**Week 8 Final Group Project Report:**

**Monitoring and Surveillance in Analytics**

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**Introduction**

In the past years, technology has been advancing at an exponential pace, bringing not only excitement but also a lot of uncertainty regarding people’s expectations of what is coming. Within this rapid development, the field of monitoring and surveillance allied with the use of analytics has also benefited greatly from it. To understand how it has been affected, it is important to learn its definition first, which can be best described as observing, watching, or keeping track of people, environments, or processes through systematic analysis usually supported by computers.

Nowadays advanced surveillance cameras, face recognition, biometrics, tracking devices, and drones are common aspects of our daily life. However, it has not always been this way. Not so long-ago surveillance methods were an unsystematic activity performed by members of a community who had to be physically present at a specific location to make observations and report what they saw.

The monitoring technology grew so much and so rapidly that humanity, in its vast majority, became subject to it willingly or not. People are constantly being monitored while large amounts of data about their behavior are collected and analyzed.  And most of the time, these individuals do not know how exposed they are to it. As a matter of fact, Americans are recorded on surveillance cameras at least 238 times a week and 9 in 10 internet users are being actively monitored (Melore, 2020).

There are many implications brought by the current use and aggressive development of monitoring and surveillance in analytics. In this paper, it will be argued that its implementation, although beneficial for humanity in some aspects, it can become catastrophic if not treated ethically.

In some ways, borders are thinning, and individuals are being turned inside out (Marx, 1998). The harms caused by surveillance are somewhat abstract, which, at times, makes them more difficult to be identified. They are also relative to culture and context. Some of these negative outcomes involve invasion of privacy, oppression, objectifying individuals for social control and manipulation, lack of control over their own information, and profiling (Kohn, 2010).

People frequently struggle to explain why a monitoring method appears bad beyond claiming that privacy is violated. By monitoring and surveilling people, ethical implications arise. Some of them are the degree of transparency of data being collected and its purpose, means of collection, awareness of individuals, consent, consequences of the activity, and conflict of interest (Marx, 1998).

**Literature Review**

George Orwell (1984) invented the expression "Big brother is watching".  This proverb refers to the government's digital surveillance devices like cameras, that are used to monitor its citizens in a society where Big Brother oversees a dictatorial regime, as described in the novel 1984.  It looks like after decades; the same theory has been implemented today. The same technological advancements that have transformed our lives also created thorough logs of everyday activities.

  Surveillance tools are used to monitor society's members in several locations, including streets, banks, casinos, shops, shopping centers, and malls. Routine observation occurs as we go by car or on foot. Providing a complete image of our life. Approximately 75% of small businesses keep track of customers who enter their store or restaurant using CCTV systems, and premises even permit legal enforcement officers to stop and investigate assaults and property offenses. There have been various benefits and criticisms of using CCTV.

We have also recognized that surveillance technologies have been useful and well-intentioned at some stages, best examples – health surveillance or someone trying to protect their home, child and their colleagues, or their citizens from getting harmed. However, even a well-planned and well-intentioned technology has unwelcoming consequences.

It has been in discussion to reform the structure of the amount of data generated through surveillance. Have you noticed when you walk out of the house your society’s CCTV is watching you when you book Uber you are monitored where you are traveling, and how frequently you are visiting a place. This is something you never know, all this data is saved somewhere without your knowledge and can be used, this raises concerns about data privacy and security (Marwick.A, 2012).

           What can be the emotional burdens or benefits of living in a surveillance-obsessed society? What exactly is going on with the Surveillance Camera Man? It will be a shocking social experiment to evaluate how much people don’t like to get filmed without their permission. Having a watch on someone’s daily activity is unethical. There has been certain documentary evidence about the question raised on surveillance machines in America (Green N, 2002).

Monitoring also takes place in the workplace. Large companies are constantly monitoring their employees to make sure they are acting and operating in compliance with the organization’s norms and expectations. A call center, for example, keeps track of every single call between a representative and a client. The calls are not only recorded and stored in the firm’s database but it is also analyzed by an algorithm that keeps track of variations of pitch throughout the interaction as well as the number of interjections.

Besides that, elements such as handle time, call volume, hold time, number of calls transferred, and customer satisfaction are also measured. This collection and analysis of data provide the business insights into how it is doing and how it can be improved. Other types of analytical monitoring in the workplace involve surveillance cameras, biometrics, ability to track devices and what each employee is doing and accessing with them.

Although it is important to monitor what happens in an organization for ensuring safety and generating ways to improve, heavy surveillance may damage trust in the relationship between employee and employer. Also, constant monitoring increases stress among employees and inhibits their freedom to speak up, leading to burnout and dissatisfaction.

According to the study: “Examining employee compliance with organizational surveillance and monitoring” (Spitzmuller & Stanton, 2006) there is a tendency for employees to not comply with the firm’s monitoring and surveillance process. In another study where 823 employees were surveyed, most of the participants informed that electronic monitoring raises the tension between managers and workers (Oz et al., 1999). The way many employers “monitor” their workers fit the definition of spying: “to watch secretly, usually with hostile intent” (Merriam-Webster, n.d.), since they are made unaware of the specific methods being used and their purpose.

In a study with 239 large corporations conducted by Gartner, it was revealed that only 30% of employees were comfortable with email monitoring. On the other hand, when they were told the purpose of such activity, that percentage increased to 50% (Kropp, 2019). According to another study: “How Employee Monitoring Undermines Ethical Leadership” (Thiel et al., 2022), it was found a strong correlation between employee monitoring and deviant behavior among employees.

According to Thiel, those who are often monitored lose their sense of control over their own choices, which leads to a loss of moral responsibility. Therefore, when there is no longer moral responsibility, deviance occurs. It was also observed that this loss of agency caused by monitoring limits performance. On the other hand, at companies where workers feel they are treated fairly, there were less reports regarding lack of control and privacy because of monitoring. (Thiel et al., (2022).  Therefore, drawing the line between monitoring and spying by providing transparency is most beneficial for both parties.

Another field where analytical surveillance and monitoring take an important role is public health. Through health surveillance it is possible to recognize disease outbreaks, follow the spread of a certain disease, remain informed about self-care practices of people who suffer from chronic conditions and how to take appropriate action in the event of a natural disaster at the populational level.

Some traditional public health surveillance systems have had issues with personal data collection due to a decrease in response rates. However, at the same time, social media exploded in data availability, which is why in the study “A New Source of Data for Public Health Surveillance: Facebook likes” (Gittelman et al., 2015), the authors state that Facebook likes may be used as a digital source of data to complement public health surveillance systems. The method is also less expensive and more timely than traditional ones.

The researchers completed a regression and principal components analyses to assess the predictive qualities of Facebook likes in relation to lifestyle behaviors, mortality, and diseases.  Their sample included 214 counties across the country. Facebook advertising application program interface was used to collect Facebook likes data. Three supercategories (activities, retail and shopping, and interests) of available Facebook likes were used due to their potential correlation with health. The outcomes were compared with the National Vital Statistics System (mortality data) as well as the Behavioral Risk Factor Surveillance system (health data). (Gittelman et al., 2015)

Based on their findings, they concluded that Facebook provided great value in predicting most health behaviors and outcomes evaluated since the results were similar to those drawn from the Behavioral Risk Factor Surveillance system and it clearly has the potential to be used as a complement to these traditional systems. Gittelman et al. (2015) also stated that a current obstacle is that the social media platform needs more transparency in the ways in which this information is compiled, otherwise they have no choice but to trust that the activities and interests measured are reliable.

The study mentioned above is an example of how monitoring and surveillance in analytics can be beneficial to society, but even more advantageous when there is transparency. In an event where Facebook had provided clarity regarding the data the outcomes would have been more concrete.

Talking about another example, was the year 2020 when we all experienced and passed through the COVID pandemic, which was a nightmare. It has tested our patience and our hold on the technology, putting all the research at stake. A big question mark on how the research can be practically implemented to track the actual infected patients or areas under its influence.

In this chaos, one of the technologies was a success globally and helped many providers to treat patients remotely. It is “Remote Patient Monitoring”. According to the research of M. Dhinakaran and his fellow researchers, it has been noticed that by using Machine Learning Technology Big data can be predicted and gives us an idea of understanding the spread of disease and controlling it.

Many countries have come up with their own way to figure out the actual number of infected patients. For example., India was using the “Arogya Setu” app, which uses GPS and the internet to track individuals’ areas and ask for a few steps of verification. It increases the dependency on the accuracy of the information, though it perishes through prediction.

 This era has brought a sudden change in controlling the spread, however, if we consider dependency on the manual collection of information it is time-consuming and a waste of resources which brings us to a point where we have massive gatherings on some occasions like The Kumbh Mela in Hindu religion where more than one hundred million people are involved as it comes every 3 years and celebrated in one of the four locations (Nashik, Haridwar, Ujjain and Allahabad). This event lasts for about a month, and it has been associated with a major outbreak of cholera in 2001. Using the technology of Apple iPads to geo-locate pilgrims going for checkups has helped in controlling.

**Synthesis**

As seen in the studies mentioned previously, monitoring and surveillance when conducted in a way that is opaque, unfair, dishonest, and apathetic can be harmful for the people subject to it. It can also become disadvantageous for those in charge of such activity. It was not until approximately 80 years ago that a CCTV system was first used in Germany to watch the launch of V-2 Rockets (The Times of India, 2015). However, their capability was still very limited. It was not until 1969 that the first modern video security system was invented (Hill, 2016) and it was not until the 90’s, when the internet became mainstream, that surveillance and monitoring started to be shaped into the way it is known today.

 It can be observed that in the case of employees’ monitoring, the outcomes were extremely similar in the studies: “Examining employee compliance with organizational surveillance and monitoring” (Spitzmuller & Stanton, 2006), Electronic workplace monitoring: What employees think. (Oz et al., 1999), “How Employee Monitoring Undermines Ethical Leadership” (Thiel et al., 2022), as well as in the research presented by Gartner, Inc (Kropp, 2019).

 Therefore, the adoption of ethics in this area can increase workers’ performance and job satisfaction, encourage more positive behavior in the workplace, boost the firm’s reputation, build a trustworthy relationship between employee and employer, and likely improve data collection. It was also possible to observe that in the absence of ethics there is a greater number of unsatisfied employees with deviant behavior, mainly because there is no trust in the relationship.

Polls of the general public continually reveal that a very high number of Americans are worried about their privacy. But the details of this are hazy and unclear. The opinions are less well-defined and consistent than they are for many other topics due to the newness of the technology, the value conflicts, and the complexity of privacy.

After confirming the importance of ethics in monitoring and surveillance, the next step is to identify ways to put it into practice. In the paper: “Ethics for the New Surveillance” (Marx, 1998), the author established a questionnaire composed of 29 questions to provide guidance in acting ethically in the field of surveillance. The questions were divided in three categories: “Means, “The Data Collection Context”, and “Uses”.

The first category questions if the activity causes harm, crosses personal boundaries, or if it violates trust in any way. The second category reflects on awareness (are individuals aware that their data is being collected and why?, are they aware of the results and how it was created?), consent, role inversion (would the individuals collecting data agree to have theirs collected under the same circumstances?), the presence of human review on results generated by a machine, potential for negative consequences, and right to challenge the algorithm.

 The third category asks questions regarding the use of surveillance data. These questions address the balance between the importance and cost of the means; the collection of personal information for profit without the benefit/consent of the provider; if the tactic used supports community goals, the goals of the object under surveillance, or personal goals of the collector; if the data will be used in a way that harms the subject (Marx, 1998).

Following these steps is an effective way to reconcile monitoring and surveillance processes with those subject to it in a way that minimizes ethical issues and improves people’s attitudes towards the matter.

**Conclusion:**

    Clearly, monitoring can have serious negative consequences. But is it possible to reap the benefits of monitoring without forcing people to compromise their morals? Being watched is always going to have a detrimental influence on people's feelings of agency and moral responsibility, but this research has identified one method that might mitigate this effect.

Humans who believe they are being treated fairly are less likely to experience a reduction in agency and, as a result, are less likely to lose their sense of moral obligation in reaction to monitoring. The findings from this paper show that monitored participants were less inclined to cheat if they believed they were treated fairly. Analytical monitoring and surveillance have multiple forms and are used in various fields for different purposes.

What was once concealed, forgotten, or invisible can now be seen thanks to new technology. They reveal aspects of reality that were previously hidden or lacking instructive signs, similar to how the atom or the unconscious were discovered. Therefore, as discussed, exploring the topic will raise awareness about where, why, and how analytical surveillance and monitoring take place, what the ethical implications are, the issues and benefits, as well as what can be expected in the future.

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