OER for Ethics and Computing Open Access Collection

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Course Ethics and Computing, standalone or embedded
Programming Language None
Knowledge Unit N/A
CS Topics Ethics
Resource Type Repository to references of external resources

SYNOPSIS

Coverage of ethics and computing is proliferating at universities, at both undergraduate and graduate levels. This includes standalone courses, and incorporation of ethics into technical computer science and related courses. Most of these courses, particularly the standalone ones, make extensive use of recent media articles, papers, videos, and other resources about issues related to ethics and computing. Thousands of such media articles alone are published annually. There is enormous duplication of effort by people who are teaching these courses, as discovering these resources is not always an easy process.

The Association for Computing Machinery (ACM) Task Force on Ethics and Computing Education has developed an initial categorized open access collection of the titles and links to articles and other resources related to ethics and computing. Each reference in the collection is categorized by the most relevant technical topic. The collection will be updated regularly using a mechanism whereby people can submit suggestions that will be vetted by individuals knowledgeable in the field. It will be publicized so that educators teaching ethics in computing courses and units will be aware of this collection and how to access it. Educators who find novel ways to use the repository also will be encouraged to submit their experiences to EngageCSEdu.

This work is informed by [1], which describes a crowd-sourced spreadsheet of tech ethics courses and syllabi, as well as a subsequent analysis of what is taught in these courses [2].

ACM EngageCSEdu, November 2022.

ACM ISBN 979-8-4007-0016-3/22/11.
https://doi.org/10.1145/3564623

Our aim is to provide a sustainable, evolving set of resources for such courses within the context of EngageCSEdu. In addition, just before the final submission of this paper we became aware of Computing Ethics Narratives [3], an excellent and related collection of resources produced as part of a project funded by the Mozilla Responsible Computer Science Challenge. We are cooperating with the creators of this resource moving forward.

KEYWORDS

Ethics, Computing, Open Access Collection

ACM Reference Format:
Ariana Cuvin, Robert B Schnabel, and Olivier St-Cyr. November 2022. EngageCSEdu OER for Ethics and Computing Open Access Collection. In ACM *EngageCSEdu*. ACM, New York, NY, USA, 2 pages. https://doi.org/10.1145/3564623

1 ORGANIZATION OF THE COLLECTION

The collection consists of various types of resources currently including media articles (the predominant type), videos, reports, journal articles, and blog posts. Each resource is categorized under one or more of three categories of topics, as applicable: technical topics; applications; and societal issues. Examples of technical topics include algorithmic bias, facial recognition, internet/privacy, misinformation, security and several more. Current applications areas include health and medical, media, robotics, and transportation. Societal issues include computing workforce issues, diversity, equity, and inclusion, future of work, professional ethics, and several more. These lists of topics as designed to be adapted as appropriate over time.

The home page of the repository provides options for searching the full collection or filtering the collection by any of the entries under any of the three categories mentioned above. The latter is expected to be the main way teachers and students utilize the collection. One can further specify whether resources are ordered by date or title, and in ascending or descending order. The web interface makes it easy to select a new category of resources to consider at any time.

For each resource, the web interface provides the title, date of publication, type of resource, approximate length required to read/view the resource, a 1-2 sentence description of the resource, and a link to the resource. This information is designed to allow educators or students to make a preliminary assessment of which resources may be of potential interest before viewing them. Selected resources appear in a new browser tab, meaning that the overall interface to the collection always is available in its own tab.

2 USE OF THE COLLECTION BY TEACHERS AND STUDENTS

Instructors are encouraged to use this resource in two complementary ways: to select readings and other resources to incorporate in their presentations and/or in assignments to students, and to allow students to select resources that are of interest to them as part of a course activities or assignments.

For example, consider instruction on the topic of algorithmic bias. This may occur as one of the units in a standalone course on ethics and computing (or a related course such as ethical issues in data science). It also may be incorporated into technical computer science courses such as machine learning, artificial intelligence, or design of algorithms. In either case, an instructor interested in finding recent application-oriented resources on this topic could start by applying the "algorithmic bias" filter under the "Applications" categorization in the collection. This results in 30 articles/resources in the initial collection, each with a title, categorization of the type of resource (media article, video, etc.), approximate time required to read/view the resource, a 1-2 sentence summary of the resource, and the link to the resource. The topics include specific instances of algorithmic bias in applications such as hiring, college admissions, image recognition, criminal sentencing, etc., as well as more general discussions of the sources of algorithmic bias. The instructor could quickly decide what might be of most interest for their course. The instructor could also look at the related applications category of facial recognition, or under the categorization by "Social Issues", click on "Diversity, Equity, and Inclusion" to find resources in that category that involve algorithmic bias.

Students can use the collection similarly. For example, in one of the courses mentioned in the prior paragraph, the instructor could ask the students to prepare a brief report on an instance of algorithmic bias in a particular application area. This already has proven useful to students in article report assignments and course projects. Most of the articles require between 5-15 minutes to read, making this a feasible enhancement to student learning.

3 ENGAGEMENT HIGHLIGHTS

The use of recent media articles in teaching about ethical issues in computing is supported by a myriad of acknowledged teaching practices. For example, from the National Center for Women & Information Technology (NCWIT) Engagement Practices Framework, the use of media articles aligns strongly with the engagement practice "Use Meaningful and Relevant Content", as well as with the practice "Make Interdisciplinary Connections to CS", since the collection includes groups of articles related to health and medical applications, media applications, robotics applications, and transportation applications. Moreover, if we encourage the collection to be used not only as a resource from which teachers can select readings, but also as one from which students can select articles of interest to them, it also supports the practice "Incorporate Student Choice".

4 ADDING RESOURCES TO THE COLLECTION

New developments related to ethics and computing, and new media articles and other resources describing them, occur and are documented nearly daily. Thus, it is crucial that this collection be updated periodically to include recent resources. It is designed to do so. The web interface includes a method for contributing suggestions of new resources. The link takes the user to a simple form for submitting the suggested resource. The minimum information required is the title of the suggested entry and its URL. The form also allows submission of the publication date of the resource; a short description of the resource; the topics the resource covers; the source of the resource; the author of the resource; the type of resource (media article, video, …); the rough length required to read/view the resource; any additional comments. Some of these categories may not apply to certain resources so they are not required.

The ACM Task Force and Ethics and Computing is establishing a review process, commencing about a year after the publication of the initial collection, to review suggested additions and add selected ones to the collection three to four times per year. Criteria that will be used to assess suggested additions include the credibility of the source, and the accuracy of the content. Moreover, there also will be a plan to view the access statistics for current resources and trim resources that are not used regularly.

5 ACCESSING THE REPOSITORY

The repository is publicly available at https://engage-csedu.org/ethics-and-computing/; its use is simple and straightforward. The form for suggesting new resources for the repository can be accessed from the page "About the Repository" or directly at https://bit.ly/3s1g0ET.

6 ACKNOWLEDGMENTS

Our thanks to ACM for allowing us to modify templates they developed, to the ACM Education Board for supporting the creation of the repository, and to the ACM Ethics and Computing Education Task Force for many helpful discussions.

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