Moral Duty of a Computer Professional

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The THERAC-25 is a staple example of mixing ethics and business in the computer science world. While it is okay for most programs to fail occasionally, it is not acceptable when it comes to things such as medical equipment. Situations where death is a possibility, require much stricter guidelines to ensure public safety. Software engineers are the backbone of ensuring programs are adequately tested and reliable. Therefore, software engineers have a moral obligation to ensure their programs that could cause death or serious injury are rigorously tested to avoid any incidental harm.

Life-threatening systems should follow ethical and logical protocols to establish reliable testing. This means that the amount of testing necessary should be determined by the amount of risk involved. For example, a program that is non-life-threatening does not need as much testing as a program that could be life-threatening. Such a system must be tested in a live scenario and at least 99.99% reliable because no complex system can be 100% reliable. It is best for computer professionals to follow proper protocol and best practices in an effort to minimize such harm (ACM Code of Ethics, 2018). Because reliability is a key component to ensuring public safety, there is no justification for selling a less reliable life-threatening system even if the effort is to potentially save additional lives. Even if my own life was on the line, I would not accept any treatment that was not properly tested and not signed off on by organizations such as the FDA.

Software engineers should be required by law to prove that they possess the necessary skills to create reliable software. Such a certification like the one required by all other fields of engineering is essential to protecting the public. This certification process should include some of what other engineering fields require: an ABET-accredited degree from a university or college, a completed written exam, multiple years of experience, and a final written exam (Wikimedia Foundation, 2022). Only giving those who successfully meet state requirements a

license to practice software engineering, will allow software engineers to be legally held accountable for their programs and thus persuade them to be both mindful of what they are creating and ensure proper testing for their programs.

THERAC-25 has left a mark on society and questioned the moral obligations of computer professionals all over the world. Although the THERAC-25 incident was horrible, it resulted in some good such as helping society realize how sensitive software is when mixed with potentially deadly systems. This also begs the question, what responsibility does the programmer hold? Deuteronomy 22:8 states, “When you build a new house, you shall make a parapet for your roof, that you may not bring the guilt of blood upon your house, if anyone should fall from it.” The answer is that the programmer should have pushed for testing his software with the hardware of the system and testing in a real-world situation. This would have been the programmer’s parapet. It was wrong for the programmer not to effectively test the software and wrong to have known there was potentially faulty code that could result in death or serious injury. I also believe it was wrong for the company that created the THERAC-25 to only hire one programmer. They should have had multiple people work on the software so that there would be differing opinions and ideas that could have potentially averted this disaster.

Software engineers need to better understand their moral obligations to help adequately test new technology and prevent incidents like THERAC-25. A legal system that provides licenses to software engineers would provide a great basis for hiring someone with proper experience because someone without enough experience may not ask all the right ethical questions. The moral obligation to properly test potentially life-threatening software must be taken seriously and the best way to do this is by using best practices and weighing the risk to determine the amount of testing necessary for a particular system.

References

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