CSTA ELECTIONS: PLEASE VOTE

In this issue, we are pleased to announce the ten candidates for the five open 2017–2019 CSTA Board positions. Read their personal statements starting on page 15.

The CSTA Board of Directors consists of thirteen voting representatives, with eleven of those elected directly by CSTA members worldwide. In addition to working with the Executive Director in setting the organization’s direction, Board members carry out many of CSTA’s operational tasks through committee work. They will have many responsibilities to carry out on your behalf.

As in past years, the election will take place online using the ElectionBuddy voting system. On February 22, all current CSTA members should receive an email from ElectionBuddy with a personalized link to the ballot. If you do not receive this email, first check your spam filter, then contact customerservice@csteachers.org. Voting ends March 22.

This is an exciting year for CS education. The new CSTA K–12 Computer Science Standards are nearing completion, CSTA membership has topped 25,000, and we have 60 US chapters and three global affiliates. New studies have been released to support your advocacy work. CSTA is in the forefront of the effort to support K–12 teachers and bring CS to classrooms across the US and around the world.

Choosing the new members of the CSTA Board of Directors requires careful deliberation. We want your voice to be heard. Read their statements and vote today!

Fred Martin
Chair-Elect, CSTA Board of Directors
CSTA SUPERPOWERS UNITE THIS SUMMER

Stephanie Hoeppner

Do you have a computer science (CS) educator superpower? Do you need help to find your superpower? Do you need a power booster?

Join CSTA for the 2017 Annual Conference in Baltimore, Maryland, July 8–11. It will be even bigger and better than ever. Four amazing days with more workshops and sessions are being planned to help you build your superpower.

The planning committee has selected and recruited presenters to offer a wide variety of topics for the diverse needs of our membership. There will be something for every teacher and administrator interested in K–12 CS education. The workshop offerings have been expanded and will be held during a Saturday afternoon session and then two sessions on Sunday, followed by birds-of-a-feather sessions and a reception sponsored by Oracle Academy.

There will be two keynote speakers to kick off the Monday and Tuesday conference days and a panel on Monday afternoon. The Conference is once again filled with a variety of sessions on topics from K–8 CS, Advanced Placement, cybersecurity, STEM, diversity, programming, pedagogy, robotics, and so much more! There will be a large exhibitors’ hall with vendors who are ready to show you the latest technologies and classroom tools. Be sure to invite your administrator!

Beyond the quality professional development, there will be plenty of time for networking at sponsored social events and session breaks. Catching up with old friends and making new friends is always a highlight of the conference.

Power up your CS educator superpowers with innovative and inspiring speakers, hands-on workshops, one-hour presentations, mini-sessions, birds-of-a-feather sessions, and lots of fun this summer, July 8–11, at the Renaissance Baltimore Harborplace Hotel in Baltimore, Maryland. We hope to see you there!

Registration is open now. Complete details, registration link, and housing information are available at the conference site (cstaconference.org).

Registration is open now. Complete details, registration link, and housing information are available at the conference site (cstaconference.org).
In the fall of 2015, the CSTA K–12 Computer Science (CS) Standards Revision Task Force began revising the 2011 CSTA K–12 CS Standards. Coincidentally, the K–12 CS Framework project was launched at the same time. Several of the CSTA Standards Task Force members also served as writers or advisors for the K–12 CS Framework.

The goal of the task force shifted dramatically from a “timely revision” to a revision including alignment to the K–12 CS Framework. Since CSTA had promised the revision of the 2011 CSTA K–12 CS Standards during 2016, we released an interim version of the revised standards in July at the 2016 CSTA Annual Conference. The interim version of the standards is available in PDF format on the CSTA website (www.csteachers.org/?page=CSTA_Standards). The K–12 CS Framework was released in mid-October, 2016, and is available on the K–12 CS Framework website (k12cs.org).

The CSTA K–12 CS Standards Revision Task Force planned to update the 2016 interim standards after the release of the K–12 CS Framework to ensure an alignment with the framework. To that end, the task force members met in January 2017, to update the standards once again.

Creating a “heat map” of the standards

One primary goal of the task force in 2017 was to update the CSTA standards to reflect the language of the framework, ensuring a tighter alignment. Another goal was to ensure that the scope and sequence of the standards provided sufficient scaffolding for students from kindergarten through 12th grade in each of the five concept areas of the framework.

The January meeting of the CSTA task force was very productive. The draft of the 2017 CSTA K–12 CS Standards will be disseminated in early February, 2017, to solicit public review and feedback. This review and the feedback submitted is essential for the standards revision. The task force members will review and reflect on the feedback submitted, making edits as needed.

The newly revised 2017 CSTA K–12 CS Standards will be released at the 2017 CSTA Annual Conference in Baltimore. A breakout session on the 2017 CSTA K–12 CS Standards will be held at the CSTA conference. Additionally, a birds-of-a-feather (BOF) session on the 2017 CSTA K–12 Standards will be held during SIGCSE 2017 in Seattle (March 8 – 11).
Have you thought about your computer science (CS) professional development (PD) for this year?

Recent research has shown that PD in reading, English, math, and science for K–12 teachers can enhance not only the teacher’s in-class performance, but also improve student achievement by as much as 21 percentile points. When it comes to CS education, the research is not as robust because a) CS is neither required nor offered by most schools across the country despite student and parent requests, and b) because CS PD programs are marred with challenges.

According to the recently published K–12 Computer Science Framework (k12cs.org), several challenges exist in developing PD programs for CS teachers. Challenges include creating robust materials for teachers, assessing the effectiveness of PD models for greater impact (especially with respect to inclusion and equity), establishing certification programs and pathways for teachers, and scaling ongoing support mechanisms for continued PD growth.

More broadly, the lack of robust PD programs for CS K–12 teachers in the US hinders teacher competence and confidence in teaching CS and limits K–12 student ability to learn foundational skills, such as problem solving and critical and computational thinking. This lack of formalized PD for CS K–12 teachers endangers the competitiveness of the US economy at the state and federal level because it results in limited or lagging digital learning for K–12 students who will be the talent workers of the next decade. Therefore, one could state that your PD is important not only for the academic achievement of our students, but also for national prosperity and growth.

Your PD is nothing short of a superpower in need of development. Here at CSTA, our mission is to empower, engage, and advocate for you, K–12 CS teachers worldwide. We have recognized this PD challenge, and with funding from Infosys Foundation USA, we have mobilized to address the challenge by building a Continuing Professional Development Pipeline (CPDP) just for you. The CPDP (www.csteachers.org/page/CPDPipeline) will offer you five much needed resources:

- A self-assessment to help you discern your interests, experience, and needs around CS.
- A personalized roadmap of PD programs, offered by CSTA-vetted PD providers, across eight CS specialty domains, including coding, computational thinking, cybersecurity, data analysis, gaming, makers, mobile, and robotics.
- A CS PD community for you to engage with other teachers nationwide and globally to share diverse experiences and perspectives, tackle challenges, and celebrate wins.
- Digital badges and certificates to track and share your PD achievements.
- Your own personalized, digital, professional development portfolio to track your professional development learning journey in 2017 and beyond.

As we build the CPDP we will be providing news and updates in the Voice, as well as on CSTA social media, including Facebook (www.facebook.com/CSTeachers.org) and Twitter. The CPDP is scheduled to launch at the 2017 CSTA Annual Conference, July 8–11, 2017, in Baltimore, MD. Don’t miss it! The conference is an exceptional opportunity for not only
NEW ZEALAND DT EDUCATION ENTERS NEXT PHASE

Julie McMahon

“Editor’s Note: NZACDITT (New Zealand Association for Computing, Digital, and Information Technology Teachers) is a CSTA Global Affiliate (www.csteachers.org/page/GlobalAffiliates).

NZACDITT runs regional and national workshops to support the teaching of digital technologies (DT). We have a robust online forum with active discussions, where members share resources and expertise. Our executive works closely with the government, industry, and tertiary sectors to advocate for, and improve, DT education in New Zealand (NZ) schools.

NZACDITT was formed in response to the need to support teachers and their professional development requirements, following the introduction of DT into the NZ Senior Secondary School Curriculum in 2011.

As a direct result of this significant change to the NZ Senior Secondary Curriculum, DT education in NZ has advanced considerably. Where previously the focus was upon providing students with the skills necessary to use computing tools and traditional office productivity applications, the current focus is on providing students with the competencies and skills they need to become the next generation of developers of digital content.

This shift has allowed schools to offer innovative courses in the areas of programming and computer science (CS), creative digital media, electronics, digital infrastructure, and digital information. NZ has a flexible curriculum, meaning that a DT course can provide coverage of one or more of those areas, and schools are free to develop a course that caters to the needs of their students and community. Many schools are offering students the opportunity to creatively apply their DT knowledge and skills in a real-world context, though development of applications and systems for their community.

This shift has also posed the challenge for DT educators to upskill their content knowledge while also updating their understanding of curriculum and assessment requirements. While it has not been an easy PD, but also networking, new learnings, and amazing CS experiences.

As your new Director of Professional Development at CSTA, I look forward to hearing from you on all things related to PD and meeting many of you in Baltimore. Please feel free to reach out via email (m.theodotou@csteachers.org) at any time. We look forward to helping you sharpen your CS superpowers through amazing PD!

LEARN MORE:
- A Trillion Dollar Opportunity for America www.linkedin.com/pulse/trillion-dollar-opportunity-america-hadi-partovi

Continued on page 10
journey, NZ digital technology educators have benefitted from support of both industry and the tertiary sector. The Google-sponsored CS4HS (Computer Science for High School) events, which have been led by University of Canterbury, Victoria University, and Unitec, have been instrumental in developing teachers’ understanding of the CS and programming strands of the curriculum.

The Computer Science Field Guide (csfieldguide.org.nz), developed by Professor Tim Bell’s team at the University of Canterbury, has provided the CS content in the form of an online interactive text book with content tailored to the requirements of the NZ curriculum.

University of Otago has produced teaching resources for teaching programming, and both the University of Canterbury and University of Otago now offer graduate level papers in CS education.

The NZ company, Code Avengers (www.codeavengers.com), has also developed online content to support DT teaching and learning programs. Other companies, such as Microsoft, Datacom, Telogis, and Catalyst, have put their support behind NZ DT education by providing sponsorship, outreach programs, and educational resources.

NZ also has a robust “Future in Tech” program (www.futureintech.org.nz), through which STEM industry ambassadors work with NZ schools to highlight STEM career pathways and mentor student projects. It truly has been a concerted effort of tertiary, industry, and the government to improve and support DT education in NZ.

Despite the shift in the senior secondary DT curriculum, there was no established curriculum for primary, intermediate, or junior secondary years. Thus, it has been challenging for schools to create a coherent pathway into these secondary programs. Students were not being prepared for the key ideas of DT they would encounter at the senior secondary level.

As a result of the NZ Government’s Science and Society Strategic Plan, A Nation of Curious Minds: Te Whenua Hihiri i te Mahara (www.curiousminds.nz), and the recognition of the importance of DT education as a key element for preparing students for future careers, Education Minister Hekia Parata, announced in July 2016 that DT is to be formally integrated into the NZ Curriculum and Te Marau-tanga o Aotearoa beginning in 2018.

Currently, work is underway to develop the key conceptual ideas that need to be embedded into the school years 0–10 “Learning Progression Framework” for DT. A curriculum design team, in consultation with teachers, students, industry, tertiary, and the DT Hangarau Matihiko Curriculum Reference Group, are developing the “big ideas” and mapping out the significant learning “signposts” which describe a student’s increasing understanding and application of DT knowledge and skills.

This work is a major step forward for DT education in NZ. However, there are barriers to the practical implementation of the curriculum changes that will need to be addressed if the changes are to be successful and have the necessary impact. The shortage of DT teachers who are adequately trained to deliver the curriculum learning objectives must be addressed through creating initiatives and pathways to become a DT educator.

Current in-service teachers will need to be supported through professional learning and development in the new learning progressions, as well as through development of quality teaching resources that support these strands. Funding to support the implementation of these new strands is critical.

To this end, the Government has offered an extra 100 Teach NZ Scholarships, worth $1.8 million per year, for science, technology, and mathematics subjects to lift the number of graduates in these areas. The Government has also put $1 million in funding for education and DT providers to develop engaging and innovative DT resources for teachers (www.edgazette.govt.nz/Articles/Article.aspx?ArticleId=9382). Although this is an excellent start, the support needs to be sustained if real change is to be effected.

NZACDITT has been instrumental in advocating for supporting these developments. Its executive members serve on the curriculum reference groups and are the links between the DT teaching community and government, industry, and community stakeholders. Although the next few years will offer major challenges, the members of NZACDITT are excited by the possibilities for positive change as we embark on the next phase of DT education in NZ.
CSTA MEMBER BENEFITS
CODIO SUBSCRIPTIONS
Daniel Moix and Stephanie Hoeppner

Have you been looking for a way to flip your classroom? Or do you need a strategy to differentiate instruction for various groups of students during a class period? These are challenges we all face. Codio offers solutions.

Codio is a web-based computer science (CS) teaching and learning platform. One of the cool features is the option to have a split screen where students and/or you can run a program (in Codio, no other IDE needed) and have a learning environment open at the same time. In the split screen, you can make changes to the code and rerun the program to observe the results. This interactive IDE, with a full learning management system, might be just what you need.

Thanks to a partnership with Codio that was announced at the 2016 Annual CSTA Conference, CSTA members have free access to the Codio platform for professional development. This means you can try it out for yourself to explore or learn a new coding language. Courses that introduce Java, Python, Assembly, JavaScript, HTML, MySQL, and Linux, are available now. Soon, a suite of middle school and high school courses aligned with the interim 2016 CSTA K–12 Computer Science Standards will also be available to you.

Because Codio is a web-based programming environment, you can connect to a robust set of development tools. Whether you’re programming in Java, Python, C++, or Flode (a visual flowchart language), the system allows you to create, debug, and run code. Anything you can do in Ubuntu Linux can be done in your browser through Codio. And web services with database backends can be configured with the push of a button.

With a paid plan, members can also use Codio with their students. You have the options of assigning one of the off-the-shelf courses provided by the platform, creating your own course, or assigning a mixture. Codio allows teachers to see live student progress through the classroom dashboard. With auto-graded programming assignments, teachers and students get immediate feedback, but teachers can also view the details of all student submissions.

If you have experience teaching CS and are comfortable in a digital-learning environment, you can author your own “Guides.” These are like pages of an online textbook that link to the programming environment, allowing you to introduce concepts and provide students with interactive experiences. Codio also has a rich assessment editor that connects to the classroom dashboard automatically, enabling meaningful and timely feedback to students.

Whether you’re just getting started as a CS educator or you’ve been teaching for years, we recommend you check out this membership benefit. To get started with a free Codio account with full access for professional development purposes, complete the form at: email.codio.com/join-codio-for-professional-development-csta.

THANK YOU, LISSA CLAYBORN

Lissa Clayborn resigned her position as Deputy Executive Director and COO of CSTA on January 30, 2017. We acknowledge her efforts, respect her decision, and thank her for her commitment and dedication to the CSTA community throughout the years.

Since her joining CSTA more than six years ago, Lissa made many contributions to our success, including serving as CSTA’s interim executive director from 2013 to 2015. It is sad to lose someone recognized for her warmth and energy in supporting our community. This is a loss for CSTA and the Board, staff, and members of CSTA, wish her the best of success in future challenges and endeavors.
Last fall, we released our latest findings from the second yearly cycle of the Google-Gallup K–12 computer science (CS) education research in two new reports: *Diversity Gaps in Computer Science: Exploring the Underrepresentation of Girls, Blacks and Hispanics* (goo.gl/PG34aH) and *Trends in the State of Computer Science in U.S. K–12 Schools* (goo.gl/j291E0).

In this second year, we surveyed 1,672 students (grades 7–12), 1,677 parents (of students grades 7–12), 1,008 teachers (grades 1–12), 9,805 principals (K–12), and 2,307 superintendents (K–12) during the 2015–16 school year.

We discussed findings from *Diversity Gaps in Computer Science* in the January issue of the CSTA Voice. In this article, we highlight the second-year findings from *Trends in the State of Computer Science in U.S. K–12 Schools*, which explores changes and new insights since the first year of the study.

The good news is that we found growth and positive perceptions. We were surprised to find that in this second year, 40% of K–12 principals report having CS classes with programming/coding, increasing from 25% in the first year. This represents a large growth of CS in schools. But, 40% is still not 100%. We still have work to do.

We also saw that the positive perceptions of CS learning and careers persist from the first year of the study. Eighty-four percent of parents said that CS is at least as important as required courses, like math, science, history, or English. In fact, 24% of parents said that CS is more important than the required courses. Similarly, most educators agreed on the importance of CS: 71% of teachers, 66% of principals, and 65% of superintendents said that CS is at least as important as required courses. Overall, 60% of teachers, principals, and superintendents said that CS should be required when available. Furthermore, 93% of parents agreed that offering CS is a good use of their schools’ resources.

Last year, we found that even despite these positive perceptions, administrators perceived that demand for CS was low. This second year, we asked parents and teachers about their expressed support. We found that few parents and teachers have specifically expressed support for CS education to school officials—less than 3 in 10 have done so, despite their high value of CS learning.

Among the barriers, we also saw that administrators did not prioritize CS in their schools or districts, with less than one-third of educators reporting that CS is a top priority. Another barrier cited by administrators was lack of demand for CS. Furthermore, principals and superintendents who did not offer CS in their schools or districts most commonly cited lack of qualified teachers available at their school (63% of principals and 74% of superintendents), lack of money to train or hire a teacher (55% of principals and 57% of superintendents), and the need to devote time to other courses related to testing (50% of principals and 55% of superintendents) as barriers. Opportunities exist to support CS in schools:

- First, ask parents and students for their opinions on the types of CS learning opportunities they would like to see.
- Second, despite the barrier of lack of qualified teachers, we found that nearly 6 in 10 teachers are willing to spend their own time to learn about CS—take advantage of this interest to support professional development opportunities for teachers.
- Third, with competing testing priorities in schools, we found 7 in 10 administrators think it’s a good idea to incorporate CS into other subjects at school. With the application of CS to nearly every field, there are endless ways to integrate CS into existing priority subjects (for examples, see: g.co/computationalthinking).
- Finally, as teachers, principals, and superintendents, make your voice heard by advocating for CS at your schools. By championing CS on the ground, many stellar educators like you have started CS at their schools, from scrappy and humble beginnings, such as a small lunch-time offering, and progressing to a series of CS courses.

Find more CS education research and resources at: g.co/cseduresearch.
OUT AND ABOUT THE COMMUNITY
PARTNERSHIP CREATE A CS ASSOCIATE DEGREE

Laura O’Donnell and April Schermann

Bloomington-Normal, Illinois, is a unique suburban region in the center of the state. Home to State Farm Insurance and Country Financial, as well as the Illinois State University, Illinois Wesleyan University, and Heartland Community College, area residents place a strong emphasis on education.

It was that focus on education that caused State Farm Insurance to approach the McLean County Unit 5 School District to begin dialogue around future workforce needs. State Farm is projecting that many current employees will retire soon, and that there will be many computer science (CS) related positions available—both in Bloomington-Normal, as well as in their hub areas of Atlanta, Phoenix, and Dallas.

The initial conversations centered around the creation of a “pipeline” that would result in high school graduates being interested and possessing a foundational skill set in CS.

The conversations led to a community-wide focus on STEM-based curricula. The Economic Development Council began to lead this initiative throughout the region while State Farm assisted. State Farm worked with technology and math teachers to assign professional mentors to groups of students with CS-related interests, as well as interests in engineering and digital media. These mentors worked with students on projects throughout the year. Students also visited State Farm for various exposure events and problem-solving activities.

At the same time, Unit 5 was adding CS courses to course offerings, as well as enhancing dual-credit course options with Heartland Community College. Unit 5 Superintendent, Dr. Mark Daniel, has marketed Unit 5 as a “destination district” and he encouraged staff to look for innovative curriculum that will attract families and students to the district. After reading about and visiting several innovative schools in the Chicago suburbs, the district made a proposal to Heartland Community College to partner on an accelerated associate degree in CS. This would result in students earning a high school diploma and an associate degree in CS during their four years of high school.

There are currently many students that enroll in dual credit and/or Advanced Placement courses during their junior and senior year. The district’s interest was in packaging advanced courses in a way that would lead to a concentration in one area as opposed to simply accumulating college credit/hours that may or may not lead to a specific degree or major. Given the employment opportunities within the CS career cluster and our expanded course offerings, it made sense to start the associate program with a CS emphasis. The program will be a cohort-based program starting with a group of freshmen. The coursework during their freshman and sophomore year will be like that of other freshmen and sophomores, except for the electives. These students will be clustered in the same homeroom, be part of a STEM group led by a designated STEM coordinator, and participate in STEM-based competitions throughout the year. Frequent visits to the Heartland campus and having a specified Heartland academic advisor will be part of the experience.

Students will be taking coursework on the Heartland campus between their sophomore and junior years. Ultimately, students will take eight courses at the Heartland campus and the remaining college-credit hours will be earned through dual-credit and Advanced Placement courses offered within our high schools.

Heartland will work with Unit 5 to strategically block schedule the needed courses at the beginning or end of the school day so that students will make only one trip to Heartland each day. Families will only pay tuition for courses taken on the Heartland campus. Students will also be involved in summer CS internships starting as early as the summer after their sophomore year.

The goal of this program is to graduate students that have obtained an associate degree and can either seamlessly continue to a bachelor’s degree program or begin working in an entry-level CS position. The program is the result of a local business impetus to create a pipeline of potential employees with CS knowledge and skills.
CodeSpells is an independently produced game in which you can craft your own magic spells by writing code. Computer science (CS) educators might remember CodeSpells back when it was an academic prototype at the University of California, San Diego. It was featured in WIRED. After founding their own edtech company, ThoughtSTEM, the graduate-student creators of CodeSpells began, in late 2014, to develop a polished video game out of their academic prototype.

Today, CodeSpells has a community of a few thousand users on Steam. The game allows players to explore coding in a very “physical” way by manipulating the world around them. Although some users play it purely for fun, we think it has untapped potential as a teaching tool. To that end, we are seeking CS educators to help pioneer the use of CodeSpells in educational settings.

In our experience, students are drawn to the visuals and high-production value of CodeSpells. Students tend to be excited about the idea of “learning to be a wizard” and “magic.” What CodeSpells lacks, however, is curriculum and learning resources.

On the bright side, CodeSpells has several features that make it compelling for classroom use:

- An embedded IDE allows for both Blockly and JavaScript coding. The code-test cycle is smooth and fast. If users know what they’re doing, it’s easy to write and cast a spell and go back to editing it.
- The API documentation is embedded.
- Users can access a list of over 1,000 spells created by other CodeSpells users and publish to the list.
- The game supports multiplayer gameplay, which can allow users to collaborate or compete using the spells they’ve written.
- There is an in-game level editor that enables users to create pedagogically-relevant, multiplayer spaces.

If you are a CS educator who likes to pioneer new software, then we are asking for your help. We will happily make copies of CodeSpells available to you and your students for free. If you would be willing to produce any of the following while you teach with CodeSpells, we would be grateful:

- Resources for other teachers who might be interested in using CodeSpells in classrooms.
- Text-based or video tutorials for CodeSpells users. We could potentially link to this material within the game, if you are interested.
- The ability to create custom levels and spells to accompany your curriculum.
- Participation in our online CodeSpells forum. We’ll make a space especially for CodeSpells education pioneers.
- Feedback and correspondence with the design team.

A good starting point for learning more about CodeSpells is our website: codespells.org. For more information or to request access keys to use in your classroom, email my co-founder, Dr. Lindsey Handley (lindsey@thoughtstem.com). We look forward to collaborating with you!

LEARN MORE:

- multidimensionalgames.com
- stephenfoster.us
Learning when, and how, to use variables in coding is difficult for young students. It involves a certain level of abstraction that is not easy to grasp. However, learning to use variables represents a critical step in learning to code independently. From my experiences as a math teacher, I recognize that this is the same concept that makes algebra hard for some students. I think the effort in learning to use variables in coding can directly help in math class.

I usually introduce variables in coding with their use in storing information. For example, a “MyScore” variable can be used to store the score in a game. This works, but it is just the beginning, and will not help a new programmer see the need for variables in other cases. In my middle school computer science class, I provide many small projects that are best solved with variables, with the hope that students will come to appreciate their use and find the next use on their own.

In a recent lesson for sixth graders, I asked students to make a 30-second timer in Scratch. In a successful program, students click on the Green flag and 30 seconds later the cat says “Time is up,” changes color, and jumps up and down. This first part is typically easy for them.

The next challenge was to show the count down from 30 to zero. The cat had to say 30, 29, 28… As I expected, students were either stuck or they did what I was hoping for—they coded a long list of “say” statements. It took students considerable amount of time to set up the 30 “say” blocks. I stood by, watching as they used copy/paste to speed up the process. When finished, they proudly showed their working program.

However, I could see that many students understood that there had to be a better way. During the last 10 minutes of the session, we shared solutions. A few students in each class showed code that used a variable (or in some cases, I had to guide the class to see it). Students who had done the 30 “say” statements were impressed with the simpler elegant solution. It was the “a-ha” moment teachers love, and hopefully a fall-in-love-with-variables-in-coding moment.

To ensure that students appreciate the power of variables, do not tell them what to do. Let them code it the long, hard way first. Then, let them see how much easier it is when they can abstract the task using a variable. Show them how the same code is not just shorter and more elegant but so much more flexible. It is important to give students plenty of small projects to appreciate the power of variables.
Karen Peterson, CEO of the National Girls Collaborative Project (NGCP), went “down under” in August to help spread the message of great ways to engage girls in science, technology, engineering, and mathematics (STEM) during National Science Week in Australia.

The NGCP is celebrating 14 years of bringing together organizations throughout the US that are committed to encouraging girls to pursue careers in STEM. The goals of the NGCP are to:

• Maximize access to shared resources within projects, and with public and private sector organizations and institutions interested in expanding girls’ participation in STEM.
• Strengthen capacity of existing and evolving projects by sharing exemplary practice research and program models, outcomes, and products.
• Use the leverage of a network and the collaboration of individual girl-serving STEM programs to create the tipping point for gender equity in STEM.

The tour to Australia was sponsored by the GoWEST group (Go Women in Engineering, Science including Mathematics, and Technology) at the University of Southern Queensland (USQ). It was organized by GoWEST member Dr. Lindy Orwin, who was the ISTE 2006 Outstanding Leader and is currently based in the School of Teacher Education and Early Childhood at USQ.

The aims of the tour were threefold. By sharing the exemplary practices of the NGCP, the professional development events built the capacity of participants to increase the effectiveness of their individual initiatives to support girls in STEM. Secondly, the tour created opportunities for groups and individuals to explore the opportunities for collaboration and resource sharing created by the NGCP in the US and investigate the viability of establishing an Australian “Collaborative” through NGCP-Global. Thirdly, the tour stimulated research that will address the challenges to participation in STEM activities and education faced by girls in rural, regional, and remote communities. Lindy is conducting an Anticipatory Action Research program aimed at creating the future for Girls’ ESTEAMME (ESTEAMME = Entrepreneurship, Science, Technology, Engineering, Arts, Maths and Maker Education) in rural, regional and remote Queensland.

During the tour, Karen Peterson led presentations and workshops for six events. In the TV studio with a live audience, she presented in the USQ Salon series with an overview of the NGCP and its work, with a focus on collaboration (recording available at: www.usq.edu.au/learning-teaching/USQSalon/2016/peterson).

Karen was a guest speaker for Blue Stocking Week, an initiative of the National Tertiary Education Union’s Women’s Action Committee, with a focus on the themes of women’s intellectualism, advancing feminism through education, and rebelling against social constructs that prescribe roles for women.

She addressed the USQ Women’s Network luncheon where she shared the story of the “FabFems” directory, a global database of women in STEM professions who are inspiring role models for young women. Working with marine ecologist, artist, and visual communicator Dr. Sue Pillans, Karen hosted a hands-on session in the USQ MakerSpace exploring how to make MakerSpaces more girl-friendly—and we don’t mean by adding glitter and pink paint. Dr Pillans shared her recent work about tagging and tracking endangered whale sharks and turtles.

A workshop held at the Springfield Campus of the USQ engaged public librarians, teachers, pre-service teachers, people from HackerSpaces, and girl-serving programs in activities to build their capacity. The topics included Collaboration 101, Collaboration Networking, and the SciGirls Seven research-based strategies for engaging girls in STEM.

Karen was a guest on the Australian Council for Computers in Education Learning Network (ACCELN) Hangout on Air (recording available at: youtube.be/WDJTdtT1KgA). ACCE is an ISTE Affiliate. A lively discussion was held about how to engage more girls in STEM, with a special emphasis on digital technologies, as Australia has just released a new

Lindy Orwin and Karen Peterson

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DIVERSITY MATTERS
NATIONAL GIRLS COLLABORATIVE PROJECT: A MODEL FOR AUSTRALIAN COLLABORATION
national curriculum with a focus on creating digital solutions. The Digital Technologies curriculum has two strands:

- Digital Technologies knowledge and understanding—the information system components of data, and digital systems (hardware, software, and networks).
- Digital Technologies processes and production skills—using digital systems to create ideas and information; define, design, and implement digital solutions; and evaluate these solutions and information systems against specified criteria. More information at: www.australiancurriculum.edu.au/technologies/digital-technologies/rationale.

The last workshop for Queensland STEM Education Network included STEM officers from all of the universities in Queensland. They explored the tools of the NGCP and identified opportunities for bringing services to girls in rural, regional, and remote communities.

The success of the NGCP model for collaboration between girl-serving STEM organizations is unprecedented in the US, with 32 Collaboratives serving 40 states, facilitating collaboration between 22,800 organizations who serve 16.35 million girls and 8.5 million boys. It’s not surprising that Australia is not the only country interested in exploring ways to initiate a Collaborative to achieve the kind of success in relation to girls engaging with STEM.

CONTACTS
- Karen Peterson (kpeterson@ngcproject.org, Twitter @kpeterson)
- Dr. Lindy Orwin (Lindy.Orwin@usq.edu.au, Twitter @LindyMac)
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MIDDLE SCHOOL STRATEGIES
LEARNING TO LOVE MATH WITH CODING
Dawn DuPriest

“Can I show you what I made?”
“Can I show you what I made?”
“Can we work more on this tomorrow?”
“Can we share our work with the class?”

You would never believe these student quotes come from an algebra lesson, but they do! Middle school students can engage in creative fun when they use coding to further their understanding of mathematics.

The middle school years are important years in math education. Students learn about using symbolic representations of numbers in algebra expressions. Ratios and proportions are key ideas, with students spending a lot of time on unit rates and percentages. They grow in their understanding of geometry as they learn about surface area, volume, circle geometry, similar triangles, and the Pythagorean Theorem. Symbolic representations, algorithmic thinking, and formulas are central ideas to computer science (CS) as well, and programming is a creative art that allows students to make their own mathematics and have fun doing it.

When I introduce variables in my sixth grade CS classes, we start by comparing the ways in which we see variables in science class, math class, or daily life. A CS variable is slightly different from the kind students see in math class. It’s a named storage location for information. Students can create and name this storage space, put information in, or read and use the information already there.

We examine a sample problem they might see in math class. “Dana is twice as old as Ben was three years ago. Ben is 10. How old is Dana?” We discuss together how old Dana would be if Ben were 15, or 20, or “b” years old. Next, we assemble this program together in Scratch.
At this point, many students get genuinely excited as they test different values and realize it’s cool to be able to solve any problem you want with this structure. You can bring the ideas of domain and range into the discussion.

What’s the largest age for Ben that makes Dana’s age reasonable? What’s the smallest age for Ben that gives you a reasonable age for Dana? At what point are they the same age? What happens if you enter “pizza” instead of an age? Even before the students are in algebra, you’ll be surprised how many can find the inverse function to re-structure the program such that you type in Dana’s age and it gives you Ben’s.

Whatever middle school math topic you teach can then be adapted to become a coding lesson. Find your favorite word problems involving rates, ratios, surface area, volume, linear equations, or percentages. Challenge the students to adapt the word problem into a computer program. Encourage creativity and a little humor. This is one of my favorites:

Patrick and SpongeBob are going shopping. SpongeBob needs snail chow and Patrick needs Krabby Patties. Each box of snail chow costs $2.19. Each Krabby Patty costs $6.25. The cashier should ask how many boxes of snail chow and how many Krabby Patties they want and store the amounts as variables. Tell SpongeBob and Patrick how much they owe.

Here is a solution to this problem two of my students created in a pair-programming activity: scratch.mit.edu/projects/141918135.

Scratch is a great programming environment for middle school students. The coding and thinking are rigorous, but they can still play with characters, artwork, storytelling, and sound. Consider adapting the problem to add tax or take a percent discount. Calculate the volume of a swimming pool given its length, width, and height. Find the roofline of a house given its truss width and height. Find the number of trips you’d have to walk around a circular track to cover a given distance. Students can add personality and fun to the assignment while tackling math and learning how to model a word problem as an algorithm.

In one clever twist to this idea, Caitlin Duffy challenged her middle school math class to solve a two-step equation using variables and an algorithm they created. After learning how to solve an equation with the structure “ax + b = c” using Hopscotch, students created their own program to solve their choice of a two-step equation. She described the activity in her blog (duffduffmath.wordpress.com/2017/01/14/coding-in-6th-grade-math). I plan to try her lesson with my middle-schoolers and can’t wait to see how they tackle it.

Students are taught to use algorithms all the time, but I find they seldom get a chance to write their own algorithm and use creative expression in their mathematics. There can be many approaches to solving a word problem; comparing their friends’ solutions to their own can make connections.

Talk with the math teachers in your school about what they feel are the most important topics for middle school. You may find opportunities to collaborate on a project and learn a new application of coding that your students will love.
This is your opportunity to meet the ten candidates running for the five open 2017–2019 CSTA Board of Directors positions. In addition to working with the Executive Director in setting the organization's direction, Board members carry out many of CSTA's operational tasks through committees. As in past years, the election will take place online using the ElectionBuddy voting system. On February 22, all current CSTA members should have received an email from ElectionBuddy with a personalized link to the ballot. If you have not received your email, first check your spam filter, then contact: customerservice@csteachers.org.

K–8 REPRESENTATIVE

Mellissa Sanchez

*Personal statement*

My mission as an educator is to inspire students to connect with their passion, equip them with tools to create new knowledge, and encourage them to use this knowledge to contribute to our world in a meaningful way. No matter what field of study our students choose, a strong understanding of computer science (CS) concepts and skills will be necessary for them to successfully navigate complex problems and collaborate with others to develop innovative solutions. I am a strong candidate for the K–8 CSTA Board Representative position because I recognize the responsibility all teachers have to teach CS concepts and skills in the primary and intermediate grades. I have effectively integrated CS concepts into my instruction and this experience will help me be a powerful advocate for other CS teachers.

*What experiences and/or interests in K–12 CS/information technology (IT) education qualify you to serve as a leader for the organization?*

I am an elementary librarian and I am passionate about exposing students to CS concepts and skills at a young age. I teach grades K–5 and reach every student in the school every week. I sponsor the school’s coding and robotics clubs and have established a makerspace in our library where students work with littleBits, Hummingbird Duo kits, Makey Makeys, Snap Circuits, Spheros, Bee Bots, and more. I have conducted coding & robotics workshops, locally and internationally, with the support of industry partners, and provided professional development on a regular basis for district librarians across the state.

*What previous experience do you have with CSTA?*

I attended the 2015 and 2016 CSTA conferences. At the 2016 conference, I presented a Birds of a Feather session on CS Learning Centers in the Elementary Classroom.

*What leadership skills do you have that would enrich the Board and the organization?*

I have over 13 years of leadership experience having served as an officer in the United States Air Force, a Team Leader on a K–5 public school campus, a Standards Board Committee Member for a national sorority, and an Academic Advisory Committee Member for a school district with over 75,000 students. As a leader in K–12, university, and community settings, I have demonstrated the ability to collaborate with diverse counterparts, communicate effectively, and inspire others to accomplish organizational goals. These leadership skills are essential in advancing the mission of CSTA and my experiences will support key CS initiatives.

*What do you think are the most important issues for K–12 CS education?*

Advocacy, access, equity, and professional development are the most important issues for K–12 CS education. Information on the importance of this subject is needed across all states and districts. All students need access to CS classes and special attention should be given to ensure equitable access to equipment and opportunities for advancement for our students within the CS fields. Finally, research-based professional development should be available to all teachers regardless of academic specialty. These areas combined provide our communities, schools, and staff the tools needed to equip our students for the future.
Vicky Sedgwick

Personal statement
I have been excited to see the expansion of CS into the K–8 learning space through the work of CSTA and initiatives, such as the Hour of Code, the K–12 CS Framework, and #CSforAll. I believe that in our world today, providing the opportunity for all K–8 students to learn and create with CS is just as important as teaching them the current core curriculum subjects. I feel that my experience with the CSTA standards, both in creating a curriculum for my students and in helping to revise the 2011 standards, combined with my advocacy for CS through conference presentations and my involvement with the #CSK8 biweekly Twitter chats, makes me a strong candidate for K–8 Representative.

What experiences and/or interests in K–12 CS/information technology (IT) education qualify you to serve as a leader for the organization?
I wanted my students to do more than just learning to type and how to use productivity software in their technology classes, so in 2012, I added computer programming to the curriculum for my middle school students. After finding the 2011 CSTA K–12 CS Standards, I expanded the curriculum to include additional CS concepts and added classes for my upper elementary students. Since 2015, all of my K–8 students take CS classes for at least one quarter of the school year. I have advocated for CS by presenting on CS topics at technology events and conferences since 2013.

What previous experience do you have with CSTA?
I served on the 2016 CSTA Standards Revision Task Force as a member of the K–5 Standards team. I am currently a member of the K–5 Standards team on the 2017 CSTA Standards Revision Task Force. I am also currently serving on the 2017 CSTA Conference Committee. Additionally, I am a member of the K–8 Task Group and help to moderate bi-weekly #CSK8 Twitter chats and the CSTA K–8 Community on Google+. I use the CSTA K–12 standards when curating resources and creating CS lessons for my students.

What leadership skills do you have that would enrich the Board and the organization?
Working at a small school, with a very limited budget, I have learned how to be innovative in analyzing issues and finding and implementing solutions to problems under time and budget constraints. I can be counted on to persevere and get things done on time, as evidenced by my work on the CSTA Standards Revision Task Force. I communicate well and enjoy advocating for CS by presenting sessions and workshops at technology events and helping to moderate the bi-weekly #CSK8 Twitter chats.

What do you think are the most important issues for K–12 CS education?
In my opinion, the most important issue facing K–12 CS education today is the lack of trained teachers. We cannot possibly achieve CS for all if there are not teachers to teach it. There needs to be a way to train existing teachers to teach CS, especially at the elementary level. In elementary schools, the classroom teacher may teach all subjects and there needs to be a way for these teachers to become proficient at teaching CS and knowing how to evaluate and curate the best CS resources for their students.

9–12 REPRESENTATIVE

Derek Babb

Personal statement
Years ago, I would have identified as a CS teacher. Today, I see myself as a CS teacher, recruiter, ambassador, and advocate. I really enjoy teaching CS and am impressed by the creative, innovative, and interesting work of students, but I have become more passionate about spreading CS to all schools and all students. The fact that a majority of students don’t have access to quality CS in their schools, the fact that many students who do have access to CS don’t see it as a place for them, is a tragedy that we need to fight. As a member of the CSTA board, I would continue the important work of expanding CS, developing high-quality standards, and creating a community of teachers passionate about CS.

What experiences and/or interests in K–12 CS/information technology (IT) education qualify you to serve as a leader for the organization?
I have taught CS for 11 years with a variety of classes, includ-
ing computer repair, intro programming, CS Principles, Advanced Placement CS A, cyber security, and a capstone CS course. I have taught in suburban schools and currently in an urban magnet school. Additionally, I have taught CS Principles as an adjunct professor at the University of Nebraska–Omaha for the past year. My experiences give me a broad perspective on CS education. I have also written state and district CS standards and served as a writer of the K–12 CS Framework.

What previous experience do you have with CSTA?
We founded a local CSTA chapter 5 years ago. I have been fortunate enough to serve as president of the chapter for two years and have served in other capacities too. I have attended national CSTA meetings and have been actively engaged with CSTA news, social media, and advocacy materials. As a state writer of CS standards, I relied heavily on the CSTA K–12 CS Standards document and have found resources like “Bugs in the System” and “Running on Empty” to be great tools for motivating the need for more CS in my school, district, and state.

What leadership skills do you have that would enrich the Board and the organization?
Increasingly, I have found myself in the role of advising schools, teachers, and districts on adding or expanding their CS offerings. In my district, I have coached new CS teachers through their first year and recently, I talked with administrators from another district about how they might start and grow CS in their schools. I was a writer for the K–12 CS Framework and served as the team facilitator for the Data & Storage team. In all of these leadership roles, I have relied on my ability to work with people and bring a variety of needs and ideas together.

What do you think are the most important issues for K–12 CS education?
There are two major issues facing CS education today. The first is the lack of exposure to CS for most students. Not knowing what CS is, and what a CS professional does, is keeping potential CS majors out of the profession. The second issue is the quality of education. CS is not dull, but many of our classes are. Students need to see CS as a tool to change the world, to make life better, and to solve challenging problems. This takes experienced, excited, qualified teachers and professional networks where teachers can go for advice, ideas, and inspiration.

Doug Bergman
Personal statement
I have had a single goal every day of my 20+ years of teaching: to further the reach of CS. I have been active through numerous media in getting CS in front of people, including conference presentations, panel discussions, online discussions, interviews, BLOG posts, webinars, radio commercials, lectures, city council meetings, magazines, newspapers, and even, TV. I’ve seen and learned many things in my career as CS teacher and developed a high level of confidence in my beliefs and my skills as an educator—that merged with my passionate and energetic personality means I am capable, willing, able, determined, and excited to be at the forefront of one of the most powerful movements of recent education history.

What experiences and/or interests in K–12 CS/information technology (IT) education qualify you to serve as a leader for the organization?
I have created a 4-year high school CS program which has increased in enrollment every year since its inception. The percentage of females has increased by 30 percent. I’ve presented at regional, state, national, and international conferences. I’ve been honored with awards from NCWIT and Microsoft. Numerous students in my program have been recognized nationally for their accomplishments. Project Based Learning (PBL) is something I believe in and I’m eager to help others see how PBL fits into CS education in new and creative ways, reaching students whom we have not before, in ways we have not before.

What previous experience do you have with CSTA?
I was one of the founding members of the South Carolina chapter of CSTA. During that year, I assumed the role of president and we increased enrollment tremendously and held several meetings (with speakers) which were broadcast live across the state. I have attended multiple CSTA conferences, submitted several proposals for presentations, and also been honored to have presented in Grapevine, Texas, two years ago.
What leadership skills do you have that would enrich the Board and the organization?
I am incredibly passionate and energetic. I am far enough along in my career that I have tremendous amounts of confidence and experience, but yet young enough that I still have tremendous ambition and energy. I am a product of public education K–16, yet I have worked in private education for 20+ years, so I understand both education systems in depth. I have lived and attended school in multiple countries and worked in schools both in the US and overseas. That unique background allows me to look at problems and opportunities in ways that others might not see.

What do you think are the most important issues for K–12 CS education?
PD for beginner teachers, PD for advanced teachers, a national honor society, award recognitions for students and faculty, opportunities for student leadership, regional workshops, connections in business, improving CS education at all levels, including elementary, middle, high school, and higher education, helping schools develop internship relationships, speaker series, and even curriculum development. Let's reach into schools around the country to find out and hear what is working in schools. This helps the US develop better CS programs with different types of pedagogies and learning environments—allowing us to reach additional different populations.

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Daniel Moix
Personal statement
As a new CS teacher, I felt like I was the only person in the world facing the challenges CS teachers face. The professional development opportunities, research reports, and contacts made available to me through CSTA helped me overcome many of those challenges. CSTA's role in the coming years is increasingly critical as more states recognize the value of CS for all students and put in place policies which will impact our member teachers and their students. I'd like to do my part to ensure the viability and success of this organization so it can continue to support teachers old and new.

What experiences and/or interests in K–12 CS/information technology (IT) education qualify you to serve as a leader for the organization?
I’ve known since I was old enough to type that I wanted to spend my life “working with computers.” After earning a four-year degree in CS and working as a data manager for the state, I realized I was missing much of what I enjoyed about computing—sharing these tools and skills with others. Once an opportunity to teach CS became available, I took it. Through the alternative certification process, completing an education leadership graduate degree, and serving CSTA as a volunteer, I feel I’ve gained the skills and experiences that could benefit our organization.

What previous experience do you have with CSTA?
I joined ACM in college and became a member of CSTA during its initial year. As a Leadership Cohort (now CSALT) member, I’ve broadened my network of CS educators and become a more effective advocate, including starting the Arkansas chapter. I’ve served on committees, including the 2011 and 2016 Standards Revisions, the Assessment Landscape Committee, the CS Principles Summit, and the 2017 CSTA Conference. I’ve represented CSTA at conferences, including SIGCSE and the Grace Hopper Celebration.

What leadership skills do you have that would enrich the Board and the organization?
My biggest assets are the personal relationships that have grown from having worked with so many CSTA members and associates on past projects. Creativity, willingness to consider all possible solutions to a problem, and the ability to collaborate at a distance are also skills which I feel I could use to serve this organization. As a leader in my district, I mentor teachers who are new to CS. At the state level, I provide mentorship and professional development to teachers of all CS experience levels. Nationally, I have served on several committees, including the K–12 CS Framework.

What do you think are the most important issues for K–12 CS education?
Each district, state, and country faces a unique set of challenges, none of which can be tackled alone. First, we must
identify and convey to others exactly what CS is and is not. AP, ECS, PLTW, Code.org, and others all do this differently. Next, there must be a body of educators qualified to teach CS. Many states have no CS licensure area whatsoever. Without CS education programs, where will qualified candidates come from to obtain these licenses? Above all, we must work with district and school administrators to find an appropriate place within the curriculum to situate CS.

Bryan Twarek

Personal statement
Over the next few years, there will be a burgeoning number of CS educators, including many who are new to the field. The CSTA has a wonderful opportunity to act as their primary community and voice. I want to help the CSTA capitalize on this opportunity and provide meaningful professional development and connections for CS educators from across the world. I am excited to ask for your support in serving as the School District Member on the CSTA. I have the privilege of directing the expansion of CS education in San Francisco’s public schools, where we have committed to teaching all students from pre-kindergarten to twelfth grade. I believe my experience has prepared me to help support an even broader group of CS educators.

What experiences and/or interests in K–12 CS/information technology (IT) education qualify you to serve as a leader for the organization?
I manage PK–12 CS education for the San Francisco public schools (SFUSD), where I am working to expand rigorous, relevant, and engaging CS instruction to all students and all schools in the district. To this end, I oversee policy, curriculum development, and professional development. Additionally, I served as a writer and facilitator for the K–12 CS Framework (k12cs.org) and have acted as advisor to several CS research and curriculum development projects. I also train CS teachers of all levels, and I have taught CS at the middle school level.

What previous experience do you have with CSTA?
I currently serve as a team lead for the CSTA K–12 CS Standards Revision Task Force, and I was a writer for the 2016 interim standards. In October, I represented the CSTA by presenting a workshop for primary educators at the Global Software Education Forum in Seoul, Korea. I have presented at CSTA conferences, and I am a proud member of the Golden Gate chapter of the CSTA. I would be excited and honored to further my involvement with the CSTA.

What leadership skills do you have that would enrich the Board and the organization?
I am a hard worker who thrives with complex projects. I enjoy tackling large and sometimes nebulous problems, and I have experience creating compelling change in a complex system, as evidenced by my success in dramatically expanding CS instruction within the San Francisco Unified School District. I am also efficient, detail-oriented, and an effective collaborator. I work with others to find or develop creative solutions and utilize our collective resources to accomplish goals. I believe I could help the CSTA achieve laudable goals and have a great time.

What do you think are the most important issues for K–12 CS education?
Expanding CS access is paramount to disrupting the inequitable access to the computing workforce and CS education. Schools have the opportunity to change this unfortunate reality by teaching CS to all children, beginning in the earliest grades. The CSTA can facilitate this by:
• curating strong curricula and instructional resources,
• directing and coordinating effective professional development for teachers of all backgrounds and abilities,
• communicating relevant research and inclusive teaching practices,
• sharing effective models for CS expansion,
• creating advocacy resources to help convince various stakeholders and policymakers, and
• fostering community and resource sharing among CS teachers.
TEACHER EDUCATION REPRESENTATIVE

Lijun Ni

Personal statement
I am a computing education researcher and lecturer in the Department of Educational Theory and Practice at the University at Albany, State University of New York. My research interest focuses on CS teacher preparation and professional development (PD). I am on a leadership team of creating a CS teacher preparation program at my institution. We have recently built the first online graduate certificate program in computing education in the State of New York. It’s been my passion for research and service to understand the needs of CS teachers and provide quality and ongoing support for teachers, since 2008. I wish to expand my advocate and passion in supporting CS teachers through serving as CSTA’s Teacher Education Representative.

What experiences and/or interests in K–12 CS/information technology (IT) education qualify you to serve as a leader for the organization?
I conducted my dissertation work on examining how to prepare and retain high school CS teachers, through the lens of teacher identity. I designed and implemented a three-year PD program with a major focus on promoting teacher reflection and community building. This program has successfully supported the development of local communities for CS teachers in Georgia, including the creation of the local CSTA chapter, as well as developing both new and master CS teachers. Most recently, I’m working on a project that offers PD for middle school teachers to integrate computational thinking into existing curricular at two school districts.

What previous experience do you have with CSTA?
I am deeply committed to the CSTA’s mission of supporting CS education in K–12. My previous work and graduate study at GaTech had a major focus on training new teachers, developing master teachers, creating local communities of CS teachers, including supporting the creation of Georgia CSTA chapter, and building their chapter leaders. I have also served as a university supporter for the Capital District CSTA chapter (NY), which was recently created in March 2016. With my encouragement, my current academic department has recently joined the CSTA as an institutional member.

What leadership skills do you have that would enrich the Board and the organization?
I serve on a steering committee for building a CS teacher preparation program at my institution, collaborating with colleagues from school of education, CS, and informatics departments. I had some experiences as a project manager, coordinating a group of researchers and teachers. I took some leadership role as a co-conference chair in organizing a local statewide conference on computing education. I also engage myself in teaching with students of a variety of backgrounds, including in-service teachers, CS majors, and educational graduate students.

Jennifer Rosato

Personal statement
Every student in every school should be exposed to CS as part of their K–12 education—that is the heart of the CS for All movement. As the excitement around computing grows, we need to ensure no student and no school are left behind. As a professor, I have worked to develop pre-service and in-service CS teacher programs that embody those ideas. I strongly believe that CS for All starts by preparing teachers before they enter the classroom and by supporting them while they are in the classroom. I have worked collaboratively to lead
professional development on Scratch, Lego Mindstorms, App Inventor, and Mobile CS Principles. All of these are infused with best practices for engaging students from diverse backgrounds and address issues of equity.

What experiences and/or interests in K–12 CS/information technology (IT) education qualify you to serve as a leader for the organization?
I led the creation of a graduate program in CS education for in-service teachers that includes four courses: Computational Thinking, CS Principles, Programming & Teaching with Java, CS Methods. I now oversee the certificate, including course development, recommending adjuncts, and teaching the methods course. I also co-lead a project to integrate CS in our teacher preparation programs, including the development of a CS Education minor for undergraduates. As our faculty learn more about CS, I will be coaching them in their development of course modules and training them to conduct observations of student teachers in field placements.

What previous experience do you have with CSTA?
I co-founded the CSTA Gopher State Chapter and have been the University Liaison since it started. I was also proud to be a member of the CS Advocacy Leadership Team (CSALT). I have used and integrated many of the valuable CSTA resources (standards, reports, and other publications) in PD offerings that I have developed and provided.

What leadership skills do you have that would enrich the Board and the organization?
Just as all students should have access to a quality CS education, I believe that there are many stakeholders that should be a part of the conversation about K–12 CS. I strive to make connections between those stakeholders and help develop consensus among them. In my leadership roles at the college, on project teams, and with the CSTA Gopher State chapter, I work to make sure everyone’s voice is heard and a common understanding is developed. I will bring these leadership skills and my background knowledge in both CS and education to the CSTA Board.

What do you think are the most important issues for K–12 CS education?
CS is a rapidly growing discipline at the K–12 level with many challenges in ensuring teachers are prepared to teach it effectively. How do we grow the number of highly qualified CS teachers in a way that can meet the demand? How do we make sure teachers have content knowledge, as well as pedagogical content knowledge, to teach a diverse student population? How do we help make sure quality curricula are readily available for easy adoption? And finally, how do we make sure that all these components are sustainable and will become a lasting part of our educational system?

AT-LARGE REPRESENTATIVE

David Benedetto
Personal statement
We must broaden participation in CS to ensure that our children are informed citizens, are prepared to acquire living-wage careers, and can live productive, fulfilling lives. We don’t know what the future will hold, but we do know that computing will play a large role. I believe am a strong candidate because of my experiences which are discussed below. What makes me unique? I would say my broad range of interests and experiences. I am as interested in history and sociology as I am in science and math. This is reflected in my reading, in my academic pursuits, in the lessons I design for my students, and in my career path.

What experiences and/or interests in K–12 CS/information technology (IT) education qualify you to serve as a leader for the organization?
I work to expand CS education by forming partnerships such as our CS4NH coalition. This work gives me insight into the complexity of the problem. I am also a state leader for ECEP Alliance and a member of the National Advisory Committee for the upcoming national CS Praxis Exam. Prior to New Hampshire DOE, I established and coordinated a CS program at New Hampshire’s largest school, Pinkerton Academy. I earned my BS and MS in CS, and participated in
research, including bioinformatics, data visualization, and CS education. I hold a New Hampshire teaching certificate with endorsements in mathematics, physical science, and CS.

**What previous experience do you have with CSTA?**

I am a member of CSTA New Hampshire chapter, attend board meetings, and participate in activities. I attended the leadership summit at the recent national CSTA conference in San Diego, as NH’s chapter representative. In New Hampshire, I also attend board meetings for other professional organizations (science, math, technology integrators, etc.). I am the liaison between these organizations to promote communication and collaboration. This work is beginning to pay off, as New Hampshire’s math, science, and CS associations are planning to hold a joint conference in 2018.

**What leadership skills do you have that would enrich the Board and the organization?**

I work with many people with different beliefs, perspectives, and objectives. I need to truly listen to people and seek to understand them and incorporate their knowledge, but also remain focused and clear on our vision and mission. Those in the CSforAll movement understand the urgent need to move quickly, but the social structures in place are not built to rapidly adapt. This work requires patience and persistence. I make it a priority to stay healthy and happy. People respond to optimism and dedication, especially when balanced by a deep and realistic understanding of the challenges we face.

**What do you think are the most important issues for K–12 CS education?**

Broadening participation, for the following reasons (among others): First, it is a civil rights issue. More than a small segment of the population should have the opportunity to learn critical CS/CT skills and access an array of living-wage careers, now and in the future. The purpose of public education is to ensure equity of opportunity. Second, it is an economic issue. New Hampshire and the broader nation will never achieve our workforce and economic development goals unless ALL students have access to K–12 learning opportunities that help mitigate the digital knowledge and skills divide.

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**Todd Lash**

**Personal statement**

My affiliation with, participation in, and service to CSTA continues to be a transformative influence in my professional life. It is my wish to see CSTA continue to grow in its service, influence, and reputation as the preeminent organization to help meet the needs of new and established CS teachers, assist in the formation of policy, and advocate for CS education—locally, nationally, and internationally. The equitable proliferation of CS education in its own right, for economic reasons and for its ability to engender creativity and positive change across a myriad of educational domains, is an essential next step for our democracy regarding educational policy. I hope to be of greater service to that end with my nomination to this position.

**What experiences and/or interests in K–12 CS/information technology (IT) education qualify you to serve as a leader for the organization?**

Four years ago, I brought CS education to my entire K–5 building as a teacher, librarian, and CS instructional coach. I served as a CS-education liaison to our university partners, presented at school board meetings, and have given numerous professional development sessions in multiple school districts. I have presented at multiple conferences on various CS topics, I’m a Code.org facilitator, and currently a graduate research assistant in Special Education at the University of Illinois working on an NSF grant to create integrated learning trajectories in CS and math. I am also a K–12 CS Framework writer.

**What previous experience do you have with CSTA?**

I have been an active leader on the CSTA K–8 taskforce for the last three years, moderating and participating in growing our social media presence. I have attended multiple CSTA conferences and will be presenting three sessions at the conference this summer. I am also the K–5 lead writer on the CSTA Standards Revision team, which has allowed me the great pleasure of regularly interacting with CSTA leadership.
What leadership skills do you have that would enrich the Board and the organization?
Those that know me would say that I have tremendous energy, drive, and enthusiasm. I am a people person and easily work with all type of personalities. My work on the K–12 CS Framework is a testament to that. I have successfully led a school transformation, as noted above, and it is my great pleasure and honor to lead the CSTA K–5 Standards Revision team. Most of all, I am a learner as evidenced by my decision to return to school as a full-time doctoral student at 45.

What do you think are the most important issues for K–12 CS education?
Equitable access is the most important issue for K–12 CS education currently. While we have made great strides as a community, due much to the efforts of the CSTA, we have far to go. Within that challenge, there are others, including how best to prepare current and pre-service teachers, the development of research-based pedagogy for CS education, and continuing to build bridges to policy makers. To do this, we, as a community, must find a way to unite the various players and factions in the CS education community for the betterment of all.