SIGCSE Bulletin, Vol. 48, No. 1

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SIGCSE News in Brief

We wish all of the SIGCSE community a successful and joyful 2016! In this issue, we will share a variety of Hour of Code experiences submitted by our members. Thank you to all who held events during CS Education week, especially to those of you who submitted information about your events. There were many wonderful submissions and we were forced to select only a handful to share.

This issue includes previews for our three main conferences (some of which might require some major travel planning): SIGCSE Symposium, ITiCSE and ICER. Some still have upcoming deadlines and we encourage you to contribute your work and visit some of the exciting venues.

For the member spotlight we interview the former ACM Inroads editor and Hofstra University Professor Emeritus John Impagliazzo. Jamie Payton and Richard Souvenir present data necessary to consider when recruiting underrepresented groups, along with success stories in broadening participation within your faculty.

Finally, it is election time for the SIGCSE board! In preparation for the spring vote, review the current candidates and consider including additional candidates.

Hour of Code: What You Did
Compiled by Maureen Doyle, Bulletin co-Editor

The "Hour of Code" was held this year during CS Education week, December 7-13, 2015 and over 198 thousand hour of code events were registered at code.org. Below is a sampling of activities that were done by our SIGCSE members.

Sioux Falls Washington High School
by Mark Emry and Kerri Smith

The 3rd Hour of Code at WHS took place in the WHS Library on Wednesday December 9th in Sioux Falls, South Dakota. Students enjoyed Minecraft, Star Wars and other tutorials while they dined on donated pizza and enjoyed working with their friends! Coding was a new experience for nearly all the students and they were happy to learn that computer science is offered at WHS.

The Hour of Code at Washington High School. Photo by Kerri Smith.

Northwest Nazarene College and Vallivue High School
by Barry Myers, Associate Professor

585 freshmen learned they can code and have fun. All freshmen from Vallivue HS participated on December 11, 2015. Barry Myers, Dale Hamilton, and Courtney Gilbert from NNU were involved all day. Our CS students participated from 1-4

hours each by walking around and answering questions. Dale introduced the students to the hour of code event and why computer science is important to them and to their future. We heard many students exclaiming how much fun they were having and how easy it was to do something really cool as they worked through the code.org activities.

NNU CS students helping Vallivue HS freshmen code. Photo by Barry Myers.

Mountain View Elementary School/U. S. Air Force Academy
by Steve Hadfield

Proud Hour of Code First Graders with their mentors including Princess Leia, Chewbacca and a Jedi knight. Photo by Lillian Warner.

The 571 K-5 students of Mountain View Elementary School in Colorado Springs, Colorado, discovered the joy of computer programming with a school-wide Hour of Code event on December 11th. Sherri Nelson, Marissa Hadfield, and Victory Molina organized the event, which was supported by faculty and cadets from the United States Air Force Academy. The event featured dancing student robots,

students playing Rock-Paper-Scissors and the High-Low game with a NAO robot (specially programmed by the cadets for the event), and costumed characters from Frozen, Minecraft, and Star Wars who mentored the children as they enjoyed the Hour of Code tutorials from Code.org. One kindergarten student summed up the results of the event wonderfully saying, "We are so excited thinking about things we are going to do and invent when we grow up!"

William Penn University
by Judy Williams, Assistant Professor

The William Penn Computer Club, WPC[2] (an ACM student chapter) hosted a big "CS Ed Week Celebration Day" on Saturday, Dec. 12 in the Musco Technology Center on the William Penn campus. There were 3 different foci—Hour of Code from 9 – 10 am; William Penn student project demos from 10 – 10:45 and 12:15 -1, and FIRST Tech Challenge Alliance Robotics competition from 11-12:15 and 1-1:45. Twenty William Penn students were involved plus faculty, staff and WPU computer science alumni who helped host. There were also 20 Tech challenge volunteers from the local communities. About 200 people attended one or more of the sessions.

FIRST Tech Challenge Robot Pit Area.
Photo by Ashley Tierney.

2016 Travel Grant Program Awards
By Amber Settle, SIGCSE Treasurer

The SIGCSE Board is pleased to announce the recipients of the 2016 Travel Grant Program awards. The Travel Grant Program was created thanks to the generosity of Henry Walker and provides faculty and teachers who have not previously attended the Symposium with up to $500 in travel support to do so. This cycle there were twenty applications, from which six awards were given.

Josh Eckroth
Photo by Tracy Dawson

Joshua Eckroth is an Assistant Professor at Stetson University. He will be presenting a paper at the Symposium titled "Teaching Big Data with a Virtual Cluster," and he hopes to connect with members of the SIGCSE community to learn how best to bring big data into the classroom.

Peggy Fisher
Photo by Lucas Deming

Peggy Fisher is a lecturer at Penn State University. She is looking forward to

networking with her peers from across various backgrounds, such as education and industry, and discussing the changing evolution of our student learners.

Shawn Kenner
Photo by Shawn Kenner

Shawn Kenner is a teacher at Sharon High School. She is a chemistry teacher who started teaching programming five years ago, and she will be participating in a panel on the Beauty and Joy of Computing.

Marco Aurélio Graciotto Silva
Photo by Aretha Barbosa Alenca

Marco Aurélio Graciotto Silva is an Assistant Professor at the Federal University of Technology – Paraná. His research includes investigating strategies to improve learning for novices using software engineering techniques and methods for development of reusable and open learning objects, and he is looking to broaden his research contacts outside of Brazil.

Brian Schott
Photo by Brian Schott

Brian Schott is a teacher at the Bronx Academy for Software Engineering. He is at a public high school and is interested in creating a 4-year scope sequence and developing shared instructional practices across grades.

Raymond Wallace
Photo by Raymond Wallace

Raymond Wallace is an instructor at the University of New Hampshire – Manchester. After 40 years in industry, he believes that attending workshops on high quality computer science instruction and networking with colleagues at the Symposium will provide him with an important opportunity to develop and enhance his skills as an educator.

Congratulations to all the recipients! The next round of applications will be reviewed in fall 2016, so watch for more information about applications during the summer.

SIGCSE Symposium 2016 Preview
By Carl Alphonce and Jodi Tims, SIGCSE 2016 Symposium co-Chairs

Memphis, Tennessee, home of Graceland, Sun Studios, the National Civil Rights Museum, and, of course, the Peabody ducks, sits on the banks of the Mississippi river. Like the mighty Mississippi, which combines the waters of hundreds of tributaries in one massive flow that nourishes countless souls with its rich waters, so the SIGCSE Technical Symposium gathers ideas, techniques, tools and more to engage, energize and empower computer science educators from far and wide. Just a few steps from the river of so many tales and songs, the 2016 SIGCSE Symposium promises to be an event to remember. Alongside the usual offering of papers, panels, special sessions, workshops, birds-of-a-feather (BOFs), posters, lightning talks and demos, there is an assortment of pre-symposium and affiliated events, including the student research competition and talks by our marvelous lineup of keynote and plenary speakers. Our exhibit hall will feature both familiar faces and newcomers and will provide valuable information and resources for computer science education.

Barbara Boucher Owens, recipient of the SIGCSE Award for Lifetime Service to the Computer Science Education Community, will speak on "Service as Rent". Which reminds us, SIGCSE is always looking for volunteers to help out! Jan Cuny, recipient of the SIGCSE Award for Outstanding Contributions to Computer Science Education, will present "CS Education: Catching the Wave", which tackles important issues related to the increased interest in computing that many are seeing with rising enrollments. We are also thrilled to have two fabulous additional speakers: Karen Lee Ashcraft (Professor of

Communication at the University of Colorado Boulder), whose talk is titled "Lean In to the Evidence: Breaking the 'Glass Slipper' of Technical Professions", and John Sweller (Emeritus Professor of Educational Psychology at the School of Education at the University of New South Wales, Australia), speaking on "Cognitive Load Theory and Computer Science Education".

You can find out more about SIGCSE '16 at the symposium website:

> http://sigcse2016.sigcse.org

The website is being updated often with new information as the symposium draws ever closer. Please register early! Early registration for the Symposium is open until February 2, 2016. Because Memphis does not offer a shuttle service to and from the airport we have contracted with a motor coach company to take attendees back to the airport on Saturday after the luncheon. You can purchase tickets on-line during the early registration period for $10 per person (a taxi ride costs about $40).

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We hope to see you in Memphis!

ITiCSE 2016 Preview
By Alison Clear and Ernesto Cuadros-Vargas, ITiCSE co-Chairs

We are pleased to welcome ITiCSE 2016, the 21st Annual Conference on Innovation and Technology in Computer Science Education, to Peru. The program of the conference will consist of keynote lectures, paper sessions, panels, working groups, tips and techniques, courseware demonstrations, posters, and exhibits.

The event will take place July 11-13th, 2016 at the San Pablo Catholic University in Arequipa, situated in the south of Peru. The conference features many opportunities for excursions, enabling attendees to see some of the surrounding district and mingle in a less intense and formal environment.

Arequipa is well known for its glistening white buildings made from sillar, a white volcanic rock, which gives the city its nickname 'La Ciudad Blanca', or 'The White City'. The Cathedral is a perfect example: built in the neoclassical style it was one of the first 17th century monuments in the city. It houses invaluable objects, like a church pulpit brought from Lille, France, and a 15-metre high monumental Belgian organ. The city also houses the Santa Catalina Monastery. Built in 1580, it is a walled citadel that served as an enclosed convent for nuns from the city's most distinguished families. The Monastery's interior houses valuable colonial paintings of the Cuzco School, carvings and figures, religious relics, and well-preserved physical settings typical of daily life from four hundred years ago. Finally, for those looking to explore the outdoors, the Colca Canyon and Valley combines natural riches, living history, and adventure sports like canoeing, mountain biking, mountaineering, hiking, and horse-riding. The canyon is 3,400 meters deep and has scenic viewpoints to allow visitors to admire the landscape and the flight of the majestic condor.

Photo by Luca Picollo

Papers presented at ITiCSE will address different aspects of computing education and working groups will be formed by participants with a common interest. These groups of around 5 to 10 participants work electronically prior to commencement of the conference.

Mehran Sahami, Professor and Associate Chair for Education in the Computer Science department at Stanford University, will give a keynote exploring how statistical models can give us insight into the dynamics of computer science students. In 2014, he received the ACM Presidential Award for his work on the CS2013 curricular guidelines in computer science.

As the conference is being held for the first time in Latin America, we particularly look forward to receiving proposals from the region. We look forward to seeing you this July!

For full details see the conference website:

http://ucsp.edu.pe/iticse2016

ICER 2016 Preview
By Judy Sheard, Brian Dorn, Donald Chinn and Josh Tenenburg

You are warmly invited to the twelfth annual ACM International Computing Education Research (ICER) conference which will be held in Melbourne, Australia, 9-11 September 2016. A Doctoral Consortium will be held prior to the conference on 8 September. Melbourne is a vibrant, multicultural city situated on the southern coast of Australia. The city is an interesting mix of old and new, with extensive parklands, shopping arcades and many historic attractions.

ICER provides a forum for presenting and publishing high-quality research in computing education. At ICER 2016 we will continue the traditional ICER single-track format which is designed to encourage authors and audience to engage in lively discussion about each work presented. We offer a range of submission categories that allow for different types of participation, supporting work at different levels ranging from formative work to a completed research study.

Research papers provide the main focus of the conference. Research papers have an 8-page limit plus up to 2 additional pages for references. Accepted research papers are allocated 30 minutes in the conference schedule for presentation and discussion, allowing opportunities for the audience to present different perspectives and give substantial feedback to authors.

A popular feature of ICER is the *lightning talks.* These are 3 minute talks in which presenters have the opportunity to articulate an idea for a research study, provide an update on their current research or invite collaborators. Posters provide another option for presentation of work.

This year a poster may accompany a lightning talk or can be standalone. Proposals for lightning talks and posters will require a 300-word abstract.

ICER plays a key role in fostering the development of computing education research. A couple of events held in conjunction with ICER are important to help achieve this. The first event is a doctoral consortium held the day before ICER. Students accepted for the consortium will participate in an all day workshop conducted by prominent leaders in the computing education research community. Participants will also present their work at the conference in a dedicated poster session. The second event is the *Works in Progress Workshop.* This workshop, run successfully at the last two ICER conferences, provides participants with an opportunity to gain critical and in-depth feedback on their research ideas or projects.

In addition to the scheduled activities we invite proposals for other activities which could be held prior to or after ICER. If you have an idea for an activity that you would like to propose you are welcome to contact Judy Sheard judy.sheard@monash.edu to discuss. We look forward to seeing you in Melbourne in September.

ICER 2016 Important Deadlines

- April 15 & 22. Research paper abstracts (Apr 15) and complete paper (Apr 22)

- May 20. Doctoral Consortium submission

- June 17. Lightning Talk and Poster proposals

- June 17. Work in Progress Workshop application

MEMBER SPOTLIGHT

In this feature of the Bulletin, we highlight members of the SIGCSE community. In this issue, Bulletin co-editor David Kauchak interviewed John Impagliazzo, Professor Emeritus at Hofstra University and former ACM Inroads editor.

DK: How did you first get involved with CS Education?

JI: I became involved with computing education back in the 1980s when I became interested in computing curricular issues and accreditation issues. I never really became involved with CS education per se. For me, computing education was more important because most people in the computer or computing field function in areas far beyond computer science.

DK: You've been the editor-in-chief of ACM Inroads for 10 years now and will be moving on this year. What's going to occupy your time now?

JI: Actually, it was six years, not ten. I became editor-in-chief of the *SIGCSE Bulletin* back in 1997 and did that task until 2010. The brand name for the *Bulletin* became "inroads" (lower-case 'i'). When ACM decided to launch the magazine *ACM Inroads*, a bifurcation occurred where the *SIGCSE Bulletin* continued and the new entity emerged (Volume 1, Number 1) in 2010 March.

I have much to do these days. I chair the steering committee for the computer engineering curricular project, CE2016. Additionally, I am on the executive committee of the information technology task group that is producing the avant-garde IT2017 curricular report. These are two exciting projects that reflect a modern evolution in computing education. Additionally, I am a member of the ACM Education Board and Council, and I am a member of the board of directors of the IEEE Foundation. All this, in addition to consulting and travel, keeps me quite occupied.

DK: Beside the Inroads, what projects have you been involved in that you are most proud of?

JI: It is difficult to respond to words such as the most, the best, or the first. To pick one project would deny others. Notwithstanding, perhaps one of the most gratifying projects was helping to establish a computer assistive technology center in Qatar. The effort has helped many hundreds (or thousands) of people where the use of computer technology has improved the human condition.

DK: One of your other interests is computing history. How did you first get involved with this?

JI: This goes back decades. Whenever I would teach an engineering or computing class, I would almost always start with some vignette or story that would lead into the topic. For example, early in a computer architecture class, I would ask "Who invented the computer?" or something such as that. When students would answer "Bill Gates" or "Steve Jobs" I would admonish them (tongue in cheek) for being computing majors without any fundamental knowledge of the field. (BTW, the answer

is quite complicated.) Over time I became more involved with computing history and ended up publishing several books on the subject. It is a fascinating area and more teachers should start using history to teach computing.

DK: Is there one computer history fact that most people don't know that you find interesting?

JI: It is difficult to determine what people know or don't know about computing history. History is not a topic most computing educators know or embrace. Rather than pick a fact or two, perhaps people should promise themselves to visit at least one computing museum over the next year or two. Each time I visit a computing history museum or exhibit, I surprise myself by learning something new.

DK: You've also done a lot with accreditation. Has that changed how you view CS education?

JI: Again, I do believe we should focus on computing education, which is vaster and more interesting. It is true that I became very much immersed in computing accreditation. This also goes back to the 1980s when the Computing Sciences Accreditation Board (CSAB) first started. Soon after that I chaired the ACM Accreditation Committee. This lasted for twelve years until CSAB and ABET effectively merged. I cannot recall how many computing and engineering programs I evaluated over the decades, but the number is close to seventy-five worldwide. Overall, accreditation in any field is healthy because it forces programs to do an introspection and articulate the purpose of their existence.

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

Again, I assume it is computing education and "most" is difficult to measure. In my opinion, one of the most pressing issues facing computing education today is for programs to be responsive to ever-changing knowledge and technologies that keep emerging continually. While foundations and fundamentals are necessary and important, teachers and students must go into agile mode to think beyond the immediate and to be responsive to dynamics that surround them. It would be unfortunate to produce computing graduates who cannot respond to a changing technological world.

DK: Tell us something interesting about yourself.

JI: I'm not sure what to mention here other than I hope one day I will be able to hide someplace and complete a novel I started many years ago. It seems that every time I want to re-engage in that endeavor, another computing project emerges. Computing- and engineering-related projects never seem to end.

DK: Anything else you'd like to add?

Perhaps it would be good to realize that we all are living in a global computing world where people from varied communities take part in the work of computing professional societies. We should remove the silos and be more inclusive to honor the diversity the computing field has brought us all.

Broadening Participation: Meeting the Need for Diverse Faculty
By Jamie Payton and Richard Souvenir

The recent surge in student activism concerning the racial climate on college campuses has garnered national attention. Student groups are demanding institutional change at universities across the country, including an increased commitment to hire faculty of color in tenure-track positions. At the University of Missouri and Virginia Commonwealth University, for example, students have demanded that their institutions increase the percentage of black faculty members to 10% within the next two years.

While these thresholds are meant to apply campus-wide, we ask: is it possible to meet such a goal in US CS departments? At this point, the answer is no. According to the 2014 Taulbee report, which surveys Ph.D.-granting institutions, only 64 of 4,144 tenure-track CS faculty members are black. Even if *all* of the 150 black students currently enrolled in US CS Ph.D. programs are eventually hired as professors, the proposed 10% threshold could not be met in the short term.

The relatively small number of black faculty can be described, in part, by the "leaky pipeline", a metaphor which describes the departure of students and professionals at different points in their educational and career pursuits. While this metaphor has its limitations, in the context of generating CS faculty members, the pipeline models the most common sequential process from primary education through a doctoral program to a tenure-track faculty position.

Over the past decade, several organizations and researchers have focused on broadening participation and engaging a diverse group of people in computing at the earlier stages of the pipeline, ranging from introducing computer science principles in K-12 to helping undergraduates form identities as computer scientists. There is evidence that many of these varied approaches have had a positive impact on students' attitudes and self-efficacy, and can help to recruit and retain students in CS degree programs. However, rapidly increasing the number of tenure-track black faculty addresses a leak in the latest stage of the pipeline. While the numbers suggest that the demanded growth in minority faculty cannot be achieved in a short timeframe at a national level, particular institutions can be successful with directed efforts, like the University of Florida, where 5 of 40 CS faculty are black.

For institutions looking to address issues of underrepresentation, there are myriad options for allocating resources to various interventions. However, administrators and faculty are often left to make their best guess on the right course of action, frequently pitting localized, visible institutional gains against larger-scale, more abstract goals. Researchers are currently working to provide insights that can help direct adoption of a balanced approach to broadening participation in computing that could one day address the current underrepresentation of minority faculty within the CS professoriate. Important to understanding underlying issues and impact are interdisciplinary efforts that bring together perspectives from sociology, psychology, learning sciences, gender studies, and, of course, computer science. At the second annual RESPECT conference, held on August 11-13, 2016 in Atlanta, Georgia, you can learn more about emerging, interdisciplinary, research-driven approaches to study and respond to issues related to engaging underrepresented groups in computing.

VOTE! 2016 is Election Year for SIGCSE
By Renée McCauley

Every three years the SIGCSE membership chooses a new Executive Board. The SIGCSE Chair appoints a nominating committee chair who organizes a committee to select candidates for office. (*Note: It is not too late to add your name to the ballot – see how later in this article.*)

The 2016 nominating committee solicited self-nominations through the SIGCSE membership email list and through this publication. From those self-nominations, the following slate of candidates was determined:

Chair:
- Amber Settle, DePaul University, USA
- Paul Tymann, Rochester Institute of Technology, USA

Vice chair:
- Judy Sheard, Monash University, Australia
- Ian Utting, University of Kent, UK

Secretary:
- Alison Clear, Eastern Institute of Technology, New Zealand
- Sue Fitzgerald, Metropolitan State University, USA

Treasurer:
- Adrienne Decker, Rochester Institute of Technology, USA
- John Dougherty, Haverford College, USA

At-large members (3 to be elected):
- Elizabeth (Liz) Adams, James Madison University, USA
- Dennis Bouvier, Southern Illinois University Edwardsville, USA
- Michelle Craig, University of Toronto, Canada
- Cecily Heiner, Southern Utah University, USA
- Rachelle Heller, George Washington University, USA
- Jeffrey Miller, University of Southern California, USA
- Briana Morrison, Kennesaw State University, USA
- RoxAnn Stalvey, College of Charleston, USA
- Mark Weiss, Florida International University, USA
- Timothy Yuen, University of Texas at San Antonio, USA

In accordance with the SIG Bylaws, **additional candidates may be placed on the ballot by petition**. All candidates must be Professional members of ACM, as well as members of SIGCSE. Anyone interested in petitioning must inform ACM Headquarters (Pat Ryan, ACM, 2 Penn Plaza, Suite 701, NY, NY 10121; ryan_p@acm.org) and the SIG Viability Advisor (Will Tracz, will.tracz@acm.org) of their intent to petition by the 15th of March.

A petition to be added to the slate of candidates requires signatures from 1% of the current SIGCSE membership (or 24 signatures). **The petition must be submitted to ACM Headquarters by March 30 for verification**.

In April-May 2016, SIGCSE will mail to each member an election packet that includes biographical information and a platform statement from each candidate. The packet will also tell you how to vote online.

Please take this opportunity to help shape the future of SIGCSE.

Deadline SIGCSE

Upcoming dates you won't want to miss!

Feb 2	Last day for SIGCSE symposium early registration
Mar 2-5	SIGCSE Symposium 2016, Memphis, Tennessee http://sigcse2016.sigcse.org
Mar 13	ITiCSE 2016 poster submission and tips, techniques and courseware proposals http://ucsp.edu.pe/iticse2016/
Mar 18	Due date for NSF STEM-CP proposals
Apr 22	ICER paper submission (abstracts due Apr 15) http://icer.hosting.acm.org/icer-2016/call-for-participation/
Jul 11-13	ITiCSE 2016, Arequipa, Peru http://ucsp.edu.pe/iticse2016/
Sept 9-11	ICER 2016, Melbourne, Australia