

Software Architectural Patterns: A Performance Analysis
(Technical Report)
Using Care Ethics to Analyze the Bhopal Gas Leak Disaster in 1984
(STS Research Paper)

An Undergraduate Thesis Portfolio

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By

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Socio-Technical Synthesis

As I have the opportunity to reflect on my work for the research paper and the technical project, I am able to see how working on both of these at the same time enhanced my work and analysis. Although my technical project and my Science, Technology, and Society (STS) research paper are not directly related, working on both of them at the same time allowed me to make connections and understand the interconnections of engineering and society on a grander scale. I was able to think of the technical project from an ethics perspective and see it in a different way, which would not have happened if I did not work on the projects together.

The technical project is an informative analysis of different software architectures. In the modern world of technology, there are many times where companies are utilizing outdated methods and technology in the making of their products. This can lead to the software that is created to be inefficient and susceptible to an attack. By conducting an in depth analysis of different architectures and testing the speed and effectiveness of each architecture, it allows for the accurate information of which technologies to use. This will help companies make an informed and calculated decision on which architecture is well suited for their application and one that is safe to use. The STS research paper addresses a different aspect of the world. The paper is a case study of the Bhopal Gas Leak that occurred in India in 1984. Although upon direct analysis it is natural to analyze some of the causes of the accident and show how it could have been avoided. This approach does not fully outline the whole scenario. The STS paper focuses on viewing the tragedy through the lens of care ethics, and how we are able to hold companies morally responsible for their actions. This brings in a more holistic view rather than merely stating how things went wrong. The paper further explores how the Bhopal Gas Leak cannot be attributed to a single individual and further outlines the different actions the company in charge of the factory took that ultimately failed its moral obligations to the public.

Working on both the technical project and the STS research paper allowed me to make connections and see how principles from the ethical field applies to the technical field. The research paper and exploring the Bhopal Gas Leak through care ethics allowed me to think of how the technical project can help people be morally responsible. By utilizing the research and companies gaining a better understanding of which architecture to use for their applications they are satisfying some of their responsibilities to the workers and the public. It showed me that by creating an application that gives people clear information and statistics, will allow them to recognize their application's needs and create a proper solution. This will allow people to create a safe program and uphold their ethical values. Working on the technical project, I was able to see how important it is to have a moral compass while being a worker to society. By doing the research, I wanted to make sure I was following the care ethics and was making sure I was being ethically responsible since I had an obligation to the people who would be using the software to have it made for their purpose. Overall, I believe that the two projects go hand in hand and I gained knowledge from doing them together that I would not have gained otherwise.

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