



Contents

SIGCSE News in Brief.....	1
CS Ed Week 2013: The Hour of Code.....	2
The 2014 SIGCSE Computer Science Education Awards.....	4
MEMBER SPOTLIGHT	5
NSF Computing Education Funding.....	8
November 2013 Special Projects Grant Awards.....	9
SIGCSE 2014 Preview	9
New Educators Workshop at SIGCSE 2014	10
Deadline SIGCSE.....	11

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SIGCSE News in Brief

It's January, which means less than two months until this year's SIGCSE Symposium. We have a preview of the events to look forward to, including information on a great workshop for new faculty. We also check in with our most recent SIGCSE award winners in this issue's Member Spotlight column. Both award winners will be giving presentations at this year's Symposium.

Do you have an idea that needs funding support? SIGCSE has special projects grants. Read below to hear more about them and about the most recent recipients. If that doesn't fit your needs, NSF has been changing their funding model for CS education and we highlight two new opportunities with upcoming deadlines.

Looking back at the end of 2013, we had another successful Computer Science Education week in December. We have examples from six different institutions ranging from laser-cutting wood decoration to predicting quarterback ratings. If you're looking for new ideas for next year, check these out.

See you all at SIGCSE!

Newsletter Credits

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CS Ed Week 2013: The Hour of Code

Compiled by Christine Alvarado, Bulletin Co-Editor

As advertised in the October 2013 edition of the *Bulletin*, this year's CS Ed Week encouraged everyone to host an "Hour of Code" event, in which educators hosted (at least) an hour of CS instruction to any audience they chose. SIGCSE members responded to the call enthusiastically. Here is just a sampling of the many great Hour of Code events that were put on.

Wellesley College

By Eni Mustafaraj

Our event was organized by the Wellesley Computer Science department, the Library and Technology Services department, student volunteers and engaged students, faculty and staff from Wellesley as well as the wider community.



A student shows off her Hour of Code project.
Photo by Eni Mustafaraj

Our most fun event was a 3-hour workshop in the Engineering Lab. One of our faculty, Franklyn Turbak, has created a TurtleBlock programming environment that can be used to create interesting decorative shapes that can be laser-cut in wood or plastic. 50 students, most of which had never programmed before, attended the workshop and created shapes as gifts for the holidays.

University of New Hampshire, Manchester

By Pauline Wilk

In the fall of 2013, a group of very passionate UNH Manchester Computer Information System's degree students started UNH's first Computing Club. The Computing Club's personal goal was to get as many non-computing major students and faculty at UNH Manchester to try programming.

With Computer Science Education Week falling on the same week as finals week at UNH, the club realistically knew they may not be able to steal an hour of everyone's time. So, students were encouraged to spend at least 10-15 minutes coding an animated Holiday e-card using Scratch. For some, it was something quick and fun to try before the winter vacation to share with their families. For others, it provided a short break to escape from studying. A few participants enjoyed themselves so much that they did spend the whole hour coding some pretty elaborate holiday e-cards.



Participants in UNH Manchester's Holiday e-card event. Photo by Pauline Wilk and Mihaela Sabin.

Georgetown ISD

By Kim Garcia

On Thursday, December 12, 2013, Dr. Barbara Boucher Owens led a room full of Georgetown Independent School District grades 6-12 teachers and high school students in a lively Hour of Code using the Alice Hour of Code tutorial. Dr. Owens' presentation to the teachers and students about Code.org and the Hour of Code was delightful, and it set the stage for an engaging hour of coding using Alice. Most of the teachers and students were coding novices, but they were able to quickly and successfully create their Garfield and Odie programs with Dr. Owens' guidance and the Alice Hour of Code tutorials.

This Hour of Code was unique because it brought together teachers, students, a parent, community members, and educational technologists for an hour of learning and coding. Teachers and students collaborated and made suggestions for improving each other's programs. Students saw their teachers as learners. A parent learned what her sons were learning in their computer science courses. Everyone learned that computer science is accessible and relevant.



Georgetown ISD students write programs in Alice. Photo by Kim Garcia

Drexel University

By Julie Fisher

Among many technology-related events Drexel University hosted in celebration of

National Computer Science Education Week, the College of Computing & Informatics' DUCSTeach (Drexel University Computer Science Teach) student group conducted a special coding activity with 40 local middle school students at West Philadelphia's St. Francis de Sales School. During two "Hour of Code" sessions, students Daniel Ziegler (also DUCSTeach's founder) and Zacharie Silverstein, as well as group advisor Dr. Jeffrey Popyack, taught the middle schoolers how to use computer programming to rank NFL quarterbacks based on their passer ratings. This activity gave sixth through eighth graders a sample of freshmen-level computer science at Drexel and just a preview of what they can truly accomplish through coding.



Students in at St. Francis de Sales School write programs to rank NFL QBs. Photo by Julie Fisher.

University of Northern Iowa

By Ben Schafer

I partnered with Mrs. Bonnie Wessels, Mrs. Julie Cuvelier, and Miss Jennifer Knox, teachers of the 8th Grade Information Technology courses at the two junior high schools in Cedar Falls, IA. We were joined by 36 college students from two courses for programming environments for teaching majors from the University of Northern Iowa. The teachers spent two days introducing Scratch to their students prior to our arrival. We then spent two days in each junior high school teaching the

students how to coordinate sprites to tell stories (using a combination of timing and broadcast events). Students created storyboards to add a plot twist to an existing animation of a scene from the *Harry Potter* franchise and animated their stories. Over 165 local students were exposed to programming with Scratch during the week. The overall experience was so positive that we have already scheduled a time to come back and repeat the process this spring with the remaining 8th grade students (those taking info tech second semester).



Students animate new plot twists in *Harry Potter*. Photo by Ben Schafer

University of Malawi, Blantyre Malawi *By Roberta Evans Sabin*

I am teaching programming II in C++ to first year students. We have a weekly lab and also displayed a poster celebrating CS Education Week.



University of Malawi students celebrate CS Ed Week. Photo by Roberta Evans Sabin

The 2014 SIGCSE Computer Science Education Awards

By Paul Tymann, SIGCSE Board Vice Chair

Every year SIGCSE recognizes two individuals for outstanding contributions to computer science education. The SIGCSE Award for Outstanding Contribution to Computer Science Education honors an individual or group in recognition of a significant contribution to computer science education. The SIGCSE Award for Lifetime Service to the Computer Science Education Community honors an individual who has a long history of volunteer service to the computer science education community. For interviews with this year's award winners, see the Member Spotlight column on the next page.

Recipients are selected from individuals nominated by SIGCSE members. A call for nominations is made each year in September. The deadline for nominations each year is October 1st. The nomination process is simple; all you have to do is to identify the individual being nominated and the award they are being nominated for, along with a 1-2 page statement of why the individual deserves the award. Letters of support from at least two other people on behalf of the nominee must also be provided in order for the nomination to be considered.

The nomination materials are reviewed by the members of the SIGCSE Board at their fall meeting. Recipients are notified shortly after the meeting and are presented their awards at the annual SIGCSE Symposium the following year.

It is not too early to start thinking about nominating someone for either of these awards. Feel free to contact Paul Tymann (ptt@cs.rit.edu) if you have any questions.

MEMBER SPOTLIGHT

In this feature of the Bulletin, we highlight recent accomplishments of our members. For this issue, we include interviews with the winners of the two 2014 SIGCSE awards.

Andrea Lawrence



Bulletin co-editor David Kauchak interviewed Andrea Lawrence, Associate Professor and Chair of the Department of Computer and Information Sciences at Spelman College, who won the 2014 SIGCSE Award for Lifetime Service to the Computer

Science Education Community. Andrea Lawrence received her B.S. degree in mathematics from Purdue University, and her Ph.D. in computer science from the Georgia Institute of Technology. She was the first African American to receive a Ph.D. in computer science from Georgia Tech. A member of the Spelman College faculty for 30 years, she teaches a wide variety of courses and supervises independent study projects in the areas of human computer interaction and remote sensing related to Antarctic ice.

DK: Tell us a little about your background. How did you first get involved with CS Education and the SIGCSE community?

AL: I started out as a high school mathematics teacher. While studying for a MS in Computer Science at Atlanta University, I taught introductory Mathematics at Spelman College. This experience made me want to continue in college teaching, but in computer science. My department chair at Atlanta University was also my mentor—he encouraged me to attend my first SIGCSE in St. Louis more than 20 years ago. The contacts and information found there were

so helpful that I have attended almost every year since.

DK: What do you think is the most pressing issue(s) facing CS education today?

AL: One of the most pressing issues is K-12 CS education. Students still come to college not quite sure what computer science is or why they should study it. No one asks "What is biology all about?" Computer science would profit by a heightened awareness of what computer science is and can do.

DK: Why do you enjoy teaching at Spelman?

AL: My mother worked at Spelman, so the campus feels like home. Spelman College is my alma mater and my three daughters have all attended Spelman. When I came back to Spelman almost 20 years after graduating and began teaching, it felt great to be on the other side of the desk from where I began my college career. But, even more important, is the fact that I want to be part of shaping the next generation of Spelman women.

DK: What is special about teaching CS at a historically black college for women?

AL: There are so few black women in computer science that I really feel I can make a difference to both my students and the discipline by teaching at a college designed for black women. I have met Ph.D.'s in computer science who never had a woman instructor or an instructor of color. I love being a role model and widening the CS pipeline.

DK: What projects have you been involved in that you are most proud of? What impact have these projects had?

AL: One thing I have focused on is encouraging students (particularly women and members of under-represented groups) to study computer science, to

finish bachelor and advanced degrees, and to seek careers in the discipline. Two projects I have been involved with were around that theme.

One project I was involved with was the first Richard Tapia Celebration of Diversity Conference, where I was an organizing committee member. I continued working with the conference for several years, and I am really happy about the current state of the event. The conference has grown; this year's conference is sold out. This conference provides experiences for so many computer science majors and professionals.

Another on-going project is involvement with ADMI (Association for Departments of Computer Science and Engineering at Minority Institutions). This organization seeks to support strong curricular offerings, research opportunities, career access, and graduate degrees for computer science students at minority-serving institutions. I have served as president and I have watched students benefit from the work of the organization.

DK: What does winning the SIGCSE Lifetime Service award mean to you?

AL: This award is so special. I was so pleased to receive it. It means that the work I have done for computer science education is recognized by my peers. I am overwhelmed.

DK: What advice do you have for those who are new to the SIGCSE community?

AL: I would say, "Get involved, network, and use the rich resources to enhance your teaching and educational research."

Robert Panoff

Bulletin co-editor Christine Alvarado interviewed Bob Panoff, winner of the 2014 SIGCSE Award for Outstanding Contribution to Computer Science Education. Dr. Robert M. Panoff is founder and Executive Director of Shodor (<http://www.shodor.org/>), a non-profit education and research corporation in Durham, NC, dedicated to reform and improvement of mathematics and science education through appropriate computational and communication technologies.



Photo courtesy of News and Observer (<http://www.newsobserver.com/>).

CA: How did Shodor start?

BP: Shodor was started in 1994 to infuse modeling, simulation, and data visualization into undergraduate education (our founding focus) as both content and method. Because education grants, especially workshops, have so little overhead, this mission proved harder and harder to accomplish from the position I had at a research university so focused on overhead, so an independent non-profit seemed an avenue we needed to explore. The precipitating factor was a scatter plot I was shown of life expectancy vs. size of tumor that went to zero at 10 cm, so my own 22-cm tumor (renal cell) gave me pause to ask, if I only had six months, how would I want to spend that time? The answer was "let's get started."

CA: Tell us an anecdote where you personally experienced the power of the Shodor Foundation mission.

BP: Our workshops have students from all kinds of backgrounds but who—for the most part—have above average interest in science or engineering or math or computers. Often we get comments in the student reflections that say something to the effect, “Why can't school be more like Shodor?” We have seen so many young people choose to pursue college studies that use computing and who do so well. This “excitement-experience-expertise” path is so wonderful to see happen for so many students.

CA: What do you think the biggest challenge is to getting more wide-spread computer science and/or computational thinking education into K-12 schools?

BP: It is a real challenge to balance the desire many of us have for many more students to experience the joy and power of learning to program with the practical realization that most scientists who use computers for real science are running applications, not writing code. So “computational thinking” in the Shodor world is more than coding: it's combining quantitative reasoning and algorithmic thinking along with exploring analogies across the sciences and across many scales. The use of models and simulations incorporated across the STEM curriculum can accomplish these goals. That requires a huge professional development effort.

The most pressing need we have now is to understand how can we continue to propose a “serial” approach to teaching computing when all of the computers we need to think about are parallel! Parallel thinking isn't just throwing a few parallel constructs into existing code. We need a full-on effort to go back to the nature of things we want to simulate and model and

see how the world itself really is parallel! All the stars in a galaxy don't label themselves 1 through N and then sum their forces 2 at a time, $i < j$. No! All the stars interact with all the other stars at the same time all the time. So if nature is parallel, shouldn't we be thinking how to exploit that when thinking in terms of the parallel systems we want to use to model that kind of behavior?

CA: Shodor has been very successful at integrating computational thinking into K-12 curricula via modules designed to fit into science and engineering courses. Do you think it's important that K-12 education include a stand-alone computer science course in addition to learning computational thinking through other science and engineering disciplines?

BP: If I, If I, were king! If someone were to let me design the curriculum and most any level, I would be working harder to break down the silos. Even now with STEM, there is no STEM. It's EITHER science OR technology OR engineering OR math. Very little of our education reflects how the real world needs individuals who can integrate these skills, and work as teams with others who may excel at one or more. We've fought some bruising battles even trying to define what a stand-alone class would look like, but I can see how computer science can complement those who want to learn more and go deeper in how computers enable us to do science.

CA: What does winning this award mean to you?

BP: This award, in my heart, is a recognition of the extended efforts of the larger community of scientists—both teacher and students—who use computation in their everyday work, scientists who enjoy the computation as much as the science.

NSF Computing Education Funding

By Paul Tymann, NSF Program Director, Division of Undergraduate Education

With many changes to the NSF education funding model, we thought this might be a good opportunity to highlight two programs that are of direct interest to the computing community.

The Improving Undergraduate STEM Education (IUSE) program will support projects that address immediate challenges and opportunities facing undergraduate STEM education. This program description (http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504976) is replacing, joining together and expanding upon the former WIDER, STEP and TUES solicitations. The program description, while brief, is very broad and unconstrained. Broadening participation is specially called out: “broadening participation of individuals and institutions in STEM fields.” Other important perspectives from “experiential learning, assessment/metrics of learning and practice, scholarships, foundational education research, professional development/institutional change, formal and informal learning environments” to “educating a STEM-literate populace, improving K-12 STEM education, encouraging life-long learning, and building capacity in higher education” are also of great interest.

The lack of specifics is a great opportunity for the computing community – think of all of the ideas and projects you’ve wanted to try but can’t do without some support. The target date for this program is February 4, 2014.

The STEM-C Partnership combines and advances the efforts of both the former Math and Science Partnership (MSP) and Computing Education for the 21st Century

(CE21) programs. STEM-CP: CE21 modifies the earlier CE21 program by:

- Merging the previous Broadening Participation (BP) and Computing Education Research (CER) tracks into a single Broadening Participation and Education in Computing (BPEC) track focused on building an evidence base for student learning of computing fundamentals applicable to the elementary, middle, or high school levels.
- Requiring a Broadening Participation component for all proposals on the CS 10K track
- Adding a third track, STEM-C Partnerships Computer Science Education Expansion that aims to expand the work of previously funded NSF MSP Partnerships to increase the number of qualified computer science teachers and the number of high schools with rigorous computer science courses.

Please review the solicitation for the requirements and goals of the three tracks. (http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503582). The due date for this solicitation is March 18, 2014.

As with any NSF proposal, you will need to address the intellectual merit and broader impacts of your idea. You might find the Common Guidelines for Education Research and Development (NSF 13-126) a useful resource.

If you have any questions, please feel free to contact us. We highly encourage each of you to submit a wonderful proposal(s).

Valerie Barr (vbarr@nsf.gov)
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November 2013 Special Projects Grant Awards

By Tiffany Barnes, Sue Fitzgerald, Guido Rößling, Amber Settle and Judy Sheard, SIGCSE Special Projects Committee

SIGCSE is pleased to announce a Special Projects Grant award from the November 2013 funding cycle: Elissa Redmiles (University of Maryland, College Park) and Jandelyn Plane (University of Maryland, College Park) received a grant for a project entitled “*Computer Science Connect ‘Curriculum-In-A-Box’*.”

CompSciConnect “Curriculum-In-A-Box” will be a collection of hands-on activity modules, video lectures, and resources available for free download.

CompSciConnect aims to encourage underrepresented middle-school students in computing by emphasizing computing’s social impact, connectivity, and breadth while developing students’ programming and computational problem-solving skills through hands-on activities. The funding will allow the recipients to implement a third year curriculum that utilizes Python as a programming tool and to develop first and second year materials that emphasize social media. Ms. Redmiles and Dr. Plane are both associated with the Maryland Center for Women in Computing.

SIGCSE congratulates the awardees of the grant. This cycle was competitive, with 16 proposals submitted. The Special Projects Committee looks forward to the next group of proposals, for which reviews begin **May 15, 2014**. Submission instructions are found on the Special Projects page:

<http://www.sigcse.org/programs/special/apply/>

or authors can contact apply@sigcse.org with questions. The members of the committee are happy to discuss project ideas with authors or answer questions and welcome contact from you at any time.



SIGCSE 2014 Preview

By Kris Nagel and JD Dougherty, SIGCSE 2014 Symposium co-Chairs

“Leveraging Computing to Change Education!” SIGCSE 2014 brings professionals from around the world together to present education research and practical experience reports in the form of papers, panels, workshops, and other informal sessions. The 45th Annual SIGCSE Technical Symposium on Computer Science Education will be held in Atlanta, Georgia, March 5-8, 2014 at the Hyatt Regency Hotel.

The theme, “Leveraging Computing to Change Education!” focuses our attention on how computing influences the way we educate at all levels. This influence includes applications designed to support student learning, the curricular impact of computing, learning research, and the impact of technology in all forms of education. We continue to promote the message of change started last year, now reaching outside computing to all of education.

The Symposium provides a forum for sharing new ideas for syllabi, laboratories, and other elements of teaching and pedagogy, at all levels of instruction. We want to look beyond the conventional CS education boundaries for connections as well. Our keynotes speak to the many ways computing changes education:

- A.J. Brush, Senior Researcher at Microsoft Research, will discuss computing within the home and connecting beyond
- Andrea Lawrence, SIGCSE Lifetime Service to Computer Science Education Award recipient

- Robert Panoff, SIGCSE Outstanding Contribution to Computer Science Education Award recipient
- Hadi Partovi, Founder and CEO of code.org

In addition to the technical sessions, there are many other opportunities for networking and exploration, including BOFs, Posters, Exhibitors, and Supporter sessions. There are a number of optional workshops as well, on Wednesday and Friday evenings and Saturday afternoon. And within a few blocks of the conference, you can visit many Atlanta landmarks, from Olympic Park to Sweet Auburn, Georgia Aquarium to World of Coke.

You can access the online registration site by visiting <http://sigcse2014.sigcse.org/attendees> and selecting "Registration" from the upper left menu. Please join us in Atlanta in March, where we hope the weather will be warm; at least we know the people will be!

New Educators Workshop at SIGCSE 2014

By David Reed and Andrea Danyluk, Workshop Organizers

Despite the important role teaching plays in many academic careers, the reality is that many new educators receive only minimal teacher training and are often unsure of the career options available to them. How do you choose a career path that is right for you? How do you balance teaching with research, service, and a family life? How do you work effectively with colleagues and survive the tenure (or rehiring) process? How do you organize a course and build relationships with students?

Thanks to generous support from the SIGCSE Board, the New Educators Workshop (NEW) at this year's SIGCSE conference will assist aspiring or new educators in addressing questions such as these. Veteran educators from a variety of

career paths will share their experiences and best practices on topics including:

- Career planning
- Job searches and interviews
- Teaching tips
- Scholarship and service
- Promotion and tenure
- Working with colleagues
- Priorities and time management

Interspersed with short presentations will be small-group discussions, which will enable attendees to focus on the questions or concerns most relevant to their situations.

In addition to career mentoring, the New Educators Workshop will provide attendees with the opportunity to begin building a support group of like-minded colleagues. The workshop will include ample time for informal networking, which will continue into the Symposium. (Symposium attendance is expected of all workshop participants).

The New Educators Workshop will run on March 5 from 9am to 5pm, in conjunction with the SIGCSE Symposium. Additional information about the workshop is available online at: <http://dave-reed.com/NEW>

In addition to the workshop agenda and speaker biographies, this site contains a repository of career mentoring advice collected from past workshops.

The New Educators Workshop is free and limited travel support is available for grad students. Seats are limited, so interested grad students and pre-tenure faculty are encouraged to apply early. Details for submitting an application are available on the main page of the website listed above. Questions can also be answered by contacting the workshop organizers:

Dave Reed (davereed@creighton.edu) or Andrea Danyluk (andrea@cs.williams.edu).

Deadline SIGCSE

Here are some upcoming deadlines and dates you won't want to miss!

Feb 4 Target date for NSF IUSE proposals

Feb 5 Last day for SIGCSE early registration

Mar 4-5 Learning @ Scale conference (co-located with SIGCSE)

<http://learningatscale.acm.org/>

Mar 5-9 SIGCSE Symposium

<http://sigcse2014.sigcse.org/>

Mar 16 *ITICSE Tips, Techniques, and Courseware and Faculty or Student Poster* submissions:

<http://iticse2014.it.uu.se/>

Mar 18 Due date for NSF STEM-CP proposals
