

## ACM SIGCSE Annual report

July 2022 – July 2023

Submitted by Alison Clear, Chair 2022 – 2025

The ACM Special Interest Group on Computer Science Education provides a forum for educators to discuss issues related to the development, implementation, and/or evaluation of computing programs, curricula, and courses, as well as syllabi, laboratories and other elements of teaching and pedagogy.

### **SIGCSE VIABILITY**

SIGCSE is currently a healthy and viable SIG with current membership of over 2600, while we are not back to pre-COVID levels yet our membership is growing each year. A viability report was prepared in November 2022 and approved for the next four years. “The SGB EC congratulates SIGCSE on its program performance and its efforts to mentor their volunteer community by having junior and senior positions for all activities to help volunteers learn about the positions and be advised by a more senior person. The SIG is found viable to continue its status for the next 4 years.”

### **DEI ACTIVITY**

In January of 2023 the Board released the SIGCSE DEI message

“The SIGCSE board is committed to creating a welcoming, safe, and inclusive environment for all members of the SIGCSE community. As stated in our email on October 7th 2022: “The SIGCSE Board is taking these matters very seriously and are working on specific next steps and a timeline for addressing them. We are committed to developing ways forward to ensure the safety and respect of all members of the SIGCSE community.”

The SIGCSE board is grateful for the feedback already provided by members of the community. This feedback was used to inform our developing plan:

What has been initiated:

- Created the role of board liaison to the [ACM Diversity, Equity, and Inclusion Council](#) to ensure that our SIG is building on existing initiatives and is aligned with ACM efforts.
- Met with (and will continue to meet with) leaders of other SIGs to learn about their effective strategies for creating safe and inclusive environments and processes.
- Began to investigate the establishment of a process so people can confidentially and safely share any concern about SIGCSE activities in a neutral space with someone external to the community, and explore their options.
- Created an anonymous [virtual suggestion box](#) for the community to submit feedback to the board. Entries will be reviewed at each Board meeting and decisions made about any actions to be taken.
- Explore the creation of a new all-virtual SIGCSE conference to provide another forum for the community in a new, flexible and inclusive format

Plans for each SIGCSE conference:

- Direct conference steering committees to conduct a Diversity, Equity, Inclusion, and Accessibility (DEIA) analysis of any efforts and initiatives they are implementing to create safe and inclusive environments for all attendees and report findings to the Board. (starting February 2023)
- Recommend the creation of the role of DEIA chair for each conference to serve as a point of contact and coordinate the conference's DEIA initiatives. (starting February 2023)

Planned actions: (by December 2023)

- Host regular listening sessions to solicit input and allow the community to share DEIA concerns.
- Reach out to the individuals or groups that have provided input and/or written calls to action with an invitation to engage in problem-solving and discussion.
- Share participation demographics for each SIGCSE-sponsored conference or event with the community.
- Work with the committees of all SIGCSE-sponsored events to create a culture that ensures representation of scholars from traditionally marginalized groups who are knowledgeable in the topics discussed at the event.
- Identify and implement strategies to minimize bias and increase diversity in all volunteer positions (e.g. conference leadership, committees, reviewers, the SIGCSE Board) and invited speakers.
- Identify and implement strategies to minimize bias and optimize inclusion in our processes for eliciting nominations and selecting recipients of SIGCSE awards.
- Commit to continually educating ourselves about our own biases and blind spots through reading, participating in professional development and discussions, and listening sessions.

"We chose to serve on the SIGCSE board because we want to see our community nurtured to grow and thrive for all members. However, we acknowledge that we do not have all the answers. These initiatives are the beginning of our efforts in helping the community towards this goal. To reach the best outcomes, ongoing community input and engagement is essential. We look forward to working with the community to achieve these."

## **AWARDS**

SIGCSE continue to support the community with the current awards

- SIGCSE Outstanding Contribution to Computer Science Education
- SIGCSE Lifetime Service to the Computer Science Education Community
- SIGCSE Test of Time

We were very pleased that the initiative of the previous Board in applying for a new award was successful and will be awarded for the first time in 2023.

- SIGCSE Broadening Participation in Computing Education

2022 Award winners

The SIGCSE Outstanding Contribution to Computer Science Education went to Susan Roger, Duke University, USA, for creating JFLAP, changing how the automata course is taught; and for helping to

bring computing to primary and secondary schools through her work with the Alice environment. Susan gave a keynote address at the Technical Symposium in Toronto in March 2023 titled “Learning How to Teach Computer Science – And Why I Teach the Way I Do”.

The Lifetime Service to the Computer Science Education Community went to Renée McCauley, College of Charleston, for more than two decades of exemplary service to SIGCSE, the computing education community and ACM; her mentoring and encouragement to others; and her leadership in increasing the global impact of SIGCSE. Renée gave an address at the Technical Symposium in Toronto titled “SIGCSE: A Culture of Service and Community”.

There was no Test of Time awarded in 2023.

## **SIGNIFICANT PAPERS PUBLISHED**

The SIGCSE Technical Conference was held for the first time outside the USA, in Toronto Canada in March 2023. The best paper awards went to:

### **Experience Reports and Tools Track**

#### **CS-JEDI: Required DEI Education, by CS PhD Students, for CS PhD Students**

Bailey Flanigan Carnegie Mellon University, Ananya Joshi Carnegie Mellon University, Sara McAllister Carnegie Mellon University, Catalina Vajiac Carnegie Mellon University

#### **A Summer Camp Experience to Engage Middle School Learners in AI through Conversational App Development**

Gloria Ashiya Katuka University of Florida, Yvonika Auguste University of Florida, Yukyong Song University of Florida, Xiaoyi Tian University of Florida, Amit Kumar University of Florida, Mehmet Celepkolu University of Florida, Kristy Elizabeth Boyer University of Florida, Joanne Barrett University of Florida, Maya Israel University of Florida, Tom McKlin The Findings Group

#### **Embedding and Scaling Writing Instruction Across First- and Second-Year Computer Science Courses**

Lisa Zhang University of Toronto Mississauga, Bogdan Simion University of Toronto Mississauga, Michael Kaler University of Toronto Mississauga, Amna Liaquat University of Toronto Mississauga, Daniel Dick University of Toronto Mississauga, Andreas Bergen University of Toronto Mississauga, Michael Miljanovic Ontario Tech University, Andrew Petersen University of Toronto

### **Position and Curriculum Initiatives Track**

#### **Programming Is Hard - Or at Least It Used to Be: Educational Opportunities And Challenges of AI Code Generation**

Brett Becker University College Dublin, Paul Denny The University of Auckland, James Finnie-Ansley The University of Auckland, Andrew Luxton-Reilly The University of Auckland, James Prather Abilene Christian University, Eddie Antonio Santos University College Dublin

#### **Case Study: Mapping an E-Voting Based Curriculum to CSEC2017**

Muwei Zheng University of California, Davis, Nathan Swearingen Indiana University–Purdue University Indianapolis, Steven Mills Indiana University–Purdue University Indianapolis, Croix Gyurek Indiana University–Purdue University Indianapolis, Matt Bishop The University of California, Davis, Xukai Zou Indiana University–Purdue University Indianapolis

Computing Education research Track

**Do Intentions to Persist Predict Short-Term Computing Course Enrollments? A Scale Development, Validation, and Reliability Analysis**

Rachel Harred NCSU, Tiffany Barnes North Carolina State University, Susan Fisk Kent State University, Bitu Akram North Carolina State University, Thomas Price North Carolina State University, Spencer Yoder North Carolina State University

**Psychometric Evaluation of the Cybersecurity Curriculum Assessments**

Geoffrey Herman University of Illinois at Urbana-Champaign, Shan Huang University of Illinois at Urbana-Champaign, Peter Peterson University of Minnesota Duluth, Linda Oliva University of Maryland, Baltimore County, Enis Golaszewski University of Maryland, Baltimore County, Alan Sherman University of Maryland, Baltimore County

**Critical Pedagogy in Practice in the Computing Classroom**

Eric Mayhew McGill University, Elizabeth Patitsas McGill University

The best paper award at ITiCSE 2022 held in Dublin, Ireland was

**Semaphore or Metaphor?: Exploring Concurrent Students' Conceptions of and with Analogy**

Briana Brettin, Linda Ott, Julia Hiebel

The best paper award at the ICER conference held in Lugano, Switzerland was

**Automatic Generation of Programming Exercises and Code Explanations Using Large Language Models**

Sami Sarsa, Paul Denny, Arto Hellas, Juho Leinonen

**CONFERENCES**

SIGCSE supports four conferences, three annual and one bi-annual

The **SIGCSE Technical Symposium** was held in Toronto Canada in Marc 2023. This is the first time the Technical Symposium was held outside the USA. The conference was held in hybrid mode and had 1700 attendees. There were three keynote speakers, papers, panels and Special Sessions. There was pre-conference Heads of Department Roundtable which was very well attended along with eight affiliated events. SIGCSE also supports a Kids Camp to enable parents and care givers the opportunity to attend the conference with their children.

The 27<sup>th</sup> annual **Innovation and Technology in Computer Science Education (ITiCSE)** conference was held in Dublin Ireland in July 2022. This conference was hybrid with 240 attendees in Dublin and 136 virtual attendees. This conference is held in collaboration with ACM Europe and Informatics Europe.

The 18<sup>th</sup> Annual **International Computing Education Conference (ICER)** was held in Lugano, Switzerland. ICER 2022 was hybrid and also preceded by a Doctoral Consortium of 18 PhD students. It was attended by 100 in person attendees and 40 virtual attendees. The keynote speaker (Manu Kapur, "Productive Failure") was very well received. Evaluations were conducted at the end of the conference in real time.

**ACM Global Computing Education Conference (CompEd)** was not held in 2022, it is now scheduled for Hyderabad, India in December 2023.

### **SPECIAL PROJECTS and TRAVEL GRANTS**

The SIGCSE Special Projects Fund provides grants up to \$5000 per project and has a call for proposals in November and May of each year.

The Special Projects funded in the latter part of 2022 were:

- *AI-Generated Discipline-Specific Programming Problems* - PI **Carl Haynes-Magyar**, Carnegie Mellon University
- *Computing+DEI = Multilingual Computing-Driven Class Material on Diversity, Equity and Inclusion* - PI **Mirella Moro**, Federal University of Minas Gerais in Brazil
- *Let's Play Ball: Understanding Neurodiversity and Accessibility* - PI **Devorah Kletenik**, Brooklyn City University of New York
- *Evidence-Driven K-5 Computer Science Education Updates for Practitioners* - PI **Jordan Williamson**, CSEd Research.Org

### Travel Grants

The Travel Grants have now been renamed the

### **Henry Walker Travel Grants**

SIGCSE awards up to five grants per year to defray travel expenses of faculty attending the annual SIGCSE Symposium. It was decided in 2023 to award eight travel grants. Travel Grant award winners will receive complimentary Symposium registration plus up to \$500 towards travel expenses. We are particularly interested in encouraging attendance by new faculty and/or faculty who have never been able to attend previously.

The awards for the 2023 TS were:

Sue Yi	United States
Cynthia Oguna	United Kingdom
Dr Ethel Tshukudu	Botswana
Zeyad Ahmed Ali	Egypt
Weena Naowaprateep	Thailand
Sareh Taebi	USA
Adewole Babatunde Kazeem	United States of America
Viraj	India

### **KEY ISSUES**

The first key issue for the next two to three years is to continue our DEIA initiatives and promote and support all our membership. One of the initiatives is the promoting of a Virtual Conference which is scheduled for the last quarter 2024. This is to support members who for what ever reason are unable to travel. We will also be holding up to three doctoral consortiums to encourage and support

our future faculty and members. SIGCSE will also be awarding the first of the Broadening Participation in Computing Education awards.

Another key issue will be to reach out to parts of the world who are active in Computing education however have not been part of our traditional geographical membership. The first is the CompEd conference to be held in December 2023 in Hyderabad, India. We will also be conducting a Doctoral Consortium in conjunction with this conference. We are actively looking for other non-US and non-European, geographical locations.

We will also continue to review, revise and upgrade all the reviewing processes for all the conferences.