EDUCON2021 Special Session

Special Session ASMTinCSE - Assessment in Computer Science Education (pre-college/K-12)

ASMTinCSEd

Overview

Seymour Papert launched the Logo programming language in the 1960s aimed at teaching mathematics to youths in logical yet playful ways (Papert, 1980). But over the decades an unfavorable view of computer science (CS) grew in K-12 education as being a subject that was difficult-to-learn and a skill that was reserved only for a subset of the population (Margolis, Goode, & Bernier, 2011). Few pre-college CS AP courses present learning activities that captivate young people. This has led to equity issues with an underrepresentation of women and people of color in computing. To address these inequities, curriculum and activities such as Exploring Computer Science (Margolis et al., 2011) and e-textiles have aimed to increase the interest and participation in CS by making the subject more culturally- and gender-relevant to a broader population.

Seeking to make CS more personally-relevant, Wing (2006) published a seminal viewpoint article that brought mainstream attention to the teaching of Computational Thinking (CT) problem-solving skills. Enthusiasm around the topic ushered in computer science education (CSEd) which spawned non-profits, such as Code.org and CSForALL, to develop and offer free open-source CS educational tools for educators.

Despite the increased interest in providing access to K-12 CS education, curriculum and assessments are constantly undergoing revision and remain technical complexity.For example, while block-based programming environments (e.g., Scratch, Alice, and Snap!) make it easier for students to get started by hiding text code to focus learners' attention on concepts (e.g., abstraction or algorithmic thinking) it remains difficult for educators to assess knowledge transfer when students transition to text-based languages (e.g., Java, Python, C++, or Haskell). Other assessment tools, such as auto-graders, are quick and efficient at assigning a score to student generated code, but lack the nuance and subjectivity that can only be captured by the time-consuming process of manually inspecting the code.

This Special Session (ASMTinCSEd) will be held April, 2021 at the EDUCON 2021 Conference in Vienna, Austria. The goal of this special session is the discussion of CS assessment strategies and instructional methods in the context of pre-college (K-12) CSEd. Preference will be given to papers that focus on broadening the participation of women in computing. Complete papers for this special session due no later than December, 7th, 2020.

Topics

Authors are invited to submit complete papers for the ASMTinCSEd special session (no abstracts needed). The topics cover all aspects of assessment applied to any learning process, including but not limited to the following:

- Pre-college computing education
- General assessment strategies

- *Computer science assessment (e.g., Autograders)*
- *Computational Thinking (CT) concepts*
- *Computational Thinking (CT) frameworks*
- *Creative computing*
- *Culminating design projects*
- *Digital storytelling*
- *Empirical studies of assessment*
- *Instructional/curricular strategies*
- *Quantitative/qualitative methods*
- *Pair-programming*
- *Programming environments/languages*
- *Remote/distance learning*
- *Virtual worlds/Robotics*
- *Women in computing*

Program Committee

Chair(s)
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Members
[Please list the PC members of the special session giving the following info:
Name Surname, Organization, Country, e-mail]

References

Kafai, Y. B., Lee, E., Searle, K., Fields, D., Kaplan, E., & Lui, D. (2014). A crafts-oriented approach to computing in high school: introducing computational concepts, practices, and perspectives with electronic textiles. *ACM Transactions on Computing Education, 14*(1), 1-20. https://doi.org/10.1145/2576874

Margolis, J., Goode, J., & Bernier, D. (2011). The need for computer science. *Educational Leadership, 68*, 68-72.

Papert, S. (1980). *Mindstorms: children, computers, and powerful ideas*. Basic Books, Inc.

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