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As software becomes pervasive in our daily lives, its values from a purely human perspective are brought to light. Ethical conduct is one such human value. There are various reasons for discussing the issue of ethics within a software engineering context. By participating in a software development process, software engineers can influence the final product, namely the software itself, in different ways including those that may be contrary to public interest. In other words, they could engage in an unethical behavior, inadvertently or deliberately. This could lead to personal harm, and potentially result in loss of confidence in software and loss of trust in organizations that own them. This can adversely affect the acceptance of software as a useful product, question the credibility of software engineering as a profession, and lead to legal implications.

Software developers are an integral part of protecting our critical infrastructure. They write the algorithms that make increasingly important decisions about people's lives. They help safeguard our information from hackers. These are the people who will determine how computers, drones, banks, criminal sentencing, predictive policing, and surveillance work. They're determining how machine learning will be implemented. They're changing the world. It's time we stop coming up with sterile lists of to-dos and don't-dos and instead put our energy into something with teeth. Let's stop writing general guidelines and start being fiercely specific, where we can, about formal rules and consequences for bad behavior. Do no harm, take no bribes, be fair to others – these are no-brainers that apply to any profession.

First, people need to understand and appreciate the issues, whether it's why ethics is important in engineering or why weapon x is bad and needs to be banned. This is primarily about education. Second, a code of ethics, or treaty, needs to have bite or a clear penalty for non-compliance. This is about enforcement. It doesn't necessarily need to be a direct physical or financial sanction, but even peer pressure can be quite effective. This could mean anything from an industry culture that would not hire or promote an engineer who doesn't care about ethics, to swift condemnation when a nation breaks with customary international norms.

To be sure, there's a lot standing in the way of an effective code of ethics that truly governs the behavior of software engineers: there's no one group in charge of their behavior, rules have to be globally applied to be maximally effective, ethical conduct is not straightforward. Too often we've let this stand in the way of doing anything at all and we stand paralyzed in the face of technology that outpaces policy by the day.

Why not start by examining algorithmic bias, for example, as this issue affects more people every day? Summarize the research on how algorithms discriminate; illuminate the areas in which they are already in play in our everyday lives; name the companies that create and sell these algorithms (especially those that will not share their proprietary code); reveal which companies, police departments, banks, etc. have implemented these algorithms – that is, show people that this matters and demands intervention.

Ethical guidelines for software developers writing this sort of code need to go beyond the Golden Rule. A guideline should look less like “Be aware of possible biases” and more like “All software developers should educate themselves on programming bias and its potential harm, examine their plan and subsequent code for such bias, be able to explain how they dealt with these issues, be willing to subject their code to scrutiny, claim responsibility for flaws found in the code that might lead to bias, and address concerns brought up by oversight committees. We should put the onus on the developers to seek education and be genuinely concerned that their work can cause harm if they are not vigilant. The best way to do this is to incorporate rigorous ethics education into the engineering education.

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