ask what their son or daughter should learn, teachers ask what I think about language X or Y, and my programmer friends ask me why I don't use OpenGeeWhiz2.0++. Lately, I've come to realize why I'm uncomfortable answering those questions: I don't really care about the language or the tool.

Don't get me wrong—I certainly have my preferences, and I could easily list off some "dos" and "don'ts" for any would-be classroom technology or programming language. But if you were to design a math class, would your first question really be about what calculator to buy? Would it even be the second question? Questioning the tools is important, but there's so much that needs to come first.

In the Bootstrap program, we started with a specific learning goal: algebraic problem-solving. The next step was to design a project that would be exciting

to students, but also require deep discussions of the necessary algebraic concepts. Students begin by brainstorming a simple videogame in which a player moves around the screen in response to keypresses. Meanwhile, other objects move across the screen which raise or lower the score when the player encounters them. Students decide what the game is about, and how the characters should look and move. Even with such a simple format, this project has been extremely engaging to all students.

After sketching their games on paper, students are eager to see what their games will look like on the computer. This motivates a discussion about coordinate planes, and introduces function composition as a way of scaling, rotating, and placing images on top of one another. This activity gives students plenty of room to explore a variety of image manipulations. All the while, they are confronted with mathematical models that demand rigor and model-checking, making it impossible to just "hack-and-run."

Students are excited when they finally see their designs, but they quickly tire of the static pictures. This motivates a discussion of functional relationships about how to change the position of a rocket. It's a quick jump from there to animating their leprechaun, shark, or other game characters. Students can rely on their copious experience with videogames to point out missing features: "the leprechaun should come back on the screen after she leaves", "my shark should only move up when when I hit the up-key, and down when I hit the down-key", "something should happen when my astronaut touches the candy bar", and so on. Each of these actions translates smoothly into a specific algebraic concept (inequalities in the plane, Boolean logic, piecewise functions, and the Pythagorean Theorem, respectively). By relying on thousands of hours of experience that students *already have*, we are able to direct their requests into rigorous algebra.

The language and the tools are the stage on which these activities play out; the time spent thinking about the learning objectives and the curriculum vastly outweighs the time spent choosing the technology. Knowing the learning goals from the start makes it easy to pick the

tools and language that best suit the class. This approach has been enormously helpful in crafting our curriculum, and I've talked with a number of teachers who've used this approach to teach other subjects,

from creative writing to physics. Now, when someone asks me what I think about a using XYZ technology in their classroom, I start by asking them what they teach. If their answer is "XYZ," I know that the conversation needs to shift elsewhere.

Imagine if we spent as much time discussing our learning goals and teaching methods as we do talking about tools and languages!

There will always be new tools and new languages, and it's all too easy to spend our time jumping from tool to tool each year, rewriting our lessons every summer. By putting learning first, we can be more careful about what we choose to add to our classrooms. We can design rigorous, engaging classes that inspire our students and prepare them for further study down the road. We can avoid common traps, where students master a tool but can't seem to do anything without it. More importantly, we can put our professional focus on learning, rather than technology. As teachers, I can't think of anything more appropriate.

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Congratulations CSTA Member Eric Roberts for receiving the IEEE Taylor L. Booth Education Award

Roberts was recognized for contributions to computing education as demonstrated by teaching excellence, education publications, curricula development, and student mentoring. The award is given to individuals who have an outstanding record in CS and engineering education and inspire others to a career in CS and engineering education.

www.computer.org/portall/web/awards/taylorbooth

Meet the Authors

Stephen Cooper

Chair, CSTA Board of Directors
Steve is an Associate Professor in the Computer Science Department at Stanford University and holds a courtesy appointment in Stanford's School of Education. Along with Wanda Dann and the late Randy Pausch, he worked to help create Alice as a 3D interactive animation environment for teaching novices computer programming.

Lissa Clayborn

Director of Development, CSTA
Lissa has over 15 years of experience with K–12 computer science education. In her role she works with educators, volunteers, partners, and industry personnel to expand and develop programs for members and the organization.

Baker Franke

University of Chicago Laboratory Schools

Baker is a high school computer science teacher. He has worked to increase visibility and awareness of the need for computer science in K–12 education as a member of the CSTA Leadership Cohort and as Vice President of the CSTA Chicago Chapter.

Emmanuel Schanzer

Harvard University

Emmanuel is a former math teacher and current doctoral candidate at the Harvard Graduate School of Education. He holds a bachelor's degree in computer science, and a master's in mind-brain education.

Deborah Seehorn

State Department Representative, CSTA Board of Directors
Deborah has worked as a Business, Finance, and Information Technology Education consultant in the North Carolina Department of Public Instruction for thirteen years. She has also been a mathematics, business, and computer science teacher during her education career.

Chapter News

CSTA Upcoming Events

Editor's note: For the complete and most up-to-date professional development opportunities offered by CSTA Chapters and institutional members see "Teacher Workshops" at csta.acm.org.

Chicago CSTA CS4HS Workshop

June 19 – 21, 2012, Chicago, IL

CS4HS will be co-hosted with the University of Illinois - Chicago and sponsored by Google. Possible topics include: high-performance computing; .NET tutorial; MIT Media Lab's Hi-Low Tech Media Group; Conductive Ink; thermochromatic paint; e-textiles; media computation; MySQL tutorial; eToys; and extending Scratch with picoBoards, USB dancepads, and Xbox controllers. Visit: sites.google.com/site/cs4hschicago/cs4hs-chicago-2012.

Chicago CSTA Exploring Computer Science Training

June 25 – 29 and July 16 – 20, 2012, Chicago, IL

These two workshops provide an in-depth introduction to teaching the *Exploring Computer Science* curriculum as part of the *Taste of Computing*, CE21 grant. The workshops are sponsored by the Chicago CSTA, Career and Technical Education - Chicago Public Schools, and DePaul University. Visit: cstachicago.ning.com.

Florida CSTA CS and Stem – The Quest for Balance

November 8, 2012, Orlando, FL

Attendees will have the opportunity to interact with experts on the latest practices and ideas in computer science (CS) education. This conference is free for FCIS attendees and is open to anyone interested in K–12 CS education. The event is sponsored by Florida CSTA and Google. Visit: www.fcis.org.

Ohio CSTA CS Rocks Ohio 2012

July 23 – 25, 2012, Columbus, OH

Want to bring the WOW back into your computer classes? Interested in new programs, teaching techniques, sharing ideas, and seeing where CS can take your students? If so, then CS Rocks is for you! Topics will include the new CS standards, curriculum, programming apps, game design, robots, CS Unplugged and many other "rocking" CS topics. Contact: angie_thorne@hboe.org or smhoepner@gmail.com. Visit: cstaohio.com.

Philadelphia CSTA Reboot, Renew, Retreat

August 13 – 15, 2012, Philadelphia, PA

Reboot your CS curriculum with hands-on workshops in topics such as Scratch, Greenfoot, App Inventor, and Robotics. Renew your teaching strategies with sessions on the new CSTA Standards, CS-POGIL, and recruiting tips. Retreat to connect with your fellow teachers and renew your professional network. Visit: sites.google.com/site/cstaphilly.

South Carolina CSTA Why Java?

May 19, 2012, Greenville, SC

Participate in a super-fun, low-stress, no-cost opportunity to learn the basics of computer programming in Java. No

previous programming experience is needed. Java is a full featured language used for everything from robots and Android phones to cloud computing applications. Contact: tkrogers@greenville.k12.sc.us.

Utah CSTA AppInventor Workshop

June 25 – 27, 2012, Sandy, UT

Activities will include exploring the benefits of using a graphical language to teach introductory programming concepts using AppInventor. The workshop will be held at Canyons Technical Education Center. Contact: cody.henrichsen@gmail.com.

Utah CSTA Java Android Workshop

July 16 – 18, 2012, Sandy, UT

Participants will use Java to develop Android apps in the eclipse environment and develop skills to install the SDK and the AVD manager, load apps onto devices, and make apps available on the Android Marketplace. The workshop will be held at Canyons Technical Education Center. Contact: cody.henrichsen@gmail.com.

Curriculum in Action

CS Principles Workshops

Workshops are being planned by CSTA Chapters to help prepare educators to teach the new *Computer Science (CS) Principles* course. These workshops are funded by Google as part of a special project to help CSTA chapters build capacity to offer high quality professional development at the state and regional level. For additional AP CS workshops see "Institutes and Workshops" at apcentral.collegeboard.com.

Greater Boston CSTA Beauty and Joy of Computing

July – August, 2012, Marlborough, MA

Instructors from the UC Berkeley will lead teacher preparation for one of the new pilot CS Principles courses, titled The Beauty and Joy of Computing. This course has been piloted at Berkeley as a new AP CS course, targeted for approval from the College Board in 2015. The paid six-week program includes two weeks of on-site training and four weeks of independent work. Participating teachers will receive a stipend of \$1000 and 200 hours of CEU credits upon completion, with the possibility of a \$1000 stipend for those who teach the course in the following school year. Visit: bjc.berkeley.edu.

Connecticut CSTA CT CSTA Summer Workshop

July 17 – 19, 2012, New Britain, CT

The CT CSTA Summer Workshop, will be held at Quinnipiac University and will feature speakers Joanne Cohoon and Fran Trees. In parallel hands-on workshops, participants will explore three *CS Principles* pilot courses: Scratch; The Beauty and Joy of Computing led by Brian Harvey; and Appinventor led by Ralph Morelli. A teacher support community will be created. Visit: www.ctcsta.org/events/workshops/20120717.

Classroom Tools

SAS Programming

It's no secret STEM talent is in high demand and STEM careers are some of the best paying and most promising available. Regardless of which STEM field students select, one thing they are sure to find is that it involves the analysis of data. Data are everywhere, and students who know how to analyze data to address the questions and challenges within their chosen field will have a leg up on their peers.

The SAS Programming 1 for High School workshop provides educators an opportunity to expand their expertise and offer their students a gateway to these highly valuable careers. SAS is a programming language designed for data manipulation, data analysis, and reporting. Teaching SAS Programming to your students gives them a skill set that will accelerate their success in college and career.

The workshop provides educators with five days of professional development at no cost. Attendees will have the opportunities to learn course materials, to program in SAS, and to collaborate with other educators implementing SAS Programming into their curricula.

Participants receive: instructor and student course notes, a pacing guide, slides, assessments, data sets, projects, exercises, solutions, and SAS software—everything needed to take back to their schools to successfully teach SAS programming. A certificate of completion is awarded and can be used for Continuing Education Credits (CEUs).

The SAS Programming 1 for High School course teaches students to use SAS software, write code to manage and manipulate data, and to analyze and report on the data. To qualify for the workshop, teachers must have taught two years of another programming language and must currently be teaching high school.

According to Leslie Keller, a Career and Technology Educator in the Academy of Information Technology at Apex High School, offering this course has been a powerful classroom experience. "It has inspired a love of data in students. Students are always impressed with how SAS is affecting their lives every day, even if they were previously unaware of it. They see how important data has become and recognize the potential in learning how to manipulate and access that data." Keller notes that students also see a personal benefit to taking the course as adding the SAS programming language to their resumes and applications helps to set them apart. Visit: support.sas.com/learn/ap/hs/index.html#1.

Out and About the Community

CTE Professional Development

Deborah Seehorn

Each summer, the Career and Technical Education (CTE) staff at the North Carolina Department of Public Instruction presents a premier professional development opportunity for CTE educators—the NC CTE Summer Conference.

The Conference will be held July 23 – 26, 2012, in Greensboro, NC. The event offers approximately 55 pre-conference and conference sessions for each of the eight CTE program areas including Business, Finance, and Information Technology Education (BFIT).

The 2012 BFIT workshops will address topics related to state content in Multimedia and Webpage Design; Microsoft Word, PowerPoint, and Publisher; Microsoft Excel and Access;

Accounting I & II; Business Law; e-Commerce I; Principles of Business and Finance; and Personal Finance courses. Sessions related to the revised curriculum for Computer Programming I and II; Network Administration I & II; Foundations of Information Technology; Entrepreneurship I and II; and Business Financial Planning will also be offered. Hands-on lab sessions are planned for topics in Multimedia and Webpage Design, Visual Basic, C#, and XNA Game Studio. Sessions addressing Advanced Placement Computer Science (AP CS) and the AP CS Principles Pilot will also be offered. In addition to technical content, there will also be workshop sessions related to pedagogy, best practices, honors course preparation, online and blended course options, and successful teaching strategies.

The registration fee for the conference is \$150. Although the conference is targeted to the NC CTE Essential Standards, anyone is welcome to attend. Visit: ctenc.org.

CSTA Leading the Way

K–12 CS Standards: Essential PD

Computer science (CS) and the technologies it enables now lie at the heart of our economy and the way we live our lives. To be well-educated citizens and to be prepared for careers in the 21st century, our students must have a clear understanding of the principles and practices of CS.

The new CSTA K–12 Standards were developed with this goal as a compass. Professional development events can provide opportunities for CS educators to learn about the new standards and explore how they can guide classroom activities to prepare students for life and careers.

The document delineates a core set of learning standards designed to provide the foundation for a complete CS curriculum and its implementation at the K–12 level (csta.acm.org/Curriculum/sub/K12Standards.html). To this end, these standards:

1. Introduce the fundamental concepts of CS to all students.
2. Present CS at the secondary school level in a way that can fulfill a CS, math, or science graduation credit.
3. Encourage schools to offer additional courses that will allow students to study CS in more depth and prepare them for work or college.
4. Increase the availability of rigorous CS for all students, especially those of underrepresented groups.

The July issue of the *Voice* will provide a deeper analysis of the three-level framework and describe how it can serve as a catalyst for adoption of CS education for all K–12 students.

| SHOW ME THE NUMBERS | | |
|-------------------------------------|--------------|---------------|
| CSTA Reaching toward 11,000 Members | | |
| Continent | 2011 | 2012 |
| Africa | 232 | 322 |
| Asia | 1,468 | 2,090 |
| Europe | 256 | 329 |
| North America | 6,330 | 7,764 |
| South America | 68 | 91 |
| Oceania | 172 | 217 |
| TOTAL | 8,526 | 10,813 |

Source: CSTA membership statistics



We're on the Web! csta.acm.org

MARK YOUR CALENDAR

Editor's note: For the complete and most up-to-date professional development opportunities offered by CSTA Chapters and institutional members, see "Teacher Workshops" at csta.acm.org. For AP CS workshops, see "Institutes and Workshops" at apcentral.collegeboard.com.

CSTA Elections Close

May 2, 2012

See the CSTA election announcement email sent to all members.

2012 Microsoft US Forum

May 15, 2012, application deadline
www.microsoft.com/education/usforum

Why Java?

May 19, 2012, Greenville, South Carolina
tkrogers@greenville.k12.sc.us

NCWIT Summit 2012 on Women and IT

May 22 – 24, 2012, Chicago, Illinois
www.ncwit.org/summit2012

CAS Teacher Conference

June 14 – 15, 2012, Birmingham, United Kingdom
casconf2012.eventbrite.co.uk

CS4HS Workshop

June 19 – 21, 2012, Chicago, Illinois
sites.google.com/site/cs4hschicago/cs4hs-chicago-2012

International Autonomous Robot Competition (iARoC)

June 23 – 24, 2012, San Diego, California
sites.google.com/a/wintrisstech.org/iaroc

ApplInventor Workshop

June 25 – 27, 2012, Sandy, Utah
cody.henrichsen@gmail.com

Scratch@MIT Conference

June 25 – 28, 2012, Cambridge, Massachusetts
events.scratch.mit.edu/conference

Exploring Computer Science Training

June 25 – 29, 2012, Chicago, Illinois
cstachicago.ning.com

SAS Programming for HS Workshop

June 25 – 29, 2012, Cary, North Carolina
support.sas.com/highschool

The Beauty and Joy of Computing

July and August 2012, Marlborough, Massachusetts
bjc.berkeley.edu

Israeli National Conference for CS Teachers

July 3, 2012, Haifa, Israel
lapidot@tx.technion.ac.il

Innovation and Technology in CS Education (ITCSE)

July 3 – 5, 2012, Haifa, Israel
www.iticse12.org.il

CSTA Annual CS & IT Conference

July 9 – 10, 2012, Irvine, California
www.cstaconference.org

Java Android Workshop

July 16 – 18, 2012, Sandy, Utah
cody.henrichsen@gmail.com

Exploring Computer Science Training

July 16 – 20, 2012, Chicago, Illinois
cstachicago.ning.com

CTCSTA Summer Workshop

July 17 – 19, 2012, New Britain, Connecticut
www.ctcsta.org/events/workshops/20120717

CS Rocks Ohio

July 23 – 25, 2012, Columbus, Ohio
cstaohio.com

2012 CTE Summer Conference

July 24 – 26, 2012, Greensboro, North Carolina
www.ctenc.org/summer_conference

CS4HS 2012

August 1 – 3, 2012, Pittsburgh, Pennsylvania
www.cs.cmu.edu/cs4hs/summer12

Reboot, Renew, Retreat

August 13 – 15, 2012, Philadelphia, Pennsylvania
sites.google.com/site/cstaphilly

Grace Hopper Celebration of Women in Computing

October 3 – 6, 2012, Baltimore, Maryland
gracehopper.org/2012

CS and Stem – The Quest for Balance

November 8, 2012, Orlando, Florida
www.fcis.org

Plan for CS & IT 2012 July 9–10, Irvine, CA

www.cstaconference.org