VOICE

CSTEACHERS.ORG
COMPUTER SCIENCE TEACHERS ASSOCIATION

THE VOICE OF K-12 COMPUTER SCIENCE EDUCATION AND ITS EDUCATORS

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CONNECT THIS SUMMER IN OMAHA

JULY 7-10, 2018
2018 ANNUAL CONFERENCE
CENTURYLINK CENTER, OMAHA, NE

Daniel Moix & Tammy Pirmann

The 2018 CSTA Annual Conference will be held in Omaha, Nebraska, July 7–10. Arrive as early as Saturday, July 7, to start your summer professional development in one, two, or three hands-on workshops. The topics this year range from physical computing to the future of machine learning and include offerings for teachers at the elementary, middle, and high school levels.

Join your fellow teachers at one of our many informal "birds of a feather" meet-ups on Sunday night. Monday and Tuesday are chock full of sessions on new topics and a few back by popular demand. Block languages, Python, cybersecurity, robotics, and big data are some of the topics being presented.

Do you already know what you are teaching next school year but are interested in teaching it better or to a wider audience? We have sessions on equity, pedagogy, assessment, and innovation. And there will be almost twice as many exhibitors in the exhibit hall as last year, all of them eager to help you. Some new and noteworthy additions to the program this year include:

- Virtual reality as a project idea for your students
- Several cross-curricular offerings linking CS to other disciplines
- Our very own Nifty Assignments session, with each lesson aligned to the new CSTA K-12 CS Standards

If that is not enough to convince you to come to Omaha this summer, maybe the Omaha Beer Fest (July 6 & 7) with unlimited two-ounce samples of beers and ciders will get you hop-ing! Omaha is home to an amazing zoo and the historic Old Market is not to be missed. Omnivores will appreciate the numerous steak houses, and everyone can enjoy the farm-to-table restaurants.

CSTA can't bring this awesome programming to you without generous help from our Partners. This year, Google, Infosys Foundation USA, ACM, Microsoft, Oracle Academy, Rolls-Royce, Apple, and many others (see page 13 for the complete list) are helping to make this conference possible. Thank you, Partners!

Start planning now. Register early—workshops have limited capacity and housing fills up quickly. A discount is offered when purchasing multiple workshops. Online conference registration closes June 30 and housing closes June 14. Find all the details, including local attractions, dining lists, and more detailed information on conference speakers and sessions at cstaconference.org.

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Fred_Martin@uml.edu

David Reed, *Past-chair*
DaveReed@creighton.edu

STAFF
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Executive Director
Phone: 773.627.3300
jake.baskin@csteachers.org

Pat Phillips, *Editor*
Phone: 608.436.3050
publications@csteachers.org

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CSTA-SNJ COMPETITION FOCUSES ON APPLIED SCIENCE
Michelle Wendt

More than 200 high school students put their computer science (CS) skills to the test at the third annual CSTA Southern New Jersey Chapter CS Competition in March. Eighteen high schools participated, which was almost double the number from last year.

The competition is coordinated by Demetrios Roubos, Network and Security Administrator at Richard Stockton College of NJ, who develops the problems with his students. They strive for a balance between challenge and accessibility to high school students. The question topics were heavy on applied science this year because they wanted to have problems that were practical and that students might encounter in the future.

The 18 participating high schools were: Absegami, Brick Memorial, Burlington Township, Egg Harbor Township, Freehold, James Caldwell, Mainland Regional, Middle Township, Oakcrest, Ocean City, Ocean Township, Raritan, Red Bank Regional, River Dell Regional, Toms River East, Toms River North, Toms River South, and West Deptford.

The competition provided an opportunity for students to challenge themselves against other schools and to visit Stockton College. Stockton offers bachelor's degree programs in CS and Information Systems and a Master of Science in Data Science and Strategic Analytics.

CS programs in New Jersey are growing due to Governor Phil Murphy's support of an initiative to expand CS programs in high school and a new state law requiring high schools to offer CS. Egg Harbor Township (EHT) High School CS teacher Adam Swift, President of CSTA-SNJ, said more students show an interest in CS when they realize it includes technical areas such as video game design and robotics. In EHT students are introduced to CS in middle school.

CONGRATULATIONS, CUTLER-BELL PRIZE WINNERS!

The Association for Computing Machinery (ACM) and CSTA announced that five high school students were selected from among a pool of graduating high school seniors throughout the US as recipients of the ACM/CSTA Cutler-Bell Prize in High School Computing. Eligible students applied for the award by submitting a project/artifact that engages modern technology and computer science (CS). A panel of judges selected the recipients based on the ingenuity, complexity, relevancy, and originality of their projects.

The Cutler-Bell Prize promotes the field of CS and empowers students to pursue computing challenges beyond the traditional classroom environment. Each Cutler-Bell Prize winner receives a $10,000 cash prize. The prize amount is sent to the financial aid office of the institution the student will be attending and is then put toward each student's tuition or disbursed. This year's Cutler-Bell Prize recipients will be formally recognized at the CSTA Annual Conference, July 7–10, 2018, in Omaha, Nebraska. The winning projects illustrate the diverse applications being developed by the next generation of computer scientists.

Sreya Guha, Castilleja School, Palo Alto, CA

Sreya Guha's "Related Fact Checks" service was built to combat fake news by connecting information written in articles to the related fact(s) on fact-checking websites. The tool does not label articles as either fact or fiction, since many articles contain both; but instead, it provides relevant fact checks related to an article being read. A browser extension allows the service to be accessible to a wide audience with the hopes of slowing the tide of fake news.

Amir Helmy, Eastside High School, Gainesville, FL

Amir Helmy developed the "Seizario" app, a mobile application designed to aid epileptic patients, their families, and caregivers in managing their daily lives effectively, using smartphones. Seizario aims to offer two main features, automatic detection of several emergency scenarios, and easy and immediate communication of critical information to family members and caregivers. Using an accelerometer-based classification algorithm, Seizario detects seizures and harmful falls. When detected, warning and alert messages are triggered.

Amy Jin, The Harker School, San Jose, CA

Amy Jin is using computer vision to evaluate surgical skill and provide individualized feedback and training to surgeons. This computer vision "coach" analyzes surgical performance through tool movements and usage patterns to reflect surgical skill and technique. By feeding surgical videos through her computational pipeline, Jin has automated surgical skill assessment, focusing on efficiency, motion economy, and bimanual dexterity as areas of examination, in order to provide surgeons with information on how to improve their surgical technique and performance.

Benjamin Spector & Michael Truell, Horace Mann School, Bronx, NY

Submitting as a team, Benjamin Spector and Michael Truell created Halite, an online programming competition. Halite is now in its second iteration and is one of the largest limited-time programming competitions with more than 5,500 users over the course of the two competition runs. Starting with the goal of producing an open-source platform and game in which anyone could easily program a bot but which would also have the depth to support and interest experienced programmers, Spector and Truell set ambitious requirements for the system, game, and competition desiring a visually appealing, secure, scalable, beginner-friendly, but difficult to solve, multi-faceted competition. The competition would allow the user to write code in any language, test and visualize their bots locally. Once uploaded, bots would play against other bots in real time and the user would receive performance feedback in real time.

In 2016, David Cutler and Gordon Bell established the award. Cutler is a software engineer, designer, and developer of several operating systems at Digital Equipment Corporation. Bell, an electrical engineer, is researcher emeritus at Microsoft Research.

"We are proud to support an effort which encourages high school computer science students to develop projects that will advance society," said Cutler and Bell. "We hope that, whatever careers these students ultimately pursue, they will consider the ways in which technology can have a positive impact on the wider world."

MIDDLE SCHOOL CODING WITH GOOGLE'S CS FIRST

Sloan Davis

Editor's note: Google is a CSTA Conference Partner for the 2018 CSTA Annual Conference. Please visit their exhibit, attend the workshops, "Introducing Computer Science and Blocks Based Programming through CS First" on July 7, and "Machine Learning in the Classroom" on July 8, and attend the session, "Using Google's CS First to Introduce Coding in the Classroom" on July 10.

At the 2017 CSTA conference, Google facilitated a session to learn from the successes and challenges teachers (especially middle school teachers) face in the classroom and the kinds of resources they need to introduce coding to their students in engaging ways. Over the last year, Google has used this knowledge to enhance its computer science (CS) education programs to ensure that they meet the needs of teachers and students.

K–8 educators indicated that, compared to their colleagues teaching CS in high school, they struggle to find relevant CS teaching materials that are easy to integrate into the classroom. Further, student misconceptions of CS can dissuade them from approaching the discipline eagerly. Others shared that it's difficult to lead instruction while also giving personalized support to students. Finally, many educators are asked to teach CS without prior experience in the subject, making it difficult to find the right resources and use them with confidence.

One option that teachers might find both easy to incorporate and engaging for their students is Google's *CS First. CS First* is a free, introductory CS curriculum designed to engage a diverse student population in grades 4–8 (ages 9–14). Teachers use the video content to teach kids CS and coding basics with Scratch, a block-based programming language. *CS First* is available online and can be used by anyone, in any setting (in school, after school, or outside of school).

CS First exposes students to CS and programming in a low-risk, experiential way. *CS First* modules, or themes, each contain eight activities for roughly 10 hours of content. The themes align to students' interests, such as art, music, and sports, increasing student engagement with CS. Not only does *CS First* help students form a personal connection and interest in CS, it also helps students learn CS fundamentals, like events, sequencing, and loops, in scaffolded activities.

No matter your students' experiences with CS, *CS First* can appeal to their interests through active learning and project-based activities. The blended classroom format, which allows students to watch videos and create in Scratch at their own pace, enables teachers to circulate the room to support students and encourage peer-to-peer debugging. Similarly, regardless of your level of experience with CS, *CS First* includes lesson plans and solution sheets to help teachers approach CS instruction with confidence. The flexibility of the content also allows teachers to supplement *CS First* with other learning materials as needed to support local learning objectives.

To get started, teachers sign in to create a class on the *CS First* website, identify the school or location where they plan to run the CS First class, and choose the desired theme and schedule. Then, teachers have the option to order free, print materials, such as posters, stickers for students, and lesson plans. All that's left to do is to get students in front of computers, sign in to Scratch through *CS First*, and start coding.

Some educators use *CS First* to expose students to CS and coding for the first time, while others use themes like Storytelling to connect to national and state level standards such as the Common Core English Language Arts Standards. Google is committed to expanding our library of resources for educators to integrate *CS First* into their CS and non-CS classrooms. As a first step, we launched the Earth Day Logo activity with mention of the CSTA K–12 CS Standards it addresses, as well as suggestions for how to use the Earth Day activity to address Next Generation Science Standards. We're currently completing a full alignment of *CS First* to CSTA Standards, which will be available to teachers by back-to-school season.

In addition to its standards alignment work, Google will be offering a three-hour *CS First* workshop at the 2018 CSTA Annual Conference. In this hands-on session, teachers will learn how to use *CS First* to introduce students to CS and Scratch. They will also gain practical experience with the *CS First* materials and will have time to brainstorm ways to integrate *CS First* into their classrooms. We invite you to register for the 3-hour *CS First* PD session, to be held during the CSTA Pre-Conference on Saturday, July 7, from 1:00 to 4:00 pm. Be sure to check out Google's other conference events and workshops in the 2018 CSTA Conference program. We'll see you there!

DO YOUR STUDENTS LOVE CODING?

Editor's note: Certiport is a CSTA Conference Partners for the 2018 CSTA Annual Conference. Take a free certification exam at the 2018 CSTA conference in Omaha.

Certiport's new Microsoft Technology Associate (MTA) programming and coding exams validate crucial skills that make it easier for schools or businesses to verify that candidates have the necessary skills and experiences needed to make immediate impacts as students or employees.

The MTA certification program was recently expanded to include five new exams focused entirely on coding and programming: Python, Java, JavaScript, HTML and CSS, and Block-based Coding. The certification program helps your students gain the confidence and credentials they need to succeed in technology careers or more advanced training.

For more information on MTA exams, including information on how you can take a free certification exam at the 2018 CSTA conference in Omaha, visit Certiport MTA.

VOLUNTEER WITH TEALS TO INSPIRE THE NEXT GENERATION OF COMPUTER SCIENTISTS

Anthony Papini

Editor's note: Microsoft TEALS is a Conference Partner for the 2018 CSTA Annual Conference. Please visit their exhibit.

If you know someone who is looking for a way to harness their computer science (CS) skills and make a difference for students, we invite them to become a Technology Education and Literacy in Schools (TEALS) volunteer.

TEALS volunteers are industry professionals with a CS background who help high schools build and grow sustainable, high quality, and rigorous CS programs. Volunteers work directly with classroom teachers to help them build their CS teaching capacity and interact with students to inspire the next generation of computer scientists.

TEALS will be supporting over 500 high schools across the nation to build and grow their CS pathways for the 2018–19 school year and we are looking for volunteers. Please help spread the word to your friends and colleagues. Visit TEALS Volunteers to learn more and apply.

Congratulations New CSTA Board Members

Kristeen Shabram
K–8 Representative
(A new, second K–8 position)

Amy Fox
9–12 Representative

Miles Berry
International Representative
(re-elected)

Anthony Owen
State Department Representative
(re-elected)

Michelle Lagos
At-Large Representative
(re-elected)

EXPLORE MICRO: BIT WITH HUMMINGBIRD ROBOTS

Bambi Brewer

Editor's note: BirdBrain Technologies is a Conference Partner for the 2018 CSTA Annual Conference. Please visit their exhibit and attend their birds-of-a-feather session, "Physical Computing," on July 8.

BirdBrain Technologies is excited to be attending the 2018 CSTA Annual Conference in Omaha this summer. Visitors to our booth can explore the Finch Robot and the Hummingbird Robotics Kit and learn how to use the Hummingbird with micro:bit. By combining the Hummingbird with micro:bit, you can create an unlimited variety of robots that move and light up, respond to their environment, and communicate with one another.

The Hummingbird Robotics Kit was designed to enable students to create open-ended robotics projects. The kits come with lights, motors, sensors, and a microcontroller board; students add cardboard, felt, and other craft supplies to create their own robot. The result is a flexible tool that can be used in a multitude of ways. The same parts can be used to animate a poem, model the elbow, or create a pinball machine.

The choice of craft materials as a building medium makes the technology approachable to anyone. This flexibility was deliberately included to broaden participation in engineering, computer science (CS), and robotics by broadening the types of robots that can be created. Students can use their creativity and design skills to build whatever they can imagine, from a blooming flower to a dancing dinosaur.

The open-ended, flexible nature of the Hummingbird Kit makes it easy to integrate robotics into the core curriculum. Teachers can choose projects that align with course content to create true interdisciplinary projects. In-depth lessons are provided to help students and teachers learn to use the kits, and the free, standards-aligned curriculum can be used to meet classroom goals in a wide range of subjects. In addition, programming options are available for laptops, Chromebooks, and tablets to support the range of devices used in classrooms.

While the Hummingbird Kit is accessible to beginners, it also supports students and teachers as they advance their skills in programming and engineering. The Hummingbird can be programmed in a range of languages, including Scratch, Arduino, and Java. This means that students can use the same hardware as they transition from block-based to text-based programming. At the same time, students can progress their skills in engineering design by incorporating new building techniques and using mechanisms to move their robots in new ways.

Combining the Hummingbird with micro:bit creates even more possibilities. With the MakeCode environment, you can use block-based programming or JavaScript to write programs that control both the micro:bit and the Hummingbird. Then you can disconnect from the computer to display your creation without being tethered to the computer. You can combine the buttons, accelerometer, and magnetometer of the micro:bit with

the distance, light, sound, and dial sensors of the Hummingbird to provide more ways for your robot to respond to users and its environment.

You can even control a robot with a second micro:bit, or you can create a whole group of robots that communicate with one another via radio, like this group of dancing aliens!
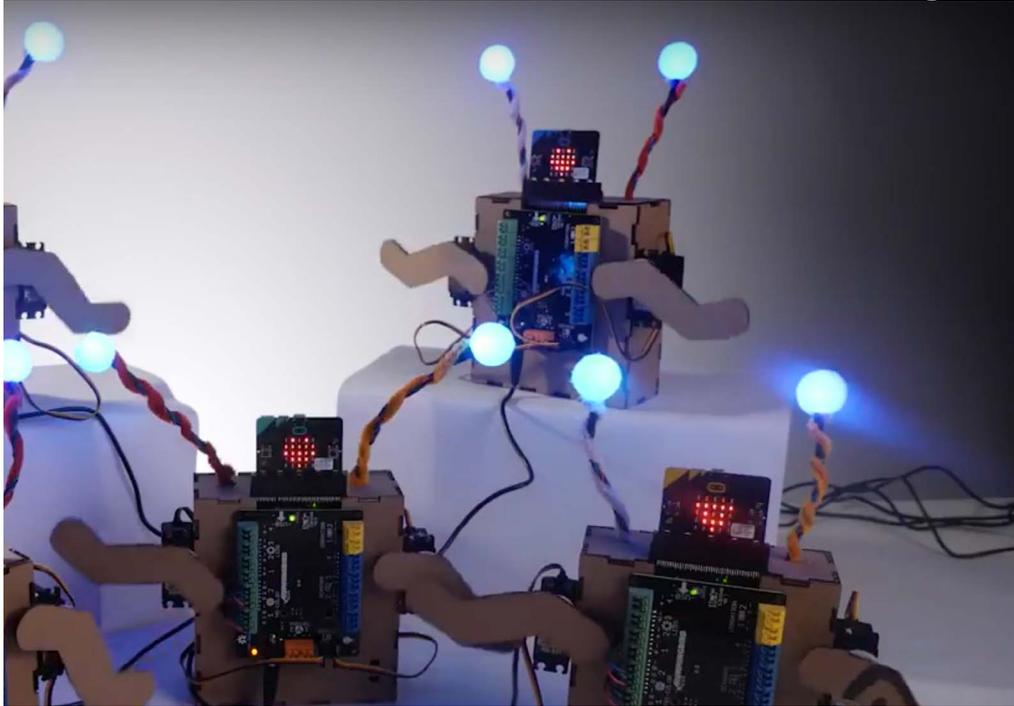
To see more examples and try it out for yourself, stop by BirdBrain's booth at the 2018 CSTA Annual Conference. Dr. Bambi Brewer, the Curriculum Development Manager for BirdBrain, will also be co-leading a birds-of-a-feather session on physical computing at 4:15 on Sunday, July 8. The goal of this session is to provide a space for teachers who utilize physical computing to share ideas and resources with one another. The focus is not the use of any specific robots. Rather, this session will concentrate on the broader advantages and challenges of using robots and other physical computing devices in CS. Come join the conversation.

MEET THE AUTHORS

Bambi Brewer

BirdBrain Technologies
Bambi is the Curriculum Development Manager and Resident Maker for BirdBrain Technologies. She helps teachers integrate the Hummingbird and Finch robots into their classrooms.

Sloan Davis

Google
Sloan has worked on Google's CS education team since 2014. She is excited to expand CS First so that all educators can successfully incorporate CS into their classrooms.

Chuck Gardner

NICERC
Chuck is the Director of Curricula for the National Integrated Cyber Education Research Center (NICERC). He oversees the creation of content and workforce development initiatives.

Daniel Moix

2018 CSTA Conference Co-chair
Daniel is the Director of Coding Arkansas' Future, which provides support to new CS teachers across the state. He is the Vice-president of the CSTA Arkansas Chapter.

Anthony Papini

Microsoft
Anthony brings over ten years of experience with education administration and nonprofit volunteer management to the role of TEALS Volunteer Manager and believes that it is vital to understand the foundations of CS in a global economy.

Tammy Pirmann

2018 CSTA Conference Co-chair
Tammy is the K–12 Coordinator for CS, as well as a high school CS teacher at the School District of Springfield Township, Montgomery County, PA.

Beth Quinn

NCWIT
Beth is a research scientist and the director of the EngageCSEdu project. Previously, she worked in educational game development.

A TRAINING OPPORTUNITY AT THE CSTA CONFERENCE

Chuck Gardner

Editor's note: The Cyber Innovation Center and NICERC are CSTA Conference Partners for the 2018 CSTA Annual Conference. Please visit their exhibit and attend the "Education Discovery Forum" on July 10–12.

The National Integrated Cyber Education Research Center (NICERC), is a not-for-profit corporation with the mission of creating and distributing relevant and rigorous STEM, cyber, and free computer science (CS) content to teachers across the US. Since 2012, in cooperation with the Department of Homeland Security (DHS), NICERC has been facilitating the teacher's role in the classroom through three main avenues: the distribution of classroom content, professional development to support the effective use of that content in the classroom, and supplementary and educational outreach content that can be used with students outside of the classroom.

Many recent research studies discuss abysmal teacher retention rates. In 2011, Education Week reported that less than 15% of Teach for America teachers continue to teach at their originally assigned school (Donaldson & Johnson). That statistic is predated by a report from the Department of Education in 2009 that schools will need to hire up to 200,000 first-time teachers annually. Chiang (2017) goes on to opine that the result must be an increasing quantity of teachers with no guarantee of quality. How can any school or district administration possibly keep up with such a deficit?

Last quarter, the NICERC article in the Voice discussed the benefits of engaging professional development. The intended outcome of that conversation and the one here today, is that it shouldn't be the sole burden of a school or district administrator to ensure that their teachers are adequately prepared to present engaging content to their students; some of that burden should lie with the government. NICERC wants you to know that DHS recognizes some of that burden and has provided funding to deliver a variety of professional development workshop models to teachers across the country.

This summer, NICERC is proud to offer two national professional development conferences aimed at highlighting content from NICERC's library. From June 4 to June 7, NICERC will host an Education Discovery Forum (EDF) in Augusta, Georgia. From July 10 to July 12, NICERC will host an EDF in Omaha, Nebraska, in conjunction with the CSTA Annual Conference. Both EDF sessions will allow teachers to take a deep-dive in one content thread from the

following:

- Cyber Literacy (grade 9)
- Cyber Literacy 2 (grade 10)
- Computer Science (grade 12)
- STEM: Explore, Discover, Apply (middle school)

For teachers that are already planning to attend the CSTA Conference in Omaha, NICERC would like to invite you to continue your PD with us through Thursday for just $100 more and explore some of the most hands-on STEM, cyber, and CS content around! Plus, you will have the opportunity to take home much more than $100 in technology for your classroom.

For teachers considering our quickly approaching event in Augusta, you would be wise to contact the team at info@nicerc.org to check on registration availability, as well as the opportunity to apply for a travel grant and registration scholarship to help cover many of the costs associated with that event.

In any case, if you're a CS or CTE teacher or know of a colleague who may be interested in learning more about the NICERC library of content, please consider joining us for at least one of the EDF workshops this summer. If you can't make either of those events, please reach out to us to discuss the opportunity for localized professional development in your area.

For more information on the content threads or the EDF, please visit nicerc.org/edf or send an email to info@nicerc.org with the subject line: CSTA Voice EDF 2018.

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TEACHING CSTA 3A OR 3B STANDARDS WITH ENGAGE CS EDU

Beth Quinn and Stephanie Weber

Editor's note: NCWIT is a CSTA Conference Partner for the 2018 CSTA Annual Conference. Please visit their exhibit and attend their presentations, "You Know WHAT to Teach, Now Let's Explore HOW to Teach I1t," on July 9; "Impacts on Diversifying Computing and Technology," on July 9; and "Create Digital Artifacts for Students to Communicate Their CS Journey," on July 10.

Do you have great computer science (CS) assignments for high school students that would be of value to other teachers? Are you looking for fun new teaching strategies?

Check out EngageCSEdu! A project of the National Center for Women & Information Technology (NCWIT), EngageCSEdu is a platform for instructors to find and share great CS course materials for engaging all students. Everything in the collection is authored by CS instructors, and each of the over 700 collection items are peer-reviewed, open source, and free to use. All student-facing materials make use of at least one NCWIT Engagement Practice (EP), an evidence-based practice for broadening participation in computing. You can also explore the NCWIT Engagement Practices Framework on the platform. There, you'll find tips on implementing techniques for engaging diverse students, exemplars from the collection, and connections to more information.

EngageCSEdu is Expanding to High School Materials

Initially, the project was designed to support college faculty teaching introductory CS courses. But we soon discovered that almost 20% of our account holders were high school teachers. So, with additional funding from Google, we are increasing outreach to, and support of, high school teachers with a collection of materials specifically for high school CS. In this first phase, we're putting out the call for great high school materials that align with CSTA standards 3A and 3B. Below are a couple of the engaging materials from high school teachers already in the collection.

CS1 – Twitter

Ria Galanos, Thomas Jefferson High School for Science and Technology, VA

In this lab, students learn how to connect their Java programs to a real-time data stream using a freely available API. Students apply what they've learned about string manipulation, sorting, ArrayLists, and finding the maximum value in a collection of items to determine a Twitter user's most common and non-commonly tweeted word. This lab makes use of the NCWIT EPs, "Student Choice" and "Relevant and Meaningful Content."

Dynamic Word Clouds

Scott Portnoff, Downtown Magnets High School, LAUSD

In this project, students write programs that draw text objects in an individually designed word cloud. It uses the programming language, Processing, a simplified form of Java. Students learn how to isolate transformation operations from having side-effects on subsequently drawn words, and derive and implement the mathematics involved in animating the word cloud. The Word Cloud program intertwines these new concepts with previously learned concepts, such as variables, conditional statements, Boolean expressions, arrays, classes, iteration, and movement. This project also supports the EPs "Student Choice" and "Makes Interdisciplinary Connections" by contextualizing the assignment within another field, in this instance, graphic arts.

It's Your Turn!

Do you have an assignment that always seems to work? One that students—across the board—seem to love? Do you have a way of teaching a difficult or confusing topic that other teachers might benefit from? Support the growing community of CS teachers by submitting your best materials to EngageCSEdu. All you must do is log into the EngageCSEdu site (creating an account, if you don't already have one) and go to "Contribute Materials." There you'll upload your materials (e.g., a project, lab, homework, or even annotated lecture slides) and include some information to help other instructors find, understand, and implement your materials.

Support the Community: Become a Peer Reviewer

A peer-reviewed collection is only as good as its reviewers. So, we need more great high school teachers to join our peer reviewer pool. The process is simple: We gather some information on your interests and do a short video training session. Then, periodically, we will send you an invitation to review a submission. You can accept or decline the invitation. If you accept, you'll review the material using a short rubric, and then submit it through the system. That's it! If you're interested, drop us an email at: engagecsedu@ncwit.org.

NEW CODEHS COURSES FOR MOBILE APPS AND CYBERSECURITY

Claire Sindlinger

Editor's note: CodeHS is a Conference Partner for the 2018 CSTA Annual Conference. Please visit their exhibit and attend their conference session, "Use the CodeHS Problem Bank & Quiz Bank to Customize Practice & Assessments," on July 9.

In today's digital world, coding is a foundational skill, just like reading and writing. It's our job as a community to equip all students with the tools and resources to meaningfully impact the future. Coding is an applicable skill across any industry providing limitless creative opportunities.

This summer, CodeHS is excited to launch new computer science (CS) courses for students in grades 6 through 12 to develop relevant and applicable digital skills, such as building mobile apps and cybersecurity.

Intro to Cybersecurity Course

Each week in the news, you'll hear about a new cyber-attack, or a major company or organization data breach. In a connected digital world, this occurrence has become common. But as important data moves increasingly online, students need to know the implications and how to keep their data stay safe and secure.

In our new course, Intro to Cybersecurity, students will learn foundational cybersecurity topics, such as networking fundamentals, software security, digital citizenship, cyber-hygiene, and cryptography. The course is geared towards students and teachers who haven't taken or taught a cybersecurity course previously. Yet, it's also robust enough to be used by experienced CS teachers who are looking for a more modern way to teach the topic.

Mobile Apps Course

Over the last year, it is estimated that mobile internet usage surpassed desktop internet usage for the first time, according to StatCounter GlobalStats. Mobile applications are becoming increasingly important for our consumption of media, news, social interaction, and learning. It's time that we teach our students to be creators, not just consumers!

The new Mobile Apps course will cover the fundamentals of building mobile apps with React Native, a mobile app structure, using components for user interaction and the basics of custom functionality. It is designed for high school students who have experience with JavaScript.

CodeHS In-Person PD Workshops

To prepare teachers to run successful CS classes, CodeHS will be hosting free in-person professional development summer workshops in various US locations. In our workshops, teachers will learn programming skills, effective pedagogy, and best practices for teaching CS in a blended classroom. It will also cover extensive CodeHS tools and teaching resources, including the Problem Bank, a large repository of coding problems created by CS teachers. If you are interested in learning more about how to incorporate CodeHS into your classroom, this PD is perfect for you, regardless of your familiarity with CodeHS, the courses you plan to teach, or your CS teaching experience.

Register online for a one-day PD workshop near you.

Salt Lake City, UT | June 12, 2018

Chicago, IL | June 19, 2018

Portland, OR | June 21, 2018

San Francisco Bay Area, CA | June 27, 2018

New York, NY | July 19, 2018

Questions about CodeHS? Email our team at: hello@codehs.com. Or visit CodeHS.

2018 SPOKATHON

Tammie Schrader

For two days in February, over 60 high school and middle school students came together for the second annual hackathon in Spokane, officially known as the Spokathon. This event was hosted by Spokane Valley Tech, a high school in Spokane Valley, Washington. The event was sponsored by the Northeast Washington Education Service District 101, the CSTA-Spokane Chapter, The Hagan Family Foundation, and other community organizations.

The competition began Friday at 4:00 pm with the middle school teams concluding at 9:00 pm and the high school teams finishing on Saturday at 2:00 pm.

The first step for students was to select a game idea and to form teams. Any student with a game concept was invited to pitch it to the group. Students selected the idea they found most interesting and formed a team. Some teams consisted of students from the same school and others were a mix of students interested in working on an idea that appealed to them. Then the work began!

CSTA Spokane Chapter members, as well as professors and 20 CS students from Whitworth University and Eastern Washington University, were on hand to help. The university students rotated among the teams to provide support. Teams listed specific requests for help on a large white board, and these were responded to by the various experts.

At 9:00 pm the middle school teams presented their projects, the top three were selected by votes from the group, and prizes were awarded. The high school teams worked through the night taking breaks and sleeping, as needed.

Teams worked until 1:00 pm on Saturday and then prepared to share their work. Teams presented the games they created and students voted for their top three favorites. First-place winners received $100 gift cards, second place received $50 gift cards, and third place received $25 gift cards. Two prizes were voted on by the adults, one for collaboration and the other for creativity. It's easy to throw a hackathon!

- Locate a venue. School classrooms are not ideal because they are too isolating. Spokane Valley Tech was ideal; it had breakout rooms, grouped tables, and an open space for students to set up and collaborate.
- Locate funding for prizes and food. We also provided a Spokathon t-shirt to all participants.
- Consider registration fees. We wanted to keep the cost low so all students could participate but we also wanted them to feel that they had some buy-in to avoid last minute drop outs.
- Create an online registration component, as well as on-site registration. Require a parent to sign a document that lists allergies and medical conditions, as well as doctor and emergency contact telephone numbers.
- Gather feedback to use in planning your next hackathon.

We heard many positive comments to the survey questions about what they liked best…

"The fact that I could come together with others and work toward a common goal of creating a game."

"Learning to work as a team."

"I liked collaborating with a team and having different roles, trusting in our partners, and having all of the code work together to make at least a simple program."

"Being able to share ideas and get help from more experienced coders."

Learn more and see students in action at the 2017 Spokathon.

MEET THE AUTHORS

Continued from page 7

Tammie Schrader

CS Educator, Washington
Tammie is a CS Coordinator for Northeast Washington Education Service District 101 in Spokane. She was a speaker at the 2014 Game Jam hosted at the White House.

Claire Sindlinger

CodeHS
Claire is the Marketing Manager for CodeHS, a comprehensive teaching platform for CS.

Ryan Torbey

CSTA Advocacy Committee
Ryan serves as the Chair of the CSTA Advocacy Committee. He currently works as a CS education consultant and is pursuing his PhD in STEM Education.

Stephanie Weber

NCWIT
Stephanie is the Content Manager for EngageCSEdu, and a project manager for NCWIT. She is former science teacher and has worked with many curriculum vendors.

Michelle Wendt

CSTA-Southern New Jersey Chapter
Michelle is a Technology Integrationist from the SRI & ETTC at Stockton University. She works with several NJ school districts to mentor and team teach with classroom educators.

EXPANDING CS EDUCATION: REFLECTING ON A YEAR OF PROGRESS

Ryan Torbey

With the 2017–2018 school year ending, we're getting into that magical time called summer. Summer means different things for different people, but for me it has always been a time of reflection, revitalization, and rededication to my personal missions. As the Chair of the CSTA Advocacy Committee, I look at the immense momentum the CS for All movement has gathered and can't help but admire the amazing people who have dedicated their time to advocate for equitable access to computer science (CS) education. The movement to expand CS is growing quickly, and I'd like to describe a few highlights of the past school year.

CSTA, which has been doing amazing work in promoting CS education for all students, released the revised K–12 CS Standards at the CSTA Annual Conference in 2017. Throughout this past school year, teachers from all over the world have looked to the standards for guidance in CS instruction. CSTA has written the Standards so that teachers can easily understand and use them in their teaching. I have heard the K–12 CS Standards referred to as the "crown jewel" of CSTA, and I think that the production of such clear and informed standards is instrumental in the expansion of CS education.

The federal government, in the 2017–2018 school year, has increased funding for CS initiatives. In September, the administration directed the Department of Education to allot $200 million per year toward STEM and CS education. The private sector, in a remarkable demonstration of their commitment to addressing the need for expanding CS education, pledged over $300 million of funding. Calls for proposals have started and we're all excited to see the results of this increased funding.

Many states have also answered the call for more K–12 CS education (too many to include all of them in this article). Wyoming announced Boot Up Wyoming 2022, which is an initiative designed to bring CS to all Wyoming schools and allow CS coursework to count as either a math or science credit. Alabama's new approved budget allocates almost $1,000,000 toward CS professional development for middle and high school teachers. Idaho passed a bill that requires all high schools to offer at least one CS course. The Texas legislature passed a bill directing the creation of a new cybersecurity pathway and allowing courses in that pathway to receive additional funding.

Internationally, counties are also heeding the call to fund and expand CS education. Canada recently launched the CanCode program, which invests $50 million over two years to dramatically increase CS educational opportunities in their K–12 system. Finland has increased CS and computational thinking in their K–12 curriculum by integrating it across subjects.

And while governments, local and national, are taking immense steps toward expanding CS education, it's best to remember that so much of the real, day-to-day work is being done by extremely hard-working and dedicated teachers. Whether it's taking a leap and holding an Hour of Code event for the first time or teaching Java to students in Advanced Placement CS, teachers are the gasoline that is making this engine move.

Teaching CS is teaching students to be literate in 21st Century skills; teaching CS is preparing students to succeed in their time and place; and teaching CS is empowering students to create, solve problems, and thrive in their digital world. I'd like to call on every teacher, educator, and administrator to reflect this summer. Reflect on the importance of CS, reflect on the true meaning of CS for All, and most importantly, reflect on how your voice can be used in the coming school year to amplify our movement.

CSTA THANKS.....

THE 2018 CSTA CONFERENCE PARTNERS,
OUR SPONSORS AND EXHIBITORS, WHO ENRICH THIS PREMIER
EVENT FOR SO MANY EDUCATORS.

- ACM SIGCSE
- Beauty & Joy of Computing
- BirdBrain Technologies
- BootUp Professional Development
- BSD Code + Design
- Careers with Code
- Cengage
- CodeCombat
- CodeHS
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- College of St. Scholastica
- Couragion
- Creighton University
- CS for All Teachers
- Digital Academy
- EMC School/Zulama
- EnjoyTech USA
- Firia Labs
- GitHub
- Goodheart-Wilcox Publishing
- Google
- IBM
- Indus Business Academy

- Infosys
- Intelitek
- LabSmith
- Launch CS
- Wonder Workshop
- Microsoft
- Mobile CSP
- NC Labs
- NCWIT
- NICERC
- National Science Foundation
- National Security Agency
- NerdLevels
- Oracle Academy
- Palstart
- Pearson/Certiport
- Rolls-Royce
- TEALS – Microsoft
- Ten80
- Unilearn
- University of Nebraska
- UTeach Texas
- We Teach Texas
- Vernier Software and Technology

JULY 7-10, 2018

2018 ANNUAL CONFERENCE
CENTURYLINK CENTER, OMAHA, NE

CSTEACHERS.ORG
COMPUTER SCIENCE TEACHERS ASSOCIATION

CSTA is headed to Omaha, Nebraska
Join us for the CSTA Annual Conference
July 7–10, 2018

CSTAConference.org

WHAT'S IN OMAHA?

When you want a break from the non-stop action of the CSTA Conference, you'll find lots of activities and attractions in Omaha. Here are a few to get you started.

Old Market

This is the heart of Omaha. Brick-paved streets feature horse-drawn carriages that trot in front of popular tourist sites. Plenty to see and do.

Henry Doorly Zoo and Aquarium

You'll see piccaries in the Desert Dome, Rockhopper penguins, and sharks in the 70-foot shark tunnel. Don't miss the world's largest IMAX Theater, ideal for the whole family. And my favorite, ride the sky tram just over the top of animal enclosures.

Joslyn Art Museum

The Joslyn Art Museum features 19th and 20th Century European and American artists, including Winslow Homer, Claude Monet, and Edgar Degas.

The Durham Museum

Affiliated with the Smithsonian Institution, the Durham chronicles Omaha's history. There's even a working soda bar where you can enjoy a milkshake after touring the museum.

Lauritzen Gardens

This Botanical Center blooms with a variety of roses, herbs, peonies, and more. There are three miles of trails for an enjoyable walk through the sweet-smelling gardens.

Omaha's Children's Museum

Located in the Old Market area, this outstanding museum contains a Creative Arts Center, an Imagination Playground with a farm, a firehouse, and a market, plus several other interactive exhibits.

THANK YOU

CSTA thanks...

The 2018 CSTA Conference Committee for tireless work and creativity in planning the very best PD for CSTA members.

- **Daniel Moix**
- **Tammy Pirmann**
- **Derek Babb**
- **Stephanie Hoeppner**
- **J. Philip East**
- **Doug Peterson**
- **David Reed**
- **Kent Steen**
- **Vicky Sedgwick**
- **Kristeen Shabram**
- **Jennifer Smith**

CSTA thanks...

The outgoing members of the CSTA Board of Directors for their years of dedication and service.

- **David Reed**
  College/University Representative

- **Chinma Uche**
  9–12 Representative

CSTA thanks...

Companies for providing over 100 conference attendee scholarships for CS educators to attend the 2018 CSTA Annual Conference.

- **Google**
- **Microsoft**
- **Oracle Academy**
- **Rolls-Royce**
- **TechStart/Facebook**
- **BirdBrain Technologies**

CSTA thanks...

Organizations that provide awards to recognize CSTA educator excellence and innovative CS education.

- **Infosys Foundation USA**
  Awards for Excellence in Teaching Computer Science

- **Gordon Cutler and David Bell**
  Cutler-Bell Prize for Student Achievement

MARK YOUR CALENDAR

Computing at School (CAS)
Upcoming events in the UK

NICERC Education Discovery Forum
June 4–7, 2018, Augusta, GA

CodeHS PD Workshops
June 12, 2018, Salt Lake City, UT
June 19, 2018, Chicago, IL
June 21, 2018, Portland, OR
June 27, 2018, Bay Area, CA
July 19, 2018, New York, NY

ITiCSE
July 2–4, 2018, Larnaca, Cyprus

2018 CSTA Annual Conference
July 7–10, 2018, Omaha, NE

NICERC Education Discovery Forum
July 10–12, 2018, Omaha, NE

Pathfinders Summer Institute
July 15–20, 2018, Bloomington, IN

Python Bootcamp
July 23–27, 2018, High Wycombe, UK

Grok Learning Challenge 2018
Begins July 30, 2018

ICER 2018
August 12–16, 2018, Helsinki, Finland

CCSC (Midwestern)
September 28–29, 2018, Muncie, IN

CCSC (Northwestern)
October 12–13, 2018, Bothell, WA

CCSC (Rocky Mountain)
October 12–13, 2018, Socorro, NM

CCSC (Eastern)
October 19–20, 2018, Arlington, VA

CCSC (Southeastern)
November 2–3, 2018, Salem, VA

CSEdWeek
December 3–9, 2018, in your community

**Find more upcoming CS events on the CSTA website.
List your CSTA event by contacting:
customerservice@csteachers.org**