

Ethical Speculation in the Computing Classroom

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Abstract—How best to teach ethics to computing students is an unsettled question, with a variety of pedagogical approaches represented even as the demand for such instruction continues to grow. One important component is the degree to which ethical thinking requires speculation about future harms. This abstract for a lightning talk presents the Black Mirror Writers Room as one pedagogical strategy for teaching ethical speculation as a skill, with some preliminary ideas for iterations on this exercise.

Keywords—computer science education, ethics, science fiction

I. DESCRIPTION

Hardly a day passes without a controversy related to technology ethics. From bias in artificial intelligence to privacy violations on social media to affordances for online harassment, when tech companies and researchers come under fire, response is often: Why are they not thinking about potential harms, particularly considering that technological harms tend to disproportionately affect marginalized groups? Unintended consequences of technology is a significant social issue, both with respect to the harms that can result and how it impacts widespread perception of the computing field. However, even if technologists want to do the right thing, doing so requires speculation about future harm.

Looking towards the future therefore becomes a useful tool in the classroom. For example, the “Science Fiction and Computer Ethics” taught at University of Kentucky and University of Illinois, emphasizes “offer[ing] students a way to cultivate their capacity for moral imagination” through analyzing science fiction stories [1].

Based on concepts from legal education and speculative design [3], the “Black Mirror Writers’ Room” is a teaching exercise that I developed several years ago to help scaffold ethical speculation in a classroom setting. *Black Mirror* is an anthology television show where most episodes examine potential technology harms; they take current technologies and push them just a step farther. For example, the episode “Nosedive” features widespread adoption of a ratings-based social measurement tool with severe ramifications; a question like “why would we agree to this?” forces reflection about the role of social media in our own lives.

Turning a class in the “writers room” for *Black Mirror* involves having small groups choose an issue or technology—social media privacy, algorithmic bias, online harass-

ment, misinformation—and then imagine where it will be in five or ten years. They consider possible harms, and then pitch an episode arc. This exercise could easily turn into a pessimist’s dream, but the imagining of all these possible harms is not the right place to end. The next step—arguably, the more important—is to consider how we don’t get there. Where could today’s technology go instead that could benefit society and make things better than they are now? If someone can deeply consider the ethical implications of a technology that someone else might create in 50 years, they can do the same with the technology that they might create tomorrow.

I have run this activity in multiple contexts—in a tech ethics class, in technical CS classes (e.g., Data Science and Algorithms), with high school students, and with tech industry professionals at conferences. Following interest from others in picking up and using this exercise in their classes after I shared these ideas widely [2], I created a slide deck that includes front material to use with students and a template for them to create artifacts of the creative exercise [5].

Anecdotally, this exercise has been useful pedagogically, and I am planning to build out and evaluate a similar exercise through classroom-based research, in the hopes that it can also be used by real-world product design teams. This next iteration of an ethical speculation exercise will include an emphasis on the importance of empathy and of imagining harms especially for marginalized and vulnerable groups, who are often disproportionately impacted by technological harms. Therefore, it is critical to both involve a diversity of perspectives in speculative design [6] and to embed concepts of justice into ethics education in computing.

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