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CSCI 315: Ethics Paper

After the THERAC-25 tragedy, many questions arose regarding the ethics of testing and justifiable use. How much testing is necessary? Can a life-threatening system be sold? Everyone has their own standards, and situations can differ radically. We do know that we cannot do unlimited testing since costs would skyrocket for both producer and customers. Quantifying how much testing should be done universally is impossible. However, unlike THERAC-25, two or more programmers could be assigned (Leveson and Turner). Code can then be checked consistently, and testing would be more varied, reinforcing the error-catching net. However, to hypothesize vague qualifications is pointless without context. For the second question, I believe there is a justifiable reason to sell life-threatening systems, but only under **very** specific circumstances. First, the system **must** fight a lethal condition. Second, producers **must** follow the ACM Code of Ethics stating that programmers “should follow generally accepted best practices unless there is a compelling ethical reason to do otherwise” and “be transparent and provide full disclosure of pertinent system capabilities, limitations, and potential problems to the appropriate parties” (“ACM Code of Ethics and Professional Conduct”). Finally, doctors **must** be honest with patients about the system’s use. Of course, the Bible’s stance on honesty is clear – “Lying lips are an abomination to the Lord, but those who act faithfully are his delight” (New International Version Bible). Some might argue that even with full disclosure it should not at all be sold. They may have similarly cited the Bible and ACM Code of Ethics regarding not harming others, working with integrity, not doing harm, and “do[ing] to others as you would have them do to you” (“ACM Code of Ethics and Professional Conduct”; New International

Version Bible). However, when treating serious diseases like cancer, doctors acting under the Hippocratic oath will justifiably prescribe experimental and possibly lethal treatments seeking to aid the patient. If I were a doctor, I would suggest such a system only as a last option to save lives. In the best application of “do unto others...” (New International Version Bible), I would be willing to use such a system in my own treatment if necessary, assuming that the programmers were ethical ones, “insist[ing] on and support[ing] high quality work,” “maintain[ing] high standards of professional competence, conduct, and ethical practice”, “ensur[ing] that the public good is the central concern during all professional computing work” (“ACM Code of Ethics and Professional Conduct”). In the THERAC-25 situation, had those selling the software been honest about their lack of staffing and testing, lives could have been saved (Leveson and Turner).

After THERAC-25, another question is this: should software engineers be required to go through a certification process? Even with critical work, software engineers have no standard certification. Many demand that they be held accountable as non-software engineers are (“Regulation and Licensure in Engineering”). With software made by Professional Engineers, society would be safer (“Regulation and Licensure in Engineering”; Knight and Leveson). To do so would be an overreaction. Our society is built upon works of “uncertified” software engineers. Any sort of certification test would be either too specific or too vague and complicated by too many languages, configurations, and methods in programming to assess. On top of that, these technologies evolve far too rapidly to be sufficiently tested. In fact, most critical software developers would not require licenses as they do not sell directly to the public. This does not even begin to mention the licensure conflict between states, going through every state and beyond (Knight and Leveson). In summation, we should not try to license software engineers - the licensing is impractical, impossibly vague, and overall unhelpful.

Works Cited

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