Computer Science Curricula 2023 (CS2023): Community Engagement by the ACM/IEEE-CS/AAAI Joint Task Force

Amruth N. Kumar
Ramapo College of New Jersey
Mahwah, New Jersey, USA
amruth@ramapo.edu

Rajendra K. Raj
Rochester Institute of Technology
Rochester, New York, USA
rkr@cs.rit.edu

ABSTRACT
A Joint Task Force of the ACM, IEEE-Computer Society, and AAAI commenced work in 2021 to revise the Computer Science curricular guidelines that were last updated in 2013. Planned for publication in 2023, the revised guidelines (CS2023) cover curricular content and curricular practices. Curricular content includes updates to the CS2013 knowledge areas, a new sunflower model of what constitutes core computer science topics, a proposal for packaging knowledge areas into courses, and a competency model of the curriculum. Curricular practices cover computer science program design and delivery issues, including social aspects, professional practices, and programmatic considerations. In the special session, the latest CS2023 draft will be presented and feedback solicited. The session is targeted towards educators, administrators and professionals interested in computer science curricular issues.

CCS CONCEPTS
• Social and professional topics → Computer science education: Model curricula.

KEYWORDS
Computer Science Curricula, Curricular Guidelines, Curricular Content, Curricular Practices, Model Curricula, Computer Science Education

ACM Reference Format:

1 SESSION OBJECTIVES
The Association for Computing Machinery (ACM) has regularly updated and published Computer Science curricular guidelines since the 1960s, by itself in 1968 [2] and 1978 [3], and in collaboration with IEEE-Computer Society (IEEE-CS) in 1991 [8], 2001 [7], 2008 [4] and 2013 [1]. CS2023 is the next decennial revision of Computer Science curricula. Given the increased role of artificial intelligence in undergraduate computer science, the Association for the Advancement of Artificial Intelligence (AAAI) joined forces with ACM and IEEE-CS to develop CS2023 guidelines. Together, the three professional bodies set up a steering committee of 17 members led by two co-chairs. The steering committee in turn recruited an international group of disciplinary experts in diverse areas of Computer Science to form a task force.

Both curricular content and curricular practices are being addressed in CS2023:

(1) Curricular content consists of a knowledge model of the curriculum that is backward compatible with CS2013 version and a competency model as advocated by Computing Curricula 2020 (CC2020) [5]. A sunflower model of core Computer Science topics will be proposed to strike a balance between the burgeoning list of topics in Computer Science and the needs of resource-constrained educational institutions. Packaging of knowledge areas into courses and curricula will also be proposed.

(2) Curricular practices will be presented as articles written by groups of independent, well-recognized experts. The articles will cover topics in computer science program design and delivery, including social aspects, professional practices, and programmatic considerations. The goal of the articles will be to summarize the state of the art, inform educators, and attempt to advance Computer Science education practices.

Curricular practice articles will complement curricular content guidelines. The two together will provide educators and administrators guidelines on not only “what” to cover, but also, “why” and “how.”

The plans of the task force were first laid out in a special session at SIGCSE 2022 [6]. In the special session at SIGCSE 2023, the evolution and state of completion of these plans will be presented. The special session will again serve two purposes:

(1) Present the latest CS2023 draft and the activities of the task force to date.

(2) Solicit feedback on the latest draft and engage the community in shaping the final version of CS2023 guidelines.

2 SESSION DETAILS
Table 1 provides an outline of the planned session activities. In addition to the two co-chairs, several members of the steering committee will be on hand to discuss the details of CS2023 curricular guidelines. During the discussion session, the audience of educators, program directors, department chairs, and others interested in the future of Computer Science education will be invited to provide feedback and help shape CS2023 curricular guidelines.
TABLE 1: Session Structure

<table>
<thead>
<tr>
<th>Description</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 CS2023 Overview</td>
<td>5 minutes</td>
</tr>
<tr>
<td>2 Curricular Content</td>
<td>20 minutes</td>
</tr>
<tr>
<td>3 Curricular Practices</td>
<td>10 minutes</td>
</tr>
<tr>
<td>3 Discussion and Q &amp; A</td>
<td>30 minutes</td>
</tr>
<tr>
<td>4 Summary and Next Steps</td>
<td>10 minutes</td>
</tr>
</tbody>
</table>

3 POST-SESSION COMMUNITY ENGAGEMENT

The ongoing work of ACM/IEEE-CS/AAAI joint task force can be accessed at:

https://csed.acm.org

At the site, visitors can find the vision statement of CS2023, drafts of curricular content, composition of the steering committee and the task force, topics on which curricular practice articles are being written as well as the experts writing them, and venues where CS2023 efforts have been publicized. Also at the site, visitors are invited to provide feedback about curricular content and volunteer to review curricular drafts. The CS2023 task force believes that many eyes make all bugs shallow!

4 ACKNOWLEDGMENTS

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REFERENCES