Using Science Fiction to Teach Computer Ethics

Judy Goldsmith

University of Kentucky
College of Engineering
Department of Computer Science
Lexington, KY, USA

Based on joint work with Emanuelle Burton, Nicholas Mattei, Cory Siler, and Sara-Jo Swiatek
Why Teach Computer Ethics?

In the USA: ABET (accreditation agency) requires it
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It’s the right thing to do
Overview

1. Motivation

2. Using Fiction to Teach Ethics

3. Teaching Ethics

4. Ken Liu’s “Here-and-Now”
   - Study Questions
We all need to think through societal/ethical implications and consequences of our work:

- Should we do a thing?
- How should we do the thing right?
- How should we use a thing?
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Doing ethical analysis is hard work
Teaching Ethics is the Right Thing to Do

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- How should we do the thing right?
- How should we use a thing?

Doing ethical analysis is hard work

Students need practice, and guidance, in doing that analysis
For Instance: Misuse of Books is Unethical
Some things are obviously wrong

Articulating why is hard
Some things are obviously wrong

Articulating why is hard

Sometimes it’s not obvious that there’s a problem
Ethical Theory is Valuable for CS Students

It offers:
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It offers:

- different bases for making decisions
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It offers:

- different bases for making decisions
- different bases for describing problems
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It offers:

- different bases for making decisions
- different bases for describing problems
- understanding of different ways ethical decisions get made
Deep breath.

Questions?
So how do we teach ethical reasoning?
“Jack asks Mary if he may use her work account to send some email. Jack clicks on an ad and accidentally installs ransomware in Mary’s company’s system.”
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Who cares?
What Stories Bring to the Study of Ethics

- Characters and back stories
- Complexity and conflict
- Memorable decision-making
- Productive lack of resolution
Going Back to Jack and Mary

Backstory:

- What is Jack and Mary’s relationship?
- What is Mary’s relationship to the company?
- What sort of company is it?
- Should anyone trust Jack to be competent or well-intentioned?
Complexity:

- Suppose that Jack’s email is a life-and-death one?
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- Suppose that Mary has been planning to sabotage her company, EvilCorp’s, computer system?
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- Suppose that Mary has been planning to sabotage her company, EvilCorp’s, computer system?
- What if Jack was blackmailing Mary?
- What if Mary wants to hack into Jack’s email server?
Emotional and intellectual investment for a memorable discussion:

- If the story connects emotionally and the options and their ramifications complex, the ethical choices will be memorable.
- If the class discussions are intense, students will remember the ethical framing when they encounter similar decisions later.
Lack of resolution:

- What is actually happening?
  - Is the narrator reliable?
  - Do the characters see things the same way?
- Would the decisions change if the characters know more about the circumstances?
- How could/do the characters take their incomplete knowledge and understanding into account?
Also...

It’s fun to read/watch good science fiction.
Movies

Blade Runner:
- Personhood
- Privacy
- Virtue ethics vs. deontology vs. utilitarianism
1 Local connection to the movie
What Do Ethical Theories Do?

Normative vs. descriptive ethics

Normative ethics: what people should do, and why

Descriptive ethics: what is happening, ethically speaking?
Lightning introduction to some ethical theories coming up.

Deep Breath.

Questions, before we dive in?
Deontology

Asks: “What is my duty?”

Duty determined by religion or laws or rules

Includes Kantian ethics

Any “true law” will be universally applicable

Think about Asimov’s 3 Laws of Robotics
Asimov’s Three Laws

- A robot may not injure a human being or, through inaction, allow a human being to come to harm.
- A robot must obey the orders given it by human beings except where such orders would conflict with the First Law.
- A robot must protect its own existence as long as such protection does not conflict with the First or Second Laws.\(^2\)

\(^2\)The rules were introduced in his 1942 short story ”Runaround”, although they had been foreshadowed in a few earlier stories. The Three Laws, quoted as being from the ”Handbook of Robotics, 56th Edition, 2058 A.D.” [Wikipedia, Three Laws of Robotics]
Virtue Ethics

Asks: “Who should I be?”

Organized around developing habits that lead to acting consistently with chosen virtues

Asks: “Will I be perceived as acting according to my chosen virtues?”

Emphasizes not universal laws, but local norms
Utilitarianism

Asks: “What is the greatest possible good for the greatest number?”

Rule Utilitarians choose rules that (are expected to) optimize utility

Act Utilitarians evaluate the consequences for all expected parties of their actions
BREAK

There’s time to google and read Ken Liu’s story, Here-and-Now, in Kasma Magazine

Also, stand up and stretch if you want
“It’s amazing what you can get, just by asking.”

[Here-and-Now]

Characters:
- Aaron
- Lucas
- Aaron’s parents
This is where we review the plot
Aaron decides, early in the story, that Tilly Here-and-Now made you more aware of the world around you... more connected to your community.

How do the events of the story itself confirm or challenge that conclusion?
Does it matter that Tilly’s request function is anonymous? Why or why not?
Users can request information, or to collect it for others, but can’t prevent something from circulating. Imagine that a new layer of the app allowed users to pay to keep certain information from circulating. Would this address the moral problems raised by the app? What new problems would it introduce?
What was Aaron’s experience of the app?
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How do the requests get personal for him?
Aaron

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Is control of information important to Aaron?
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How do the requests get personal for him?

Is control of information important to Aaron?

Do either Aaron or Lucas ask if they should fulfill requests, or make them?

Why is Aaron the protagonist?
Control of Information

Do you see instances of people pretending to be someone/something/somehow other than they are?
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- Aaron’s role in a school play
- Aaron’s request to distract Lucas
- Aaron’s parents pretending it’s all okay
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Do these attempts to control information matter? In what way do they matter?
What Decisions Are Made?

- Aaron's decision to fulfill a request
- Lucas' decision to request a video
- Aaron's decision to engage with Lucas
- Aaron's mother's decision to post a request
- Aaron's decision to post a request to distract Lucas
- Aaron's decision to not say anything
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Virtue Ethics

What virtues do the characters aspire to?
Virtue Ethics

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Aaron:
- Connection with the world around him/Awareness
- Filial respect
- ...

In what ways does he succeed/fail to practice these?

What makes it difficult?

Can he do better?

What would make that course of action difficult?
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What About the App Designers?

Tilly wants the app users to achieve certain key virtues. What are those virtues?

What habits are introduced and reinforced as progress toward those virtues?

What current virtues are out-of-date or less valuable, with the app?

How does the story show us these virtues?
What duties do the characters try to fulfill?
Deontology

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Do they succeed?
What makes it difficult?
Deontology

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Do they succeed?
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Could they do better?
What would make that course of action difficult?
Utilitarianism

What utilities were the characters focused on?
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Do they act in a way that created the greatest utility?
What makes it difficult?
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Let’s Step Outside the Characters’ POV

- What is the worldview of the story itself?
- What are the ethical norms and assumptions of the story?
- Does it do justice to all of its characters, and the ideas that are at stake?
- How does it talk back to our own world?
Notice how different theories foreground different aspects and even different decisions.
Compare and Contrast

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Educational goals:

- Teach students to recognize decision points with ethical impacts
- Teach students to frame decisions within different theories
- Complicate the decision-making process
Summary

- CS ethics classes can focus on **descriptive ethics**
- Fiction gives us a chance to frame complex, uncertain decisions
- Discussions about this can be fun and memorable (as well as challenging)
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Read Our Papers

D. Copp.
The Oxford Handbook of Ethical Theory.

H. LaFollette and I. Persson.
Blackwell Guide to Ethical Theory.