# FY23 ACM Education Board and Education Advisory Committee Annual Report

For the Period: July 1, 2022 - June 30, 2023

Submitted by: Elizabeth K. Hawthorne and Alison Derbenwick Miller, Co-Chairs

# FY23 EXECUTIVE SUMMARY/HIGHLIGHTS

In FY23, the Education Board ("Ed Board") and Education Advisory Committee ("EAC") resumed normal operations after two years of the COVID pandemic restrictions. The Ed Board held its annual meeting as a hybrid meeting from ACM Headquarters in New York City in January, 2023. The EAC held its annual meeting as a hybrid meeting from Denver, Colorado, in August, 2022. Members who attended each meeting physically were excited to see each other in person, and those who attended virtually appreciated being able to participate without traveling. From this point forward, a hybrid approach of will be the standard for the Ed Board and the EAC. FY24 Preview: at the annual EAC meeting (August 2024), computing education reports were presented from various parts of the world, including Europe, Uganda, India, Brazil, Singapore, and CS4All and CSTA in the U.S. Also, many ACM SIGs reported on their computing education activities, including SIGCSE, SIGITE, SIGGRAPH, SIGCHI, SIGHPC, and SIGCAS.

The following highlighted efforts made significant progress during FY23:

The decennial revision of the **ACM Computer Science curriculum guidelines, CS2023**, remains on target for on time, on budget completion in 2023 after publishing draft versions Alpha (May, 2022), Beta (March, 2023), and Gamma (August, 2023) for community review and comment. The ACM Education Board expects to approve the final CS2023 guidelines at its annual meeting in January, 2024.

The **2023** Learning at Scale Conference ("L@S") took place July 20, 2023 in Copenhagen, Demark, at the University of Copenhagen, marking the third time the conference was held outside of the United States since its launch in 2014. Although smaller than usual (~90 people, all in person) and marked by a challenging year for fundraising, the conference came in within budget and the response was very positive. For the first time, very young startups participated. In 2024, L@S plans to co-locate with the Educational Data Mining (EDM) Conference at Georgia Tech in Atlanta, Georgia, with David Joyner as the General Chair. Proceedings are open: <a href="https://dl.acm.org/doi/proceedings/10.1145/3573051">https://dl.acm.org/doi/proceedings/10.1145/3573051</a>.

The **ACER Taskforce** and **NDC Study** joined forces to publish a single report studying pre-COVID and post-COVID retention in computer science education, which was published in the December 2022 issue of *ACM Inroads*.

An **ACM** group focused on **2**-year post-secondary computing education programs ("**ACM2Y**") was launched in FY'22, and its global membership grew from 63 in year 1 to 255 total members in year 2. With ACM Marketing, the group runs ACM2Y ads in *CACM* and *Inroads* to continue building global membership.

The **Revised Bloom's Verbs Project** provides new recommendations for computing-oriented verbs to help curriculum developers create more rigorous and accessible learning outcomes. *Bloom's for Computing: Enhancing Bloom's Revised Taxonomy with Verbs for Computing Disciplines* was completed in FY23 and published in August, 2023, in the ACM DL (<a href="https://doi.org/10.1145/3587276">https://doi.org/10.1145/3587276</a>). The members of the CS2023 curriculum project are being guided by the report resulting from this project.

## 1. BASIC INFORMATION

#### 1.1 Members and Terms

## **Education Board**

Co-Chair Elizabeth K. Hawthorne (7/20-6/24)
Co-Chair Alison Derbenwick Miller (7/22-6/24)

Vice Chair Open

Past Chair Chris Stephenson (7/20-6/24)

Past Chair Emeritus, Advisor

Jane Prey (7/20-6/24)

Members

Diana Burley (7/21-6/24)

Tom Cortina (11/22-6/24) Michele Craig (11/22-6/23) Judith Gal Ezer (11/22-6/24) Amruth Kumar (11/22-6/24) Paul Leidig (11/22-6/24)

Andrew McGettrick (11/22-6/24) Briana Morrison (11/22-6/24) Fay Cobb Payton (11/22-6/24) Susan Reiser (11/22 – 6/24) Mihaela Sabin (11/22-6/24) Cara Tang (11/22-6/24)

ACM Headquarters Yan Timanovsky

Ex-Officio Jake Baskin (CSTA Executive Director)

#### **Education Advisory Committee**

Megan Bowen (7/22-6/25) Salem Academy Charter School, United States Leigh Ann Delyser (7/21-6/24) CSforAll, United States

Ellen Hause (7/22-6/25)

American Association for Community Colleges, United

States

Rodrigo Duran (SIGCSE appt) Federal Institute of Education, Science and Technology

of Mato Grosso do Sul, Brazil

Christina Gardner-McCune (7/20-6/23)

Markus Geissler (7/22-6/25)

Itana Maria Gimenez (SBC appt)

University of Florida, United States
Cosumnes River College, United States
Universidade Estadual de Maringá, Brazil

Mikey Goldweber (SIGCAS appt) Steve Gordon (SIGHPC appt) David Joyner (7/21-6/24)

Matthias Hauswirth (SIGPLAN appt)

Allyson Knox (7/22-6/25) Alvaro Monge (7/20-6/23)

Joyce Nakatumba-Nabende (6/23-7/26)

Tamara Pearson (7/21-6/24)
Abhiram Ranade (7/20-6/23)
Donna Reese (CSAB appt)
Christian Servin (7/21-6/24)
Venky Shankararaman (7/22-6/25)
Olivier St-Cyr (SIGCHI appt)

Jodi L. Tims (ACM-W appt) Cindy Tucker (7/20-6/23)

Ellen Walker (7/21-6/24) Andrew Williams (7/20-6/23) Stuart Zweben (NDC appt)

EAC Advisors (FY'24)

Alison Clear Robert Schnabel Denison University, United States The Ohio State University, United States Georgia Institute of Technology, United States Università della Svizzera italiana, Switzerland

Microsoft, United States

California State University, Long Beach, United States

Makerere University, Uganda

Georgia Institute of Technology, United States

IIT Bombay/ACM India, India

Mississippi State University, United States El Paso Community College, United States Singapore Management University, Singapore

University of Toronto, Canada

Northeastern University, United States

Bluegrass Community and Technical College, United

States

Hiram College, United States The Citadel, United States

The Ohio State University, United States

CC2020; Eastern Institute of Technology, New Zealand ECE Task Force; University of Colorado, Boulder, United States

## 1.2 Education Board and EAC Purpose

- To improve the teaching and learning of computer science.
- To launch, approve, disseminate, and update relevant ACM curricular documents.
- To serve as a forum for collaboration and knowledge sharing among ACM groups working in computer science education.
- To form and oversee task forces addressing issues deemed important to ACM's education efforts or the wider computer science education community.

#### 1.3 Education Board and EAC Projects and Task Forces

- CS2023 Curriculum Project. ACM Co-Chair: Amruth Kumar
- CC2020 Supplemental Visualization Tool Project. ACM Chair: Alison Clear
- ACM2Y Project. Chair: Cara Tang
- Actionable Computing Enrollment and Retention (ACER) Taskforce. Chair: Stuart Zweben
- Standing Committee for Computing Education in Community Colleges (CCECC). Chair: Marcus Geissler
- DEI in Computing Education Taskforce (DEI-CE). Co-Chairs: Fay Cobb Payton and Susan Reiser
- Education in Ethics and Computing (EEC) Taskforce. Chair: Bobby Schnabel
- Learning@Scale Conference. Chair: David Joyner

- NDC Study. Co-Chairs: Stu Zweben, Cindy Tucker, and Yan Timanovsky
- Resources for Instructors to Improve Teaching and Peer Mentoring Practices (EngageCSEdu).
   Co-chairs: Michelle Craig and Briana Morrison
- Revised Bloom's Verbs for Computing, CCECC Project. Chair: Cara Tang
- Standardization of ACM Curricula (StAC). Co-Chairs: Cara Tang and Mihaela Sabin
- NSF-Funded Future of Post-Secondary Computer Science Education White Paper (CRA Collaboration). Chair: Jane Prey

## 2. SUMMARIES, ACTIVITIES AND COMPLETED MILESTONES (FY23)

## CS2023 Curriculum (Project)

**Purpose:** Development of the ACM 2023 Computer Science Curriculum (CS2023), a multi-year joint project with IEEE-CS and AAAI collaborators and wide input from the global CS education community. CS2023 is a revision to the most current Computer Science Curriculum guidelines (CS2013).

**Starting Date:** July 2021

Status: Underway and targeted for completion by December 2023.

#### Milestones:

- Collection and analysis of Versions Alpha and Beta community feedback
- Steering committee meetings held in San Juan, Puerto Rico (March 2023 focused on version Beta)
- 70 surveys of core topics conducted with 200+ respondents
- Outreach completed at ITiCSE 2022, CRA 2022 and SIGCSE 2023, and planned for CompEd 2023
- Special issue of *ACM Inroads* (2024) initiated to contain several curricular practice articles on the state of computer science education

## CC2020 Supplemental Visualization Tool (Project)

**Purpose:** Development of an online application that enables stakeholders to assign minimum and maximum values to each of the topic areas required in their degree programs, and then visualize their programs against the current ACM/IEEE-CS approved curricula and other degree programs globally.

Starting Date: July 2021 Status: Completed Milestones:

- Completed the Data Science curriculum report review and updated the visualization tool (Viztools) to include Data Science in partnership with Texas A&M university
- Held a strategic meeting on the CS2020 competencies with members of the NSF-funded DEAP project and a possible way forward
- Discussed leveraging the CS2020 Viztool in the next iteration of the StaC taskforce, Living Curriculum.

#### ACM2Y (Project)

**Purpose:** Launch of a new ACM group for those interested in computing education in 2-year post-secondary programs, such as those typically found at community colleges and technical colleges.

Starting Date: July 2021

**Status:** Ongoing **Milestones:** 

Expanded the ACM2Y website with additional articles, expanded Twitter presence

- 300% year-over-year growth in registered members, from 63 (June 2022) to 255 (June 2023)
- Organized and hosted one online panel discussion (January, 2023): "Is OER Right for Your Computing Classroom?"
- With ACM Marketing, continued running ACM2Y ads in CACM and Inroads, and on ACM web sites
- 16 messages on members listserv

## NDC Study (Project)

**Purpose:** Deliver and report on an annual national survey of non-doctoral granting, 4-year institutions in Computer Science, Computer Engineering, Information Systems, Information Technology, and Software Engineering.

Starting Date: July 2012

**Status:** Completed. In FY23, the NDC Study and ACER Taskforce merged. New project name will be identified in FY24.

## Milestones:

- Wrote a report studying pre-COVID and post-COVID retention in CS education that was published in the December, 2023 issue of *ACM Inroads*
- National Student Clearinghouse data requested and received for the 2021-22 enrollment cohort, including associate's and bachelor's enrollment, completions, retention, unretained students who remained in academia, and graduates who studied at the next degree level; late delivery by the NSC and subsequent data issues requiring resolution have delayed analysis into FY24.

## Actionable Computing Enrollment and Retention (ACER) (Taskforce)

**Purpose:** Source rigorous and reliable data regarding undergraduate CS student retention and produce scholarly papers and presentations to share new information and insights with the CS education community.

Starting Date: July 2021

**Status:** Completed/ongoing. In FY23, the ACER Task and NDC Study merged. New Project name will be identified in FY24.

#### Milestones:

- Obtained and began analyzing data from National Student Clearinghouse ("NSC") for the 2021-22 enrollment cohort.
- Wrote and published in Inroads a paper incorporating four years (2017-18 through 2020-21) of
  enrollment and retention data, data on non-retained students, and data on graduates studying at
  the next level; the paper emphasized comparisons between pre-COVID period data and the
  corresponding data during the COVID period.
- Worked with the NDC steering committee to phase out the NDC Study and incorporate the NDC student data into an annual, more comprehensive ACER report, starting in 2023. (The NDC Study planned to eliminate its faculty data component due to poor response rates to annual department surveys; the remaining NDC data is obtained from NSC and used by the ACER task force to study retention-related issues.) The final NDC Study, published in September 2022, informed readers of the plan.

## Committee for Computing Education in Community Colleges (CCECC) (Ed Board Standing Committee)

**Purpose:** Concerned with computing education at associate-degree granting colleges in the United States and similar post-secondary institutions throughout the world. The Committee engages in curriculum and assessment development, community building, as well as advises on public policy and advocacy in service to this sector of higher education.

Starting Date: July 1991

**Status:** Ongoing **Activities:** 

- Initiated Data Science curriculum project (DS2yr202X) for two-year colleges and similar institutions. Selected steering committee and members to serve on the project.
- CCECC member serving on the steering CS2023 curriculum committee
- Continuing presence at conferences, including SIGITE, SIGCSE, 3CS, CCSC events, ITiCSE

#### Milestones:

- Completed Bloom's Verbs project. Conducted workshops at regional conferences to help publicize this resource. (More details provided below.)
- Presented a poster at the 2023 SIGCSE Technical Symposium in Tornoto, CA
- Two-year college perspective contributions to ACER Taskforce that published a paper in ACM Inroads
- Two-year college perspective contributions to NDC Study published paper including data on associate-degree programs in the United States.

## Diversity, Equity and Inclusion in Computing Education (DEI-CE) (Taskforce)

**Purpose:** Work to address DEI issues directly impacting computing education.

Starting Date: July 2020

Status: Underway and targeted for completion in December, 2023

#### **Activities:**

• Serve as the Ed Board liaison to ACM's Diversity and Inclusion Council

#### Milestones:

- Organized, publicized, and hosted a webinar presented by Mehran Sahami, "Confronting Ethical Challenges in a High Tech World" with 411 registrations, 156 unique attendees, and 261 YouTube views
- In concert with the ACM DEI Council recommended new distinguished speakers for both their sub-discipline and DEI specialties
- In concert with the ACM DEI Council recommended DEI Trainings and/or Learnings across leadership, conferences, global community, and education
- Planning additional webinars, including Emancipatory Data Science, and Al and Education

## Education in Ethics and Computing (EEC) (Taskforce)

**Purpose:** Provide a curated set of exemplary ethics resources to assist computing faculty with incorporating ethics content into their curricula/syllabi.

Starting Date: July 2020

**Status:** Underway and targeted for completion by December, 2023, with the EngageCSEdu editors assuming ongoing responsibility for ethics content starting in CY24.

## Milestones:

- In 2023, completed and published a Special Issue on Ethics in Computing in EngageCSEdu
- Established priorities for the final year of the taskforce
- Helped organize and lead a successful SIGCSE workshop on Teaching Responsible Computing in Context
- Hired a summer work-study student (at U. Toronto under the direction of taskforce member Olivier St-Cyr) who will work on the priorities related to the repository identified, including upgrading the content and the interface.

## Learning@Scale Conference (Project)

**Purpose:** Deliver annual conference focusing on large-scale, technology-mediated learning environments that typically have many active learners and few experts on hand to guide their progress or respond to individual needs.

Starting Date: July 2014

Status: 2023 Conference completed; 2024 planning underway

#### Milestones:

- 3<sup>rd</sup> international location for the conference since inception, in Copenhagen, Denmark
- First conference to include very young startups
- Challenges with attendance (~90 people, all in person) and fundraising
- Conference delivered on budget and with very positive feedback from attendees
- Sponsored awards given for "Best Undergraduate Research Paper"

## Resources for Instructors to Improve Teaching and Peer Mentoring Practices (EngageCSEdu) (Taskforce)

**Purpose:** Broaden participation in computing by empowering faculty to improve curriculum and pedagogy in computing courses by using evidenced-based practices in instructional materials to promote student engagement and inclusive student culture.

Starting Date: January 2020

**Status:** Underway, with new editors-in-chief and transition to standing project status anticipated in November, 2023

#### Milestones:

- OERs appearing in the DL (For example, see https://dl.acm.org/doi/book/10.1145/3564622)
- "acmengage" added as an option to the official acmart LaTeX template
- Special Issue on Responsible Computing to come out in September 2023
- In discussions with Gözel Shakeri (University of Oldenburg, Germany) for a future Special issue on Sustainability. Date to be determined.

## Revised Bloom's Verbs Project (CCECC Project)

**Purpose:** Provide new recommendations for computing-oriented verbs to help curriculum developers create more rigorous and accessible learning outcomes.

Starting Date: July 2020

Status: Completed, and published in the ACM DL (August 2023)

## **Activities:**

- Delivered workshops on writing competencies and learning outcomes using the verbs.
- Solicited translations of the verbs in other languages where they may be useful. Presented a poster at ITiCSE to solicit input.

## Milestones:

- Final version is published in the ACM DL and entitled, *Bloom's for Computing: Enhancing Bloom's Revised Taxonomy with Verbs for Computing Disciplines* https://doi.org/10.1145/3587276
- Final version being used by members of the CS2023 curriculum project.

## Standardization of ACM Curricula (StAC) (Taskforce)

**Purpose:** Provide best practices and recommendations for new processes to help standardize the development, dissemination, and maintenance of ACM curriculum documents.

Starting Date: July 2021

Status: Completed. Final report approved by Ed Board in January, 2023.

#### Milestones:

- Obtained EAC feedback.
- Wrote and delivered final report.

# NSF-Funded Future of Post-Secondary Computer Science Education White Paper (CRA Collaboration) (Project)

**Purpose:** The NSF funded project *Future of Post-Secondary Computer Science Education* seeks to reenvision how to teach computing effectively in a scalable manner focusing on those undergraduate students from groups underserved by traditional computing courses and careers. Computing is a vital part of our society; however, computing education continues to face many challenges around inclusion, diversity, equity, and accessible learning.

**Leadership:** CRA serves as the Principal Investigator and ACM serves as a key partner. Jane Prey is the ACM Education Board representative and the Vice-Chair of the steering committee to this effort.

**Starting Date:** August 2022

Status: Ongoing. Final white paper publication anticipated in H1FY25.

#### Milestones:

- Convene diverse sets of CISE stakeholders through a series of workshops
- Build consensus around a unified vision of what inclusive computing education is and can be.

## 3. FUTURE PLANS (FY24)

## 3.1 Projects to be Concluded or Taskforces to be Reconstituted in FY24

- Standardization of ACM Curricula (StAC): While the StAC taskforce completed its work in FY23, there is follow-on work to be done to move ACM to a living curriculum model. The Living Curriculum taskforce was initiated at the August 2023 EAC meeting to take on this new work. The new Living Curriculum taskforce will consider leveraging the visualization tool (Viztools) from the CC2020 project.
- EngageCSEdu: This taskforce is expected to become a standing project under the auspices of
  the Ed Board starting in FY24, with Editors-in-Chief appointed by the Ed Board and
  confirmed by the ACM Pubs Board. EngageCSEdu is now part of the ACM DL and provides
  ongoing value to the computing education community.
- Education in Ethics (EEC): After a slight delay in early 2023, this taskforce has completed its
  work and handed over to EngageCSEdu. Future ethics education content will be developed
  under EngageCSEdu guidelines and the current EEC taskforce will sunset June 30, 2024.
- DEI-CE: The DEI-CE taskforce will conclude its work by the end of December, 2023. However, there is a significant amount of state-level legislation in more than a majority of U.S. states that is presenting difficulties for computing teachers who want to use equity-driven curriculum at the primary, secondary and undergraduate levels. To analyze this current environment and resources available to computer science educators, a new, one-year taskforce is being formed. The final output of this new taskforce will be a white paper or formal report, similar to previous reports produced by Ed Board taskforces.
- NDC Study/ACER Taskforce or other project name TBD: The combined committee will
  continue to procure NSC data and produce reports on the state of undergraduate and 2year-college computer science education. The committee will complete a paper
  incorporating the 4-year data period (2017-18 through 2020-21) and submit to ACM

*Inroads* for publication. The combined committee will determine a new name for itself for use in FY24 and beyond.

- Data Science Curriculum Follow-on Project: At its June 2022 virtual meeting, the Ed Board endorsed a multi-society taskforce to extend the 2020 Computing Competencies for Undergraduate Data Science Curricula report (acm.org/education/curricula-recommendations). During FY23, Paul Leidig, ACM taskforce chair and Ed Board member, secured commitments from the American Statistical Society (ASA) and the Mathematical Association of America (MAA) to serve as members of the taskforce. In FY24, Paul is working on obtaining a commitment from the Society for Industrial and Applied Mathematics (SIAM) before the curriculum initiative is launched in FY24. SIAM is an important collaborator and player since it publishes the Journal on Mathematics of Data Science (SIMODS).
- **CS2023 Curriculum Project:** The CS2023 project is on schedule for completion in December 2023. A number of significant milestones remain in FY24:
  - Final CS2023 print-version curriculum guidelines submitted for approval by the end of December, 2023
  - Ed Board approval of final CS2023 guidelines in January, 2024
  - Dissemination of final guidelines at SIGCSE 2024 and other similar events and international conferences
  - Translate and publish the approved print-version of curriculum guidelines into other languages including French, Spanish and Chinese Mandarin
  - Completion of remaining curricular practice articles

In addition, with the completion of CS2023, a number of new needs have been identified. It is our expectation that these will be addressed by new taskforces TBD in FY24:

- Design and post interactive, web-based version of curriculum guidelines (potentially to be taken on by Living Curriculum taskforce, funding required)
- Discuss and prepare a report or other guidelines addressing the implications of generative AI on computer science curricula

#### 3.2 Planned Milestones and Activities in Active Taskforces, Projects, and Committees in FY24

#### **ACM2Y Project**

- Update governance policies to provide for nomination and appointment of an ACM2Y executive committee
- Engage a new 11-member ACM2Y executive committee to take 2-year terms starting July 1, 2023
- Increase in-person engagement among the ACM2Y executive committee
- Increase in-person engagement at regional, national, and international conferences where 2Y programs have a presence
- Increase the number of online events
- Modernize the ACM2Y web site
- Establish a regular cadence for articles and Tweets to engage the community
- Continue collaboration with the CCECC & ACM Marketing to publicize ACM2Y at conferences and events, and increase membership

## Standing Committee for Computing Education in Community Colleges (CCECC)

- Continue work on the two-year Data Science curriculum development project, DS2yr202X, based on the bachelor's Dasta Science report.
- Continue to broaden the impact of the CCECC beyond the United States to other countries
  whose educational systems include community colleges or similar academic institutions,
  including integrating the CCECC international advisors into committee meetings.
- Continue dissemination and promotion of ACM curriculum guidelines for two-year programs
- Continue to partner with and support the growth of ACM2Y
- Continue support of other ACM groups and projects with community college perspective, as appropriate (examples: CS2023 task force and other ACM curriculum projects; SIGCSE community college liaison; contributions to ACER/NDC study)
- Continue maintaining educator mailing list and website as a resource for educators

## NDC Study/ACER Taskforce or other project name TBD

- Write up the analysis of the 2021-22 data and submit to Inroads for publication consideration; the paper will contain specific enrollment and graduation analyses of NDC institutions that formerly were in the NDC Study, and for the first time will contain retention data for the NDC institutions. It also will include trend analyses covering the 5year period 2017-18 through 2021-22 for both NDC institutions and all institutions.
- Discuss with NSC how to improve communication and timeliness of delivery of data in future years.
- Request from NSC and begin analysis of the data for the 2022-23 enrollment cohort.
- In recognition of the desire to acquire and publish annual data updates to the community, transition ACER from a task force, which suggests a fixed time period of activity, to a group that suggests ongoing expected activity (NDC Study).

## Learning@Scale Conference

- Plans to co-locate in 2024 with the Educational Data Mining (EDM) Conference at Georgia Tech in Atlanta, Georgia, with David Joyner as the General Chair
- Conduct "decadal" survey and analyze data on shared Learning@Scale community research
  interests to better understand what infrastructure is needed, how Learning@Scale can
  advocate for it, and how NSF's Mid-Scale Research Infrastructure program can be leveraged.
  Waiting on decision from NSF on submitted grant funding request to enhance this work.

# APPENDIX A - Task Force and Project Memberships

## ACM CS2023 Curriculum (ACM Representatives only)

The CS2023 Curriculum development is managed by a small steering committee, whose ACM members are as follows:

- Amruth Kumar
- Monica Anderson
- Brett Becker
- Richard Blumenthal
- Michael Goldweber
- Pankaj Jalote
- Susan Reiser
- Christian Servin
- Titus Winters

The partner organizations include IEEE-CS and AAAI that also provide representatives to a joint steering committee. The content development and feedback review processes for CS2023 are carried out by more than 90 additional volunteers in 16 countries. A complete list can be seen <a href="here">here</a>.

#### ACM2Y

- Cara Tang (Chair)
- Michael Bauer
- Randy Britto
- Misti Clark
- Terri Lane
- Kenyada McLeod
- Tommy Pollock
- Bill Pulling
- John Stryker
- Bob Tureman
- Markus Geissler (CCECC liaison)

## Actionable Computing Enrollment and Retention (ACER)

- Stuart Zweben (Chair)
- Rodrigo Duran
- Paul Leidig
- Mihaela Sabin
- Cindy S. Tucker
- Mark Weiss
- Yan Timanovsky

## **CCECC Revised Bloom's Verbs Project**

- Cara Tang (Chair)
- Adeleve Bamkole
- Markus Geissler

- Koudjo Koumadi
- Christian Servin
- Cindy S. Tucker

## Committee for Computing Education in Community Colleges (CCECC)

- Markus Geissler (Chair)
- Christian Servin (Vice-Chair)
- Cara Tang (Past Chair)
- Cindy S. Tucker
- Koudjo Koumadi
- Pam Schmelz

## Diversity, Equity and Inclusion in Computing Education (DEI-CE)

- Fay Cobb Payton (Co-chair)
- Susan Reiser (Co-chair)
- Jake Baskin
- LeighAnn DeLyser
- Alvaro Monge
- Tamara Pearson
- Mehran Sahami
- Christian Servin
- Lisa Smith (D&I Council liaison) (resigned May, 2023)
- Chris Stephenson
- Ellen Walker
- Andrew Williams

# **Education in Ethics and Computing (EEC)**

- Bobby Schnabel (Chair)
- Olivier St-Cyr
- Duncan Brumby
- Judith Gal Ezer
- Toni Granollers
- Anirudha Joshi
- Shaimaa Lazem
- Zhengjie Liu
- Craig M. MacDonald
- S. Sameerchand Pudaruth
- Eunice Sari
- Lauren Wilcox

## Learning@Scale

- David Joyner (Chair)
- Rene Kizilcec (Vice Chair)
- Justin Reich (Past Chair)
- Yan Timanovsky (ex officio)
- Claudia Urrea

- Ken Koedinger
- John Mitchell
- José A. Ruipérez-Valiante
- Xu Wang
- Susan Singer
- Ido Roll
- Eleanor O'Rourke
- Mar Pérez-Sanagustín
- Amy Ogan
- Marcus Specht
- Thomas Staubitz
- Katie Davis
- Javier Ochoa

## **NDC Study**

- Stuart Zweben (Co-chair)
- Cindy S. Tucker (Co-chair)
- Jodi Tims (Co-chair, FY22)

## Resources for Instructors to Improve Teaching and Peer Mentoring Practices (EngageCSEdu)

- Michelle Craig (Co-chair)
- Briana Morrison (Co-chair)

# Standardization of ACM Curricula (StAC)

- Cara Tang (Co-chair)
- Mihaela Sabin (Co-chair)
- R. Venkatesh
- Diana Burley
- Alison Clear
- Paul Leidig
- Itana Gimenes
- Markus Geissler
- Amruth Kumar
- Rajendra Raj
- Heikki Topi