

# Repositories You Shouldn't Be Living Without

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## SUMMARY

Over the last few years, a number of repositories of information relevant to the computing education community have come online, each with different content and purpose. In this special session, we present an overview of these repositories and the content that each provides. Demonstrations of the functionality of the repositories will be shown and attendees are encouraged to come with their questions and suggestions for improvement if they are currently users of the repositories.

## CCS CONCEPTS

- General and reference-Evaluation
- Social and professional topics-Computer science education
- Social and professional topics-Student assessment
- Social and professional topics-K-12 education

## KEYWORDS

Repositories, K-12 computing, broadening participation

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## 1 OBJECTIVE

The objective of this special session is to expose the SIGCSE community to a number of valuable repositories that have recently come online. The presenters will be providing information about each repository, its content, who should be using it, and how it should be used. Further, some of the repositories are soliciting content from the community and/or feedback about the resource. Participants will be encouraged to engage with the repositories after the conference in whatever way is most suitable for their needs.

## 2 OUTLINE

### 2.1 Introduction (Decker)

The first part of this session will be a brief introduction to the purpose of the session and the content and format of the session. Each repository will have 7 minutes to present their purpose and demo the content of the repository with sample queries, information on public contribution and how to give feedback. Following the initial presentations, 3 minutes will be allotted for immediate questions and answers pertaining to the repository just presented. A longer question and answer session will follow all the presentations.

### 2.2 Pre-College Computing Activities (McGill)

Grown from a wide-spread systematic literature review, the Pre-College Computing Activities Repository (<https://csedresearch.org>) houses a subset of program element data derived from relevant articles that report on K-12 computing activities. The articles analyzed for this repository include those in ACM/IEEE venues and other journals/conferences that focus on computing education or a closely related field for the past five years. In this repository, users are provided with the capability to search for articles based on various categories and terms. These categories include demographics of students and instructors (e.g. student age/grade,

race/ethnicity) as well as activity components (e.g. when the activity was offered, what resources were used, and how the curriculum was developed). Results from searches include a library card-style output that contains additional relevant categories, including article URL, venue, authors, publication year, activity components and more. Targeted users for this repository are researchers, educators, and evaluators.

### 2.3 CSforall Consortium (DeLeyser)

The CSforall Consortium (<http://csforall.org>) is a hub for the national Computer Science for All movement that works to enable all students in grades K-12 to achieve computer science literacy as an integral part of their educational experience. The Consortium has created a unique repository through the CSforall Consortium members page [www.csforall.org/members](http://www.csforall.org/members). The repository offers resources at the organization level, as opposed to the individual activity or resource level. The CSforall Consortium members portal contains a "tile" for each member, and has tools to search among the titles for organizations with specific purposes and types of resources. We will discuss the usage of such a repository, the types of requests people are trying to answer with the member page, and what additional filtering we are working to apply for repository searches.

### 2.4 NCWIT's EngageCSEdu (Quinn)

The EngageCSEdu platform (<http://www.engage-csedu.org>) is designed to broaden participation in computing by empowering faculty to implement strategic curricular and pedagogical changes. First, it provides an Engagement Practices Framework (EPF) that organizes evidence-based practices for engaging women and underrepresented minorities in computing around three easy-to-understand engagement principles that have implications for both content (curriculum) and practice (pedagogy). Second, it provides instructors of introductory computer science courses (CS0, CS1, CS2) with a platform to find and share high quality, engaging introductory course materials that implement at least one of the practices recommended in the EPF. The quality of materials is ensured through an interdisciplinary peer-review process. The collection currently holds more than 600 individual materials authored by more than 200 instructors, has over 500 regular users, and has hosted more than 50,000 sessions. Yearly, NCWIT recognizes authors of the best contributions from the previous year with Engagement Excellence awards.

### 2.5 Project Quantum (Berry)

Project Quantum (<http://bit.ly/projectquantum>) is a crowd sourced repository of nearly 6,000 multiple choice items to assess school-level computing, developed as a collaboration between Computing At School, Cambridge Assessment, Durham University's Centre for Evaluation and Measurement and Diagnostic Questions. Questions are hosted on an interactive online platform, and are tagged using a taxonomy that covers programming, computational thinking, information technology and digital literacy. The items can be used freely by anyone, and

reused under a Creative Commons license. The items are designed for low-stakes, formative assessment and can be used by teachers to assess progress and by students for self-study. As students answer the questions online, analysis of large numbers of responses allows common misconceptions to be identified and provides a measure of the difficulty and discrimination of individual items.

### 2.6 CSONIC (Haynie & McKlin)

The CSONIC initiative (<https://csonic.org/>) coordinates and builds shared evaluation resources and practitioner capacity through adapting a Networked Improvement Community model [1]. Since October 2016, we have helped develop a STEM evaluators' coalition. Evaluators completed a process to identify collective goal. One core goal is building a repository for STEM evaluation information. The features and functionalities have been collectively developed and reviewed; software development has begun through a partner organization. This searchable repository includes a variety of resource types, psychometric information, feedback on usage, and links to item-level information.

### 2.7 Audience Participation

After the presentations, the floor will be opened to any questions to any of the presenters about their repository content. We will also re-display summary information about how to contribute to public repositories and provide feedback about repositories that are interested in collecting feedback.

## 3 EXPECTATIONS

The intended audience for this special session is anyone in the computing community who would find these resources useful in their classroom or in their scholarship. Given the varied nature of the content of these repositories, there is something for many different types of faculty scholars presented here. At the end of the session, we hope that the audience has learned enough about these repositories to begin to formulate ways in which they can use the content of these repositories in their scholarship or teaching.

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## REFERENCES

- [1] A.S. Bryk, L.M. Gomez & A. Grunow. 2011. Getting ideas into action: Building networked improvement communities in education. *Frontiers in sociology of education*, Springer, p. 127-162.