**ANNUAL REPORT**

of the COMPUTER SCIENCE TEACHERS ASSOCIATION

For the Period: July 1, 2012 - June 30, 2013

Submitted by Chris Stephenson, Executive Director

Committee Chair's Name

**1. BASIC INFORMATION**

**1.1 CSTA Board**

Steve Cooper, Chair, Stanford University (2011-2013)

Deborah Seehorn, Chair -Elect, North Carolina DPI (2012-2014)

Dr. Valerie Barr, CT Task Force Chair, Union College (2012-2014)

Myra Deister, At-Large Representative, Sunny Hills High School (2012-2014)

Ria Galanos, 9-12 Representative, Centennial High School (2011-2013)

Patrice Gans, K-8 Representative, Fraser-Woods School (2011-2013)

Joanna Goode, School District Representative, University of Oregon (2010-2012)

Mindy Hart, At-Large Representative, Purdue University (2011-2013)

Michelle Lagos, International Representative, American School, Honduras (2012-2014)

Karen Lang, 9-12 Representative, Mass. Academy of Math and Science (2011-2013)

Tammy Randal Pirmann, School District Rep., Springfield School District (2012-2014)

David Reed, College Faculty Representative, Creighton University (2010-2012)

Stuart Reges, University Representative, University of Washington, (2011-2013)

Fran Trees, Chapter Liaison, Rutgers University (2012-2013)

**1.2 Mission Statement**

The Computer Science Teachers Association is a membership organization that supports and promotes the teaching of computer science and other computing disciplines. CSTA provides opportunities for K-12 teachers and students to better understand the computing disciplines and to more successfully prepare themselves to teach and learn.

**1.3 Standing Committee Chairs**

Certification and Standards: Karen Lang, Chair

Curriculum: Deborah Seehorn, Chair

Executive: Steve Cooper, Chair

Equity: Joanna Goode, Chair

Grants: Steve Cooper, Chair

International: Michelle Lagos, Chair

Membership: Mindy Hart, Chair

Governance: Myra Deister, Chair

Professional Dave Reed, Co-Chair, Ria Galanos, Co-Chair

Research: Judith Gal-Ezer, Chair

Chapters: Fran Trees, Chair

Computational Thinking Task Force: Valerie Barr, Chair

K–8 Task Force, Patrice Gans, Chair

**1.4 List dates of committee meetings**

November 3-4, 2012: Tucson, AZ

July 13-14, 2013: Quincy, MA

**2. PROJECT SUMMARY**

# **Organizational**

* Staffing: Hired new logistics staff person.
* *Nominations and Elections*: CSTA completed 2013 nominations and elections process.
* *Development of CSTA Local Chapters:* CSTA increased its support for CSTA teachers at the local level through the development of local chapters. There are now 46 CSTA chapters in 26 U.S. states and 2 Canadian provinces. This year CSTA has launched several initiatives to increase the capacity for regional chapters to provide peer-driven and peer-support professional development and to improve communications between chapter leaders to strengthen chapter leadership. Projects have included the development of a chapter PD event toolkit and a series of conference calls/online hangouts for chapter leaders in several states.
* *Policies and Procedures Manual* Revised and expanded.
* *Building Teacher Leadership*: CSTA’s Leadership Cohort provides support, resources and professional development for 60 CS teacher leaders in 36 states (with active recruitment in states not yet represented). A Leadership Workshop focusing on building local capacity for professional development and communities of learning was held October 2013 in conjunction with the Grace Hopper Celebration of Women in Computing.
* *International Outreach:* CSTA has continued to support and build affiliate relationships with similar CS*-*teacher serving organizations globally. In July 2013, the CSTA executive director moderated a panel presentation for association leaders from Australia, Israel, the U.K. and the U.S. at the 2013 ITiCSE Conference in Canterbury, U.K.
* *Building Partnerships Across the CS Educational Spectrum:* CSTA held two Birds of a Feather sessions at SIGCSE 2013 focusing on how to universities could build relationships with or start local CSTA chapters and how faculty writing grants that include K–12 outreach could use the *CSTA K–12 Computer Science Standards* and documents aligning the CSTA standards to other national and state standards. Both sessions were very well attended.
* *Partnership with National Computing Organizations:* CSTA has partnered with organizations such as the CCECC-ACM, the Anita Borg Institute (ABI), Code,org, the National Center for Women and Information Technology (NCWIT), the National Girls Collaborative Project (NGCP), the National Science Teachers Association (NSTA), SIGCSE and TechCorps.

**Membership**

* *Growing CSTA Membership:* CSTA membership continued to grow in 2012-13 from 10,986 to 13,966 representing a 27% increase in overall membership. CSTA has continued to grow its institutional membership program with a redesign of membership fees and benefits, a new online payment system, and the development of plans for an aggressive marketing campaign to be carried out in 2014.

# **Funding**

* *Financial Review*: The Board CSTA Board completed its fiscal review of the operations, revenue, and expenditures for FY12-13 and the budget for FY 13-14.
* *Funding Sources*: In FY 2012-2013, CSTA secured the following corporate and institutional funding:

|  |  |  |
| --- | --- | --- |
| Amount | Source | Purpose |
| $250,000 | ACM | CSTA Operations |
| $60,000 | ACM SGB | Chapter Mini-Grant Project (beginning 2013) |
| $250,000 | Google | CS10K Project |
| $25,000 | Microsoft | Annual Gold Level Sponsorship |
| $25,000 | Microsoft/Research | CSTA Conference Sponsorship |
| $50,000 | Microsoft | Special Projects Fund |
| $25,000 | Oracle | CSTA 2013 Conference Sponsorship |
| $10,000 | Oracle | Annual Silver Level Sponsorship |
| $15,000 | Oracle | Chapter Workshop Project |
| $10,000 | ABI | CSTA 2013 Conference Sponsorship |
| $500 | BirdBrain Tech | CSTA 2013 Conference Sponsorship |
| **$720,550** |  | **Total** |

We have secured the following grant funding:

|  |  |  |
| --- | --- | --- |
| Amount | Source | Purpose |
| $50,000 | NSF CISE | ECEP Leadership Cohort Workshop |
| $30,000 | NSF MSP | For MOBILIZE PD |
| **$80,000** |  | **Total** |

# **Research**

* *Bugs in the System: Computer Science Teacher Certification in the U.S.:* This report is the result of an 18-month research study to determine the requirements for K-12 computer science teacher certification/licensure in every state and the District of Columbia. It includes a report card for every state detailing the certification requirements for middle and high school, as well as whether computer science courses are requited or count toward a graduation credit. The report will be officially released in September.
* *2013* *National High School Computer Science* *Survey*: The results of the 2013 survey of more than 14,000 CS teachers were collected and tabulated. These results, as well as the composite results from 2005 through 2013 are available on the CSTA website (<http://csta.acm.org/Research/sub/HighSchoolSurveys.html>) and are being shared with the broader community via the CSTA *Voice*, and researcher briefings.
* *CSTA 2013 Annual Research Report*. CSTA partnered with NRCUUA to produce this report. It provides extensive data regarding students’ current and intended computer science course choices and experiences. It also provides extensive data on differing educational opportunities and barriers in urban, suburban, and rural schools. This report provides a useful comparison for CSTA’s own national surveys.
* *Participation in Partner Research:* CSTA has worked closely with several major research projects including the University of Chicago’s Center for Elementary Mathematics and Science Education (CEMSE) and the Urban Education Institute (UEI) Teacher Capacity Study and Professional Development Landscape studies. CSTA reviewed early drafts of the survey instruments, used its practitioner channels to promote and encourage participation in both of these surveys, and provided feedback (verbal and written) on the results.

# **Policy and Advocacy**

* *Policy and Advocacy Work* CSTA has been deeply involved in Computing in the Core coalition efforts to increase access to rigorous computing courses for all students, including:
  + Advised Urban Education Institute researchers regarding professional development landscape and teachers readiness studies
  + Participated in Microsoft *Race to the Future* panel in Washington DC. This event generated significant press coverage for CSTA.
  + Participated in the Change the Equation *STEM Salon on Computer Science Education* in Washington DC and posted video of complete panel on CSTA website.
  + Participated in the CS Education Week panel hosted by the Education Caucus and met with staffers from several federal programs.
  + Met with Senator Merkley of Oregon to discuss STEM education issues including Perkins funding.
  + Met with legislative staff re impact of highly qualified requirements in NCLB.

**Standards:**

* *Demonstrating Alignment to Other National Standards:* CSTA published a series of documents showing the alignment between the CSTA K-12 Computer Science Standards, the Common Core Standards, the 21st Century Skills Partnership Standards, and the STEM Cluster Skills (http://csta.acm.org/Curriculum/sub/K12Standards.html).
* *Sharing Aligned Curricula:* The Standards Committee worked with several organizations and schools to provide examples of aligned curricula and resources which can be downloaded from the CSTA website (<http://csta.acm.org/Curriculum/sub/K12Standards.html>).
* *Sharing Information on CSTA Standards:* CSTA staff and volunteers offered informational presentations on the CSTA standards at several events including a Birds of a Feather session at SIGCSE 2013 and at several CS4HS workshops.
* *Supporting the AP CS Principles Course Development and Adoption*: CSTA has been involved in many efforts directed at improving the participation of all students in the AP CS exams. Recently, these efforts have focused on disseminating information about elements of the new AP CS Principles course development project with teachers via CSTA media channels and developing tools to help teachers communicate the importance of the new Principles course.
* *Next Generation Science Standards:* CSTA conducted and submitted an extensive review of drafts of the Next Generation Science Standards. CSTA executive director served as one of the primary authors on a paper entitled *Exploring the Science Framework: Computational Thinking* to be published in Science Teacher magazine, 2013, in press).

# **Communications**

* *CSTA Website:* CSTA runs and maintains a comprehensive website for K-12 computing education ([http://csta.acm.org](http://csta.acm.org/)). The site provides users a wealth of resources and information: learning standards, curriculum materials, periodicals, presentations, and research reports. The site also functions as a community board for the sharing of announcements about computer science organizations, academic programs, workshops, and summer camps. This year, CSTA has continued to improve the usefulness and relevance of its website with the addition of new standards, research reports, resource links, and publications. In 2012-2013, there were 77,183 visits to the CSTA website for a total of 191,601 page views. There were 31,124 new visitors and 18,675 returning visitors.
* *CSTA Voice*: CSTA publishes the CSTA *Voice* six times per year. This year, the *Voice* has focused on key concerns in K-12 computing education, including: addressing equity issues in CS education, putting computing in the core curriculum, preparing students for tomorrow’s careers, using gaming to teach computer science, CS Education Week, and the 10K teachers project. Each issue of the eight-page publication also contains several regular columns, including: Classroom Tools, Research Review, and Colleague Connection.
* *Advocate Blog*: The *Advocate* blog continues to serve as a more immediate and informal channel for information sharing. Topics covered in the blog vary greatly, but all postings are intended to inform teachers about cutting edge research initiatives and new resources as well as key teaching issues and new teaching methods. This year the content/perspective of the blog has been significantly expanded with blog postings from a wider range of CSTA volunteers, particularly chapter leaders and members of the Leadership Cohort.
* *K-8 Computer Science: Building a Solid Foundation.* This new publication draws together current thinking on and approaches to computer science in K-8.
* *CSTA/NGCP Webinar*: Chris Stephenson and Pat Phillips presented a webinar on CSTA member resources and volunteer opportunities in April. This event was organized as part of CSTA’s participation in the Computer Science Collaborative Project in partnership with the National Girls Collaborative Project. More than 50 educators participated in the webinar and there have been more than 100 follow-up downloads of the webinar and materials from the website.

# **Additional Projects**

* *The 2012 CSTA Annual Conference.* The 2012 CSTA Annual Conference was held in Irvine, CA with sponsorship from Google, Microsoft Research, and the Anita Borg Institute. The event included 10 half-day workshops, 20 sessions, and two keynotes. The workshops and sessions were selected through proposal and peer review system. Evaluations for the workshops and the conference as a whole were stellar. The speaker presentations have been posted and are available for downloading from the CSTA website at: <http://csta.acm.org/ProfessionalDevelopment/sub/Images_and_Other_Pages/OtherPages/CSIT12.html>. *CSTA 2013* will be held in Quincy, MA July 15-17, 2013.
* *Leadership Cohort Workshop at Hopper.* Despite the cancellation of the ABI-sponsored K-12 Computer Science Equity Workshop, funding from the MOBLIZE grant enabled CSTA to deliver its annual Leadership and Advocacy Workshop for the Leadership Cohort and CSTA chapter leaders. More than 40 teachers from across the country attended for sessions focused on developing leadership and communication skills and strategies.
* *Equity Workshop at SIGCSE.* Despite the cancellation of the ABI-sponsored K-12 Computer Science Equity Workshop, funding from the CSTA, ACM, and SIGCSE enabled CSTA to deliver its annual Equity Workshop in conjunction with SIGCSE 2013. This year’s workshop was more peer-driven, with the majority of sessions being delivered by teachers and senior cohort members.
* *CSTA Java, Alice, and Greenfoot Workshops:* CSTA partnered with the Oracle Academies Foundation to provide 30 professional development workshops for teachers from 18 CSTA regional chapters. The workshops, held throughout 2013, will serve more than 900 teachers.
* *CSTA Chapter Workshop Project:* CSTA worked with five exemplary chapters to develop and offer summer workshops for local teachers. This project included the development of a workshop toolkit that provides guidelines and templates to assist chapters in the design and delivery of regional professional development events. The goal of the project was to build the capacity for all CSTA chapters to offer localized professional development.
* *CS Education Week Poster.* CSTA and the National Security Agency designed and printed the new *Unlock Your Future* poster in celebration of CS Education Week. This poster was distributed via mail to >8,500 CSTA members and at CSTA and partner professional development events. It is available for download from the CSTA website (http://csta.acm.org/Resources/sub/BrochuresPostersVideos.html).
* *Equity Committee Poster Project.* Staff worked with Equity Committee members to launch the *We Are the Face of Computing* poster contest. Awards were made to one participant each at the elementary, middle, and high school levels. The posters were displayed at the CS Ed Week Education Caucus panel event in DC and are now available for download from the CSTA website (http://csta.acm.org/Resources/sub/BrochuresPostersVideos.html).
* *Computational Thinking Events and Publications.* Several initiatives have contributed to CSTA’s growing reputation as the definitive source of international expertise on computational thinking in K-12. These include:
  + Working with OPAS to develop and deliver workshops in computational thinking for science teachers. Two workshops were held in Portland, OR and in Indianapolis, IN (in conjunction with the annual NSTA meeting).
  + Working with OPAS to write an article on computational thinking for science teachers to be published in several NSTA teacher publications (in press).
  + Co-facilitated the Computational Thinking Leadership Workshop in conjunction with the Australian Computer Education Conference in Perth.
  + Delivered the keynote on computational thinking at the Australian Computer Education Conference in Perth.
  + Assisting CT Task Force Chair in the drafting of a chapter entitled *Computational Thinking* for the publication *Computing Handbook Set – Computer Science (Volume I)* (in press).
* *Supporting Improvements of Partner Professional Development Events for Teachers*: In addition to its own professional development events, CSTA provided consulting on several other PD events for teachers including CSTA Chapter events, the CS4HS workshops sponsored by Google, and the Tapestry workshops sponsored by the National Science Foundation through the University of Virginia.
* *Supporting Dissemination of Partner Resources*: CSTA has continued to use its website to increase knowledge and facilitate dissemination of exemplary resources through out the community.
* *CS Methods Course Project*: As part of its work on the MOBILIZE grant, CSTA conducted original research on current CS methods courses and organized and hosted a community meeting to review and discuss a proposed syllabus for a computer science methods course to be offered by teacher preparation programs. The new course has been beta tested at UCLA and the University of Oregon and the syllabus is now posted on the CSTA website (<http://csta.acm.org/Curriculum/sub/CurrResources.html>) along with a research reading list.
* *Computational Thinking Workshops for Science Teachers*: CSTA launched a new program to provide computational thinking workshops with the goal of helping science teachers prepare to address the computational thinking learning expectations that included in the new science standards, increase computing content in current high school science courses, and introduce a broader student audience to computational thinking concepts. To date, workshops have been held in Portland, OR and as part of the National Science Teachers Association annual conference.

**Resources**

* *Developing and Distributing Resources that Promote Computer Science Education:* This year CSTA distributed the following resources:
  + *ACM Careers and Computing* brochure: 79,923 copies
  + *IT is All About Me Classroom* poster: 26,226 copies
  + *CS in Sports* poster*:*  19,896 copies
  + *CSTA Imagine Your Future in Computing* brochure *(English and Spanish-language versions)*: 18,855 copies
  + *World of Opportunities* poster: (in partnership with CCECCS-ACM)10,771 copies
  + *Unlocking Your Future* poster: (in partnership with NSA)10,500 copies
  + *CS Connections* poster*.* 6,089 copies

**3.0 Plans**

**3.1 Projects to Be Completed in the Coming Year**

* *CS Principles: Computation in Action* *Curriculum*: CSTA is now working with Microsoft to develop a set of curricular resources that will engage a wide variety of students in socially-relevant, project-based learning designed to foster computational thinking within the Big Ideas and Concepts of the AP CS Principles course. This resource will be completed and distributed beginning in 2014.
* *CSTA Computer Science Education Week Events.* CSTA will again work with the CSED Week Committee and Code.org to promote and support CS Ed Week activities and to encourage CSTA members to plan and offer activities and events.
* *CSTA Annual Conference 2014:* The 2014 annual conference will be held in Chicago, IL and will feature an expanded workshop day (currently 10 half-day workshops), an expanded sessions day (currently 20 sessions), and two keynotes. Other possible in-conjunction events are also being considered.
* *Dissemination of the Bugs in the System Report.* CSTA will work with the Certification Committee and the Computing in the Core group to widely disseminate the new certification report with the goal of supporting advocacy efforts to improve computer science teacher certification requirements in target states.

**3.2 On-going Projects**

* *Continued Fiscal Improvement*. In the coming year we will continue to rationalize spending and expand funding for CSTA at all levels. This will include efforts to grow our corporate funding base and increase membership revenues through continued expansion of the institutional membership program and development of a new corporate membership program.
* *Grow Membership.* CSTA continues to grow at more than 20% per year with current membership strategies. This year we will continue to focus on growing the segments of membership most likely to produce additional revenue (institutional and corporate) with the goal of reaching more than 15,000 members.
* *Continue to Grow and Support CSTA Chapters.* We will continue to grow our CSTA chapters with the goal of creating 5 new chapters and improving the activity and effectiveness levels of existing chapters through chapter leader workshops, the online chapter site, a new Chapter leader listserv, and new chapter protocols for ongoing leadership development.
* *Continue to Grow and Support CSTA Leadership Cohort:* We will continue to grow our CSTA Leadership Cohort with the goal of increasing capacity, especially in states that are likely to be targeted for key advocacy initiatives.
* *Continue to Develop and Distribute New CSTA Resources.* We will continue develop and distribute resources promoting computer science education, including posters, brochures and videos.

**3.3 New Projects**

* *ACM SIG Governing Board Mini-Grant Project:* With funding from the SGB, CSTA will be launching a new competitive program that will provide small grants to CSTA chapters applying to develop a new resources, provide a professional development event, or hold an advocacy event. The Chapters Task Force is currently developing the criteria for application and the program will be launched in September.
* *Advance Placement CS Principles Community Event:* With funding from Google, CSTA will plan and deliver a major one-day event focused on building community support for the widespread adoption of the Advanced Placement Computer Science Principles course. Early discussions are underway but the date and location have not yet been chosen.
* *Oracle Professional Development Partnership:* CSTA will expand its partnership with the Oracle Academies Foundation to offer professional development workshops for teachers across the country. The CSTA chapters will act as the primary training site and provide the ongoing learning community.
* *K-12 Educational Policy:* CSTA will play an active role in the ACM Educational Policy Committee and Computing in the Corp. Efforts this year will focus on the following goals:
* Using the new certification research report to assist in efforts to change state certification requirements.
* Work with Code.org and the CSTA Leadership Cohort to build and utilize advocacy capacity in targeted states to embed computer science standards in state standards, enable computer science to be counted toward a math or science graduation requirement, to improve access to professional development for current teachers, and to improve pre-service education for future teachers.
* Ensure that major educational initiatives and legislation focused on K-12 education (and most specifically on STEM education) include computer science education as a major component.
* Participate in Capitol Hill events and Senate hearings to increase support for the Computer Science Education Act and the importance of engaging underrepresented minority students.
* *Update Virtual Binders:* The CSTA Research Committee is now launching a project to update the current CSTA Virtual Binders (consisting of critical research papers from the ACM Digital Library) and creating new binders on core topics. These binders enable all CSTA members to access and download these resources.

**3.4 Recruitment and Equity Plans**

CSTA has been fortunate to attract several young and dynamic teachers to its Board and committees. Although recruitment has not been a problem to date, we feel it is very important to focus on developing the leadership skills of these younger volunteers by placing them in positions of responsibility and helping them to grow into those positions through mentoring. Both the CSTA Leadership Cohort and the CSTA Chapters program are proving to be a excellent training ground for new volunteer leaders and, in fact, two of our new members of the Board of Directors came up through the chapters program.

For several years, CSTA has attempted to provide greater diversity on our Board and in the work of our committees. While we have been largely successful with the committees, we have not had the hoped for success for the CSTA Board despite the fact that we have had several direct appointments to the Board of Directors to provide more ethnic and racial diversity. The challenge seems to be that CS educators and administrators from underrepresented minority groups tend to already have significant volunteer demands upon them. The CSTA Equity Committee continues to grapple with this issue and has instituted new guidelines to help major sub-organization of the association improve their diversity and attract new leaders.

# **CSTA BOARD OF DIRECTORS AND TASK FORCE CHAIRS 2012-2013**

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