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CSC 300

Homework 1

In an article titled “Changing The Engineer’s Mindset: From How to Why”, published on towardsdatascience.com, Jessie Smith argues that engineers need to shift their mindset from asking “how” to asking “why”. Traditionally, when an engineer is given a task, the first thing they consider is how they can implement what is required of them, and what they can do to create a solution as efficiently as possible. However, Smith takes issue with this approach. “Efficiency seems to be the topic of interest. The problem here though, is that no one is asking why”. Why is asking “why” so important? The reason is that it elicits a sense of mindfulness and responsibility that was not there before. When an engineer doesn’t ask why, they are merely a pawn. Their immense power and knowledge are being used to play someone else’s game. However, when an engineer asks why, they are considering the ethical implications of the technology, and regaining control. Consider an executioner who is ordered to execute a certain individual who may or may not be guilty. Obviously, he must carry out the order, or he will lose his job to another able-bodied executioner. What if, however, he was one of the only people who had the skillset of executioner? If he felt that the person he was to execute was actually innocent, his higher ups would have no choice but to hear him out, as finding another executioner would be difficult to impossible. Although this example does not relate completely to that of engineers, it does draw similarities. If engineers realized the power they possess and started to put thought into the intent and purpose of their designs, they could use their knowledge and influence to shape a better world. It really comes down to an awareness of this power and having the courage to ask “why” instead of “how”.

This shift in “engineering mindset” that Smith describes can especially be applied to the field of computing and software technology. A couple of the issues she highlights in her article are Machine Learning Bias and Artificial Intelligence. Citing ProPublica’s case study on Risk Assessments, she gives an example of machine learning being used as a tool to predict the likelihood of a criminal becoming a repeat offender. However, she states that “African American offenders were being given unfairly high assessments when compared to their white counterparts”. Because the designers overlooked this fact and were instead focused on optimization, they failed to realize the ethical implications of their actions. Smith believes that “If more thought was put into the purpose of the work, the social ramifications of the predictor might have not been so easily overlooked”. In regard to Artificial Intelligence, Smith’s main concern is that engineers working on the cutting-edge technology are not recognizing the risks associated with it. “The engineers creating these groundbreaking beings are so excited about a technological innovation, they don’t realize that they may be coding themselves out of an employable future”. While I don’t necessarily agree with her doomsday viewpoint on artificial intelligence, I definitely recognize the risks associated with AI, ranging from taking the jobs of millions to them realizing their potential and taking over the planet. While these can both be dubbed as sci-fi arguments, the reality is that these are issues that we are going to have to face in our lifetimes. I surely would hope that the engineers that are at the forefront of the Artificial Intelligence movement are taking these things into consideration, and not just leaving ethical and legal decisions to lawmakers who haven’t the slightest idea on how the technology was implemented.

As society ventures further and further into the technological revolution and age of information, the awareness and intentions of engineers has never been more important. Technologists have the power to shape the future of the world for generations to come; whether it will be for better or for worse comes down to asking tough questions and answering them with the best possible intentions in mind.

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