



Voice

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

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Back to School

Changes Afoot in the UK

Sue Sentance

IN AUGUST 2011, Eric Schmidt, Chairman of Google, delivered the prestigious MacTaggart Lecture at the Edinburgh Television Festival. He was highly critical of the standards for computer science (CS) education in British schools (www.guardian.co.uk/media/interactive/2011/aug/26/eric-schmidt-mactaggart-lecture-full-text).

"We need to reignite children's passion for science, engineering, and maths. In the 1980's the BBC not only broadcast programs for kids about coding, but (in partnership with Acorn) shipped over a million BBC Micro computers into schools and homes. That was a fabulous initiative, but it's long gone. I was flabbergasted to learn that today computer science isn't even taught as standard in UK schools. Your IT curriculum focuses on teaching how to use software, but gives no insight into how it's made. That is just throwing away your great computing heritage."

Shortly on the heels of Schmidt's comments, in January 2012, the Royal Society released a report entitled *"Shut Down or Restart? The way forward for computing in UK schools"* (royalsociety.org/education/policy/computing-in-schools/report/). The report, a result of an 18-month consultation, described the teaching of CS in many schools as "highly unsatisfactory." The recommendations included increasing the number of teachers trained to teach CS, improving in-service training, and providing more technical resources for schools.

In the same week as the publication of the Royal Society report, Michael Gove, Secretary of State for Education,

announced that the National Curriculum for Information and Communications Technology (ICT) was to be eliminated beginning September 2012, subject to a consultation. It will remain compulsory to teach ICT from ages 5 to 16, but schools no longer have a prescriptive program of study and are encouraged to include more CS content.

In September 2010, only one certification awarding body in England offered a qualification for 14-16 year olds in CS. Since the announcement from the Secretary of State for Education, three more awarding bodies will begin offering a qualification in Computer/Computing Science in September 2012. The pace of change being observed is unprecedented.

It is clear that the UK Computing at School (CAS) group has helped bring about this change by making such a strong case for CS in school in its consultation submissions and advocacy at policy level.

CAS was formed in 2009 to promote the teaching of CS in schools and to support teachers. It is a collaborative partner with the British Computer Society and has formal support from other industry partners. CAS made significant contributions to the Royal Society investigation into the teaching of CS in school, and also contributed to the National Curriculum Review and other recent key national-level consultations. CAS has also developed a curriculum for computing (www.computingatschool.org.uk/data/uploads/ComputingCurric.pdf) and hosts a wiki site where resources can be shared.

CSTA THANKS

**Duncan Buell, Dave Reed,
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Alfred Thompson, and
Stephanie Tufenkjian**

for their creativity and
dedication as members of
the 2012 CS & IT Conference
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What next?

All of this attention recognizing CS as a valuable contribution to the school curriculum is good, but this is not a time for the CAS group to rest on its laurels. It is apparent that there are many schools willing to offer computing-related content to students from ages 11–14 and also school qualifications in computing and CS to students ages 14–18. However, there are many teachers who feel they do not have the skills necessary to teach the content and there is an urgent need for

more in-service training. Some universities are rising to the challenge by offering such courses, and a new initiative by CAS seeks to co-ordinate this work. The BCS Network of Teaching Excellence in CS will empower universities in the UK to offer training in teaching CS to a group of self-selecting schools. These schools will then be able to disseminate what they have learned to other schools in their area. This new scheme will build on models of in-service training currently offered.

CSTA International Affiliates

AS PART OF ITS COMMITMENT to meeting the needs of CSTA members and developing a strong international community of computer science (CS) educators, CSTA encourages affiliate relationships with similar organizations in other countries. A CSTA International Affiliate is a sister organization committed to supporting improvements to pre-college CS education at the national level. For information about forming a CSTA International Affiliate, see our website at csta.acm.org/About/sub/Affiliates.html.

Here are brief descriptions of the current International Affiliate organizations.

Israel: Machshava

Machshava is the Israeli National Center for Computer Science Teachers. It was founded in 2000 by the Israeli Ministry of Education and is considered as the professional home for all Israeli CS teachers. The center activi-

ties are organized around five major themes:

- creating a professional community of CS teachers;
- fostering the professional leadership of CS teachers;
- supporting, assisting, and consulting academic CS education groups, CS educators, and researchers;
- collecting and distributing CS education knowledge and experience; and
- researching and evaluating CS teachers' needs and the center's activities.

Learn more at: cse.proj.ac.il/index-en.htm (English) and cse.proj.ac.il (Hebrew).

New Zealand: NZACDITT

NZACDITT is the subject association for Computing, Digital, and Information Technology Teachers in New Zealand secondary schools. The teaching and assessing of computer subjects in New Zealand

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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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schools has been problematic for some time with a large focus on cross-curricular ICT limiting opportunities to build a strong computing curriculum. Teachers of computing have been battling for twenty years to be included in main-stream curriculum and assessment; the subject association formed in March 2009 is proving a vital link between the teaching community and the Ministry of Education. We now have a Body of Knowledge and a suite of Digital Technologies assessment tools which covers the five focus areas:

- Digital Information
- Digital Media
- Digital Infrastructure
- Electronics
- Programming and Computer Science

These assessments contribute towards student qualifications including university entrance. The subject association continues to support its members to implement the new curriculum by working with regional coordinators to encourage professional development and the creation of resources, as well as growing the association. Learn more at: nzacditt.org.nz.

United Kingdom: Computing At School (CAS)

The Computing at School Working Group (CAS) was formed in 2009 to promote the teaching of CS and to support teachers through a community of like-minded

educators. CAS is a collaborative partner with British Computing Society (BCS), The Chartered Institute for IT (www.bcs.org), and has formal support from other industry partners. CAS is a grassroots organization whose energy, creativity, and leadership come from its membership, which, in 2012, is over 1400, and of which 80% are teachers.

In the UK, as in the US, New Zealand, and elsewhere, the teaching of computing related subjects has focused on ICT user skills and cross-curricular application of those skills. There is so much more! We have seen a 50% decline in students applying for degree-level courses in CS over the past ten years and similar declines in the number of students taking school exams in both computing and ICT. Students are voting with their feet.

CAS runs over 25 regional/local hubs for teachers, publishes a newsletter each term, provides training opportunities, facilitates an active online forum for members, and represents the views of teachers to exam boards, school leaders, governors, and the Department for Education. Working with our partners and members, we have been instrumental in increasing awareness of, and concern for, computing in schools. Exciting times are ahead of us! Learn more at: computingatschool.org.uk and www.computingatschool.org.uk/data/uploads/ComputingCurric.pdf.

A Philosophy for Children and Computing

Mark Dorling, Daniel Mace, and Roger Sutcliffe

TRADITIONAL PHILOSOPHY dealt with fundamental questions of life such as 'What should I do?' (ethics) and 'How should we decide?' (politics), as well as, 'What can I be certain of?' (knowledge). In the 20th Century these same questions were narrowed down and applied to specific areas of life—resulting in studies such as Philosophy of Religion, Philosophy of Language, and others. There is now a developing branch of philosophy dealing with computer science (CS), with courses due to open at a number of United Kingdom (UK) universities in the fall of 2012.

While these new branches of philosophy, focusing on specific content, have been opening up in the past 40 years or so, there has been another development in philosophy, extending the range of people who engage with it. Specifically, we are talking about children; their practice of philosophy or philosophizing is usually referred to as Philosophy for Children, or P4C, for short. This is a simple but powerful way of developing children's reflective and critical-thinking skills (and philosophies!) for learning and for life.

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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.

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[csta.acm.org/About/sub/
AboutFiles/2012Candidates.html](http://csta.acm.org/About/sub/AboutFiles/2012Candidates.html)

A PHILOSOPHY FOR CHILDREN AND COMPUTING

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In a changing technological society, it is vital that we prepare children to not only use technology but to be reflective about how it works, and its use by themselves and others. Mark Dorling, project coordinator of Langley Grammar School's Digital Schoolhouse project, and Roger Sutcliffe, a leading expert in P4C and past President of SAPERE (Society for Advancing Philosophical Enquiry and Reflection in Education), have developed an exciting variation on this theme: Philosophy for Computing.

These Philosophy for Computing lessons have been designed and delivered by Daniel Mace, Advanced Skills Teacher at Langley Grammar School. By collaborating with Mark and Roger, Daniel has created a series of structured, yet fun and challenging, sessions based on the accelerated learning model. These lessons incorporate critical thinking skills, high-order creativity, and co-construction of ideas to address philosophical issues relating to:

- addiction to computers and the Internet,
- advertising on the Internet,
- artificial intelligence,
- censorship on the Internet,
- digital finger print and hacking on the Internet,
- eSafety and Internet grooming/preying,
- CIS data and privacy, and
- security.

For example, the first session we developed focused on the digital fingerprint that is left on the Internet by users as they click on various websites and give personal information. The first half of the day focused on the everyday psychology behind how advertisements work, before showing how the Internet magnified the issues involved. Students were shown various video Internet advertisements and asked to arrange them according to their appeal. This generated a short discussion on how advertisements are designed to target personality. Paired-group work focused on the skills needed

to create personalized advertisements for their partners using a series of random words to prompt student thinking, and then, designing picture postcards of their advertisements using creative drawing prompts.

After a short break these ideas were applied to the Internet. An information race (a comprehension game based on a short piece of text) helped students learn how the Internet collects information from various sources, such as Facebook, Google searches, and others. Students were then asked to filter out the most important sources and decide which is the most dangerous. The consequent discussion exposed students' use of websites, their thoughts about the dangers, and the beginnings of a class code that encouraged their peers to use the Internet more safely. Finally, a clip from *Minority Report*, a film that showcases a world in which advertisements continuously target a person's mind as they walk down the street, brings home this idea to students and provides a stimulated P4C debate about their own roles in feeding the potential power of the Internet.

The end product of these lessons is that pupils develop their own codes of practice for safer and more responsible use of every-day and emerging technologies. This is achieved through nurturing a trust between pupils and teachers to create an environment where pupils are more willing to talk freely about their own experiences and share their concerns with the class. This allows the students to establish their own shared understanding and priorities, which hopefully will create a long-lasting effect.

The techniques described in this article have been applied to students in both Primary (7–10 years of age) and Secondary (11–16 years of age) schools with great success! For more information about this work into the teaching of the ethics of computing, please email Mark Dorling at: dsh@lgs.slough.sch.uk.

LEARN MORE:

Digital School House

www.digitalschoolhouse.org.uk

SAPERE sapere.org.uk

Growing in Canada

Daryl Hepting and Wendy Preikchat

AS PART OF OUR SECOND CSEDWEEK celebration in December 2011, we organized a professional development (PD) day for teachers of grades 6–12 at the University of Regina in the province of Saskatchewan. It was a great success with lots of positive feedback from 23 participants. There are about 60 computer science (CS) teachers in the whole province. (For perspective, some subject areas have over 600 teachers.) To get about one-third of them at our first event was very encouraging. We took advantage of the gathering to form a Canada CSTA Saskatchewan Chapter (csta.cs.uregina.ca).

We began organizing for the PD during CSEdWeek 2010. We planned for the content to be based upon a partnership and initiative with a local school board. Over the next year, undergraduate students Tori Verlysdonk and Billy Hamilton updated the curriculum resources for an online eleventh grade CS course for the school. They developed content for Scratch (scratch.mit.edu/), Build Your Own Blocks (BYOB) (byob.berkeley.edu/), and Greenfoot (www.greenfoot.org/). These technologies, as well as CS Unplugged (csunplugged.org/), became the session topics. A special session was planned to form our CSTA chapter.

We were nervous about the reception we would receive, given that we had never organized something like this before. We kept the lines of communication open with teachers and administrators to ensure that all parties agreed on the plans for the day. We allowed time

for networking and communication, made sure the day was not too busy, and provided hands-on experiences that included something for teachers to take back to their classrooms. We ran a single track so that everyone participated in every session.

Advertising in the teachers' union newsletter seemed to work well, but we discovered that it was also important to make phone calls in order to build a community that we hope will be receptive to future events.

Registration fees were kept low to encourage participation, but a higher fee could have helped to better offset the costs. The money spent on designing and placing an ad in the teachers' newsletter was worth the cost. The presenters were university students who valued the experience, as well as the stipend they were paid. Holding the event on campus helped the budget and provided plenty of meeting space. There is not yet a good option for remote participation.

To maintain momentum, aside from planning an event around the next CSEdWeek, we are looking to provide PD sessions at other conferences; this will reduce costs and increase our audience. We know that to make this event sustainable, it is important to develop partnerships and to delegate and distribute initiatives.

We regret that we did not gather formal evaluations from the participants at the end of the event. The informal evaluation we did receive ("U of R Computer Science rocks!") was gratifying.

Meet the Authors

Lissa Clayborn

Director of Development, CSTA
Lissa has over 15 years of experience with K–12 CS education. She works to expand and develop programs for CSTA.

Mark Dorling

Digital Schoolhouse
Mark is the DSH project coordinator recognized in the Royal Society Report 2012, Board member of CAS, and Lecturer at Brunel University in the UK.

Raef Haggag

Germantown, Maryland
Raef teaches C++, JavaScript, and AP CS at Northwest HS. Raef is also a professional singer and songwriter.

Daryl Hepting

University of Regina, Saskatchewan
Daryl is an Associate Professor of CS and president of the Canada CSTA Saskatchewan Chapter.

Tami Lapidot

Haifa, Israel
Tami is the manager of "Machshava" - the Israeli National Center for CS Teachers in the Department of Education in Technology and Science - Technion.

Daniel Mace

Langley Grammar School, UK
Daniel is an Advanced Skills teacher at Langley Grammar School and delivered the Philosophy for Computing lessons for the DSH.

Wendy Preikchat

University of Regina, Saskatchewan
Wendy is the Program Coordinator for the CS Department.

Sue Sentance

Anglia Ruskin University, UK
Sue is a senior lecturer and trains new school teachers in ICT and computing. She provides in-service training for teachers and has run two .NET Gadgeteer pilot projects in secondary schools.

Roger Sutcliffe

SAPERE, UK
Roger is past President of the Society for Advancing Philosophical Enquiry and Reflection in Education (SAPERE).

Alfred Thompson

K-12 CS Academic Relations Manager, Microsoft
Alfred was a CS teacher for eight years, is the author of CS textbooks, and has been an AP CS reader.

CSTA Congratulates CSTA Advisory Council Member
Kevin Schofield, Microsoft Research
2012 ACM SIGCHI Lifetime Achievement Award

The SIGCHI Lifetime Achievement Award identifies and honors
leaders and shapers of the field of human-computer interaction
(www.sigchi.org/about/awards).

Curriculum in Action

Computer Science Jams

Raef Haggag

I love music and, as a part-time musician, I look for opportunities to inject music, singing, and song-writing into my computer science (CS) classroom. Whenever I feel that things have gotten a bit routine, I take out my guitar and sing for my class. With my guitar strapped around my shoulder, I have sung entire lectures and invited students to sing along. Something very special happens when you sing about what you are teaching.

Programming, data structure, and algorithm lessons can be dry, so I experimented with pop-songs by altering the lyrics to fit the CS topic of the week. My students' reactions have been phenomenal. I saw many typically unengaged students suddenly come to life. I recorded a few of the songs and shared them with my students. Within days, not only were my students singing about if-statements and for-loops, but I had other students stopping by my classroom and singing the lyrics.

Songwriting is a challenging, but rewarding, process and I want my students to experience it first-hand. So for a few days each semester, my students write songs about the content they are learning. I challenge them to be creative and to convey the emotions they sometimes experience as a computer scientist trying to debug code or trace a complicated algorithm. The results have been fantastic. A few students made music videos. One of the songs, *Why Won't It Pwn?*, has been viewed thousands of times by CS students around the world. The most exciting aspect is watching students grow by internalizing CS concepts and transforming them into music with their limitless creativity.

The music videos are available at: www.youtube.com/MisterHaggag. Download free songs or purchase a CompSci Music CD at: www.mrHaggag.com.

Resource Directory

CSTA Resources of International Interest

The CSTA website features an abundance of resources and opportunities for engagement for our non-US members. Take a look around...we are sure you will find just what you are looking for.

- CSTA Affiliate Profiles: csta.acm.org/About/sub/Affiliates.html
- CSTA International Affiliates Application Information: csta.acm.org/About/sub/Affiliates.html
- CSTA International Guide to Establishing a Computer Science Teachers Association: csta.acm.org/Communications/sub/Reports.html
- Institutional Membership: csta.acm.org/Membership/sub/InstitutionalMembership.html
- The New Educational Imperative: Improving High School Computer Science Education (International Edition): acm.org/Communications/sub/Reports.html
- US Computer Science Standards: csta.acm.org/Curriculum/sub/K12Standards.html
- UK Computing Curriculum: csta.acm.org/Curriculum/sub/CurrResources.html
- Curriculum Guidelines and Resources (Bootstrap, Exploring Computer Science, and Scratch): csta.acm.org/Curriculum/sub/CurrResources.html

- Canadian Chapters: csta.acm.org/About/sub/CSTACHapters.html
- Posters, Brochures, and Videos Resources: csta.acm.org/Resources/sub/BrochuresPostersVideos.html
- The Voice Online (including past issues): csta.acm.org/Communications/sub/CSTAVoice.html
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- Computational Thinking Resources: csta.acm.org/Curriculum/sub/CompThinking.html
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- Contact Us: csta.acm.org/About/sub/ContactUs.html

Spotlight

Computer Science beyond Keyboard and Mouse

Alfred Thompson

For those of us who started developing software back in the days of punch cards and magnetic tape, the introduction of the CRT with its cool screen and keyboard was an exciting time. Later, the introduction of the hand-held mouse revolutionized the way we interacted with the computer. For today's students, however, while game consoles, controllers with multiple joysticks, and special buttons are much more their style, even these input devices are quickly being replaced and by a new paradigm for human-computer interaction. Thanks to sensor-driven input devices such as the Kinect Sensor, students no longer require direct physical contact with input devices and this revolutionary technology is creating new ways to teach computer science (CS) in the classroom.

For introductory programming, the 3D Kodu environment not only enables students to easily create games and simulations that use the Xbox controller, but also allows them to use the game controller to program and create the code. The controller itself seems to be a "student magnet," drawing their attention and motivating students to learn CS.

The most obvious use of an Xbox controller and the XNA software development kit (SDK) is game development. They can also be used, however, to create simulations and applications that explore alternative human-computer interfaces. For example, students can create interfaces for individuals with special needs or handicaps.

The extensive collection of objects and methods in the XNA framework make programming for the game controller as easy as programming for a mouse. Free tools and curriculum appropriate for high school CS classes are already available.

Today's mobile devices also add Tap as an event, much like the Click event for a mouse but with so much more potential. The ability to use gestures with two touch points, motion sensors, GPS information, cameras, and more, opens endless

possibilities. Windows 8 will also open the creation of touch-enabled apps to many more devices. The TouchDevelop tools, as well as recently published curriculum using C# and a phone emulator, make mobile development possible in the high school CS classroom.

And then there is the Kinect sensor, a relatively inexpensive device with depth information, skeleton tracking, sound sensors, and RGB cameras. This new device creates a wide range of interaction possibilities that were once far beyond the capabilities of high school students. Free curriculum and Kinect SDK provide tools for student projects that use the Kinect for Windows, as well as for the Xbox.

Do we really expect students to remain content writing keyboard and mouse applications? Or will your students be the ones to create the next great user interfaces? Getting and keeping students interested means involving them in projects that are relevant to their lives. It means giving them a chance to experiment with cutting-edge technologies. Using devices other than the usual keyboard and mouse can be just the ticket to jazz up your curriculum.

LEARN MORE:

Kodu fuse.microsoft.com/page/kodu

Programming Games in a Creative Medium with Kodu www.microsoft.com/education/facultyconnection/bz/articles/articledetails.aspx?cid=2085

XNA Jump-start: A 5-week Intro to Game Development, Game Development with XNA Semester1, and Game Development with XNA and Microsoft Technologies Semester 2: Advanced XNA, Kinect, and Windows Phone www.microsoft.com/education/facultyconnection/precollegiate

Kinect Effect www.xbox.com/en-US/Kinect/Kinect-Effect

Kinect SDK www.microsoft.com/en-us/kinectforwindows/develop/resources.aspx

Kinect Education www.kinecteducation.com/

TouchDevelop channel9.msdn.com/Blogs/Peli/TouchDevelop-Getting-Started

Affiliate News

Engaging Israeli Girls in CS

Machshava, the Israeli national center for computer science (CS) teachers, organized the *Exposure to Computer Science* conference for ninth-grade girls. The conference is part of a joint project with the Google Israel Research and Development Center.

The larger project, Mind the Gap, started in 2008 and aims to encourage female pupils to study CS in high school. So far, 2000 female students from over 100 schools in Israel have participated in the program.

The December 2011 conference was held at the Tel Aviv University. The girls learned about how CS impacts many aspects of their lives and interacted with four female role models in a panel discussion. The panelists included a university CS professor, a software engineer, a college CS student in her second year of study, and a twelfth-grade student.

According to participant questionnaires, the conference had a very positive impact on girls' attitudes towards CS. Before the conference, 87% of the girls said they needed more information in order to decide whether or not to study CS; only 28% said they are planning to study CS next year. After the conference, 52% of the girls had changed their minds about studying CS next year and 80% of the girls said they would recommend studying CS to their friends.

LEARN MORE:

Eidelman, L., Hazzan, O., Lapidot, T., Matias, Y., Raijman, D. Segalov, M. (2011). Mind the (gender) gap: can a two-hour visit to a hi-tech company change perceptions about computer science? *Inroads – the SIGCSE Bulletin* 2 (3), pp. 64-70.

Blog About Town

Editor's note: Blog About Town is a new column in the *Voice*. Each issue will feature computer science (CS) blogs that we hope you will find informative and, very importantly, that will enable you to interact with vibrant communities of CS educators and other professionals.

Hélène Martin is a CSTA member and former high school CS teacher at Garfield HS in Seattle. She is now teaching at the University of Washington. In a recent posting Hélène described Light-bot— a programming-like Flash-based puzzle game that uses programmer-style logic to tell the bot how to light tiles using functions, conditionals, and recursion (www.helenemartin.com).

Deepa Muralidhar is also a CSTA member. She is busy this year piloting the new CS Principles Course at Northview High School in Alpharetta, Georgia, and chronicling her experiences in her CS Principles @ North blog (csprinciplesnorth.wordpress.com).

And of course, don't miss the **CSTA Advocate Blog**. You will find resources, opinions, and musing from the CSTA Board of Directors, committee chairs, CSTA members, and guests. Recent posts have included: Computer Science: The Big Picture, Gearing up for Next School Year, Video Games, and Open Book Exams and SMOP (blog.acm.org/csta).

Classroom Tools

Binary Clock Use a binary timer to visually introduce binary numbers and counting, then challenge students to convert a typical 12-hour clock to telling time in binary. Download the binary clock and add it to your desktop (www.sb-software.com/binaryclock). More details and lesson plans can be found on the IEEE *TryEngineering* website (tryengineering.org).

CS Bits & Bytes Introduce your students to the multi-faceted world of computer science (CS) through CS Bits & Bytes, a newsletter from the National Science Foundation, highlighting innovative CS research. Each issue includes profiles of the individuals who do this exciting work, as well as interactive activities and videos to encourage students to become technology creators. View archived issues and sign up for future issues at: www.nsf.gov/cise/csbytes.

SHOW ME THE NUMBERS

Top 10 International CSTA Memberships CSTA members hail from 123 countries!

India	1559	Nigeria	124
Canada	290	Pakistan	94
Philippines	169	South Africa	91
New Zealand	163	Australia	61
United Kingdom	163	Malaysia	49

Source: CSTA Membership April 2012



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

MARK YOUR CALENDAR

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 (ITICSE)

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

CT CSTA 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

9th International Conference on Security and Cryptography (SECRYPT 2012)

July 24–27, 2012, Rome, Italy
secrypt.icete.org/

CS4HS/CSTA @ UML Workshop

July 31–August 2, 2012, Lowell, Massachusetts
www.cs.uml.edu/cs4hs/

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

2nd International Conference on Cryptology and Information Security (Latincrypt 2012)

October 7–10, 2012, Santiago, Chile
2012.latincrypt.org

CSTA New York Fall Conference

October 12, 2012, Buffalo, New York
srecoon@williamsvillek12.org

CS and Stem: The Quest for Balance

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

Workshop in Primary and Secondary Computing Education (WiPSCE)

November 8–9, 2012, Hamburg, Germany
wipsce.org

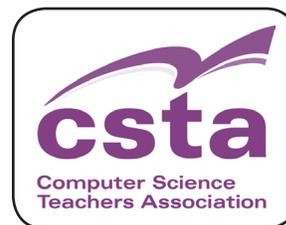
China International Conference on Information Security and Cryptology (Inscrypt 2012)

November 28–December 1, 2012, Beijing, China
www.iacr.org

Indocrypt 2012

December 9–12, 2012, Kolkata, India
www.isical.ac.in/~indocrypt

Plan for CS & IT 2012
July 9–10, Irvine, CA
www.cstaconference.org



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