

6th Educational Data Mining in Computer Science Education (CSEDM) Workshop

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ABSTRACT

Computing is an increasingly fundamental skill for students across disciplines. It enables them to solve complex, real and challenging problems and make a positive impact in the world. Yet, the field of computing education is still facing a range of problems from high failure and attrition rates, to challenges in training and recruiting teachers, to the under-representation of women and students of color.

Advanced learning technologies, which use data and AI to improve student learning outcomes, have the potential to address these problems. However, the domain of CS education presents novel challenges for applying these techniques. CS presents domain-specific challenges, such as helping students effectively use tools like compilers and debuggers, and supporting complex, open-ended problems with many possible solutions. CS also presents unique opportunities for developing learning technologies, such as abundant and rich log data, including code traces that capture each detail of how students' solutions evolved over time.

These domain-specific challenges and opportunities suggest the need for a specialized community of researchers, working at the intersection of AI, data-mining and computing education research. The goal of this 6th Educational Data Mining for Computer Science Education (CSEDM) is to bring this community together to share insights for how to understand and support learning in the domain of CS utilizing CS educational data and AI. This field is nascent but

growing, with researching in computing education increasingly using data analysis approaches, and researchers in the EDM community increasingly studying CS datasets. The objective of the CSEDM workshop is to facilitate a discussion among this research community, with a focus on how data mining can be uniquely applied in computing education research. Researchers, faculty and students are encouraged to share their AI- and data-driven approaches, methodologies and experiences where data is transforming the way students learn Computer Science (CS) skills.

We invite researchers who are interested in further exploring, contributing, collaborating and developing data- and AI-driven techniques for building educational tools for Computer Science to submit their papers on any of these topics.

The workshop is a half day workshop. It consists of paper presentations, discussions to facilitate collaboration. Interactive sessions include multiple parallel, short presentations, where participants can float around to the presentations they are interested in, similar to a poster session.

Finally, the workshop celebrates the winners of the 2nd CSEDM Data Challenge. The Data Challenge is an IEDMS and SOLAR-sponsored competition in which researchers compete to develop the best model for a student modeling problem with a CS dataset, including snapshots of student code. Winners are invited to give presentations on their models, followed by discussion of where the challenge focuses in subsequent years.

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