Research Methods and Professional Practice June 2022

« Collaborative Learning Discussion 1

Andrey Smirnov

Initial Post

74 days ago

6 replies

Last 68 days ago

Ethical and societal concerns associated with the emergence of new as well as the evolution of existing digital technologies have been a hot topic for debate and research in the last several decades (Tavani, 2016). Interest in technology ethics is evidenced across industry and academia, as well as governments and other civil groups; in recent years, developments in AI and data controversies such as the Facebook-Cambridge Analytica scandal have also moved this problem to the forefront of public awareness (Floridi, 2019). It remains, however, a complex topic that requires nuanced understanding of social, legal, economic, and political challenges that are often deeply intertwined (Green, 2022).

Technology ethics codes such as ACM's Code of Ethics and Professional Conduct attempt to engage with social values and encourage computing professionals to reflect on the wider impacts of their work (ACM, 2018). There is, however, disconcerting evidence that as these codes are incorporated into technology companies they frequently get "overridden" by corporate logics and incentives. Metcalf et al. (2019) describe a worrying trend in technology companies to create "structural conditions to normalize ethical transgressions". This is especially evident in companies that follow a common Silicon Valley motto of "failing fast and failing often"; such companies do not have clear frameworks for risks that cannot be tolerated or formal boundaries on which institutions may not be broken.

An additional concern around the efficacy of technology ethics codes is the fact that they tend to be too abstract and focus on decisions made by individual actors (e.g., software engineers) while overlooking the structural forces and broader environments in which these decisions are made (Metcalf et al., 2019). The combination of all the above issues can unfortunately result in situations where the ethics code is used merely as a political tool for signaling moral virtues to the public, while the company is continuing to operate business as usual (Stark & Hoffmann, 2019).

The impact of ethics codes on individual behavior of computing professionals has also been debated; one recent study found that explicitly instructing software developers to consider the ACM code of ethics in their daily practice had no observed effect on their decision making (McNamara, 2018). An interesting perspective of Berghel (2019) is that this finding should not undermine the value of the ACM code: “ethical codes, like laws, do not preempt bad behavior; rather, they contextualize behavior once exposed”.

ACM provides several case studies to aid understanding how to apply their Code in practice; I have chosen the study of Medical Implant Risk Analysis. This study focuses on Corazon, a medical technology startup that produces implantable heart monitoring devices. Analysis of the study shows adherence to several principles of the Code, including 1.1, 2.3, 2.5, 2.6, and 3.7 (ACM, N.D.). Perhaps the most of important of these is Principle 1.1, which asserts an obligation to use computing skills for the benefits of society, its members, and the surrounding environment (ACM, 2018). In the study, Corazon’s work and actions are found to be in line with this principle due to the nature of their product and their charity activities.

Corazon’s focus on securing patients’ information with cryptographic algorithms and the company’s commitment to ongoing improvement in this area can be said to embody the goals of both the ACM Code of Ethics and the BSC Code of Conduct. More specifically, Corazon’s behavior exemplifies the first key principle of the latter, which demands IT practitioners to have “due regard for public health, privacy, security and wellbeing of others” (BSC, N.D.). It should be noted, however, that the BSC Code of Conduct is concerned exclusively with actions of individuals and is not directly applicable to business entities.

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Reply

6 replies

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Post by **Doug Leece**
Peer Response

71 days ago

This posting is a strong exploration of ethics from a legal perspective rather than a naïve expectation of compliance with excellent reference sources.

A sentence from Berghel's first paragraph "Codes of ethics are rarely enforced in the absence of litigation" (2019) can be easily taken out of context to support the argument that codes of ethics are effectively pointless. One interpretation of the premise ethics can contextualize the gravity of the offense once exposed (Berghel,2019) implies that the distance from the desired ethical state could be used for defining the appropriate legal settlement. Unfortunately, as told by ACM/IEEE taskforce chairman, the original ACM code of ethics was purposely adjusted to avoid wording to avoid legally binding software developers to specific obligations (Gotterbarn, 1999).

I concur with this posting assertion that ethical guidance like the BCS conduct of conduct (BCS, 2021) apply to individuals rather than business entities (Smirnov, 2022). Fortunately for those with implants, Corazon executives did strive to comply with the spirit of ACM principle 2.4 of accepting professional review (ACMa, N.D.) by offering a bug bounty for researchers identifying security issues with their products (ACMb, N.D.). Additionally, Corazon leadership did prioritize the public good, ACM leadership principle 3.1 (ACMa, N.D.) by publicly acknowledging the researcher's work and assessing the residual risk (ACMb, N.D.). This is commendable considering "breach and pay" is a strategy many legal counsel consider within ethical boundaries when it is in their client's best economic interest to risk paying damages or fines instead of complying with a law that may be counter to the company's preferred interests (Ostas, 2009). Some large technology firms have consistently shown they are willingly pay fines rather than refine their product to align with regulations and ethical expectations (Braun, 2022).

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Reply

Maximum rating: -

2

↑ Reply to  **Doug Leece** from **Andrey Smirnov**

Re: Peer Response

69 days ago

Hi Doug,

Thank you for the insightful comment. Like yourself, I do not support the argument that ethics codes are "point-less"; this argument effectively negates the codes' edu-cational and inspirational aspects, as well as their role in informing the public about the responsibilities of a pro-

fession and therefore shaping societal as well as peer expectations (Gotterbarn, 1999).

That said, it is reasonable to question the overall effectiveness of ethics codes and programs. In an older paper on this subject, Stevens (2008) postulates that codes can be a good instrument for shaping desired behavior provided that their underlying ethical principles are embedded in the corporate culture and are communicated effectively by the management. According to Hopkins (2013), it is critical that ethics codes are not seen merely as "check box" exercises, but are instead supported by strong compliance programs and an ethics culture in a company.

As Brinkman et al. (2016) remark in their elaboration on the latest ACM Code update, "a Code that sits in the unread appendix of a book, or languishes on an unvisited website, has little influence". In other words, drafting a sound code of ethics is only the first step; systematic efforts are needed to promote ethical behavior in IT professions within education as well as in industry.

In your professional experience, have you observed effective application of ethics codes in practical scenarios? Can it be said that these codes are more important for cybersecurity professionals than they are for software engineers, or would you disagree with this statement?

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Reply

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Reply to  Andrey Smirnov from Doug Leece

peer response

68 days ago

Great points Andrey and following up on your question, my professional experience has been the technology questions are easier to take a position on than personal issues. When performing system penetration testing, I have uncovered issues that could lead to tracking people and there has seldom been a debate on remediation. Conversely, as a corporate forensic investigator I have collected digital evidence in many matters; for the most part disciplinary action tends to fall sharply the more visible the person is within the organization. Since my role has always been to procure evidence, not provide the judgement my ethical commitment has been to be equally vigilant collecting exculpatory evidence or presenting alternative hypothesis for the evidence besides malfeasance, even when it was not encouraged.

While these are personal observations which I can't fully cite due to employment confidentiality agreements I was able to locate external research others may also find interesting. A journal article on Adam Smith's economic theories and the Stoic study of ethics (Jones, 2010) led me to Jennings' well cited book, "The Seven Signs of Ethical Collapse", which unfortunately is not available in the Essex library, but an online interview with the author by the Santa Clara University school of applied ethics breaks the seven signs down nicely (Markkula, 2012). According to Jennings, fear and silence are often the root cause for ethical transgressions being overlooked by people navigating management ranks.

Those who immediately point to ACM 3.1 need to also consider ACM principle 1.2, careful consideration of the impacts to all involved, despite the lure of well-intentioned actions before judging the choices of managers and directors of organizations. The very nature of virtuous ethics, part of the original foundation of these codes (Getterbarn, 1999), implies the decision to follow or not follow is a personal one, accepting that they alone must deal with their peace of mind regarding how their actions conformed to the laws of reason (2010, Jones)

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Reply

Maximum rating: -

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↑ Reply to  Doug Leece from Michael Justus

Re: Peer Response

68 days ago

Hi Doug,

In reference to your statement "Some large technology firms have consistently shown they are willingly pay fines rather than refine their product to align with regulations and ethical expectations (Braun, 2022)", what do you consider the driving reasons behind these actions? If these companies fail to abide by some level of ethical expectations, could it be laying a precedent for other organisations to emulate such behaviour?

Reply

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Post by Shan Swanlow

Peer Response

70 days ago

Hi Andrey,

I enjoyed reading your views on not just the case study, but how codes of ethics are applied in the workplace as well. Newer literature agrees with your assertions that the application of ethical codes to the workplace is far from ideal: Gogoll et al. (2021) argue that because software codes of conduct are written as principles, they quickly become impractical when applied to a real-world situation. The authors explain that this is because principles are just princi-

ples- they don't advise users on how to approach an ethical problem or balance competing factors. For example, a situation may arise where a developer needs to balance between security and time-to-market (a situation perhaps relevant to Corazon), however, ethical codes don't explain how to decide which one to prioritise (and which matter). This can lead to very arbitrary decision making, with developers following their intuition (or cherry-picking some principles) to balance the factors and call the outcome ethical because it fits a code of conduct from some specific perspective. Hedayati-Mehdiabadi (2022) also warns of this risk (although in an educational context) and encourages the application of multiple ethical frameworks to understand a situation more comprehensively.

Your chosen case study provides a good example of this: in the ACM's code of ethics, principle 1.3 states: "a computing professional should be transparent and provide full disclosure of all pertinent system capabilities, limitations, and potential problems to the appropriate parties". According to the case study, it seems that Corazon is opting to not fix the vulnerability which allows a device reset. Do you think that to be consistent with principle 1.3, Corazon has to disclose this to their customers, since they're directly affected by it? In the real world, it might not be sensible to disclose something of this nature, but the principle is still one to consider all the same.

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Reply

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↑ Reply to  Shan Swanlow from Andrey Smirnov

Re: Peer Response

69 days ago

Thank you for the response, Shan, you have asked a very interesting question.

According to the case analysis, Corazon acted "responsibly and quickly" to ascertain the potential risks and harms with the attack described by the researcher; together with the latter, the company's experts determined that they were negligible due to the limited capabilities of the device. In regards to disclosing this information, I believe Corazon had to weigh the needs of their customers against the scope and severity of the uncovered vulnerability. A customer might not want to be informed about every and all problems in the product they use; they might only want to receive communications that pertain to disruption of service/operation or inadvertent exposure of personal data.

That said, you are correct in that this example can be interpreted as a violation of the Principle 1.3 of the Code. I do not consider myself an expert on corporate ethics, and I would be happy to read a more qualified opinion on this matter.

Kind regards,
Andrey

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