Multidirectional model

Interpretive Flexibility

Determinism

Relevant Social Groups

Contingency

Technological Frame

Stabilization and Closure

The rising usage of intelligent surveillance systems to increase security, order and generate insights on the masses is still a developing idea. But even during earlier stages of development, it has potential to greatly affect various relevant social groups and the masses in general and must be analyzed from the perspective of Social Construction of Technology (SCOT).

With the first ever recorded usage of CCTV (Closed circuit Television) cameras dating back to 1942 [arham1], the technology of video surveillance has come a long way. With developments in video equipment quality and increase in demand for security solutions, the surveillance systems now include a wide variety of choices including but not limited to long range IP cameras, 4k transmission systems, Autonomous drone-mounted cameras, Sensor arrays and laser-based night vision systems[arham3]. Hence, the technology of video surveillance has gone from a mere camera positioned to monitor a particular spot to being an entire ecosystem of inter-connected video feeds that can be utilized for a vast variety of applications. But as demonstrated by the wide variety of components and technologies that fall under the domain of video surveillance, the technology has not undergone a planned and linear development process.

With the ever-increasing of use-cases for video surveillance and analytics, the technology has followed a multi-directional development process. Considering security surveillance for instance, there is a wide variety of technologies and use-cases that have influenced the development and branching of that particular interpretation of the notion of intelligent surveillance. For instance, where the conventional CCTV cameras with video monitoring systems are still used, cameras in all shapes and sizes and intelligent video analytics tools, higher-bandwidth transfer mechanisms[arham4] have enabled use cases like surveillance and data collection using drone-mounted cameras, automated surveillance algorithms to track objects across footages[arham2], and even the usage of body cameras for police officers[arham5]. This multidirectional development process of video surveillance advocates the notion of interpretive flexibility in the usage of it and explains how, since the technology is still in its early stages, it is being influenced by the needs and uses of the society.

Now although it may be assumed that intelligent video surveillance systems are deterministic in nature and are bound to develop into a technology that will render the idea of privacy and freedom trivial and that the society has minimal to no influence on its development, the truth is actually to the contrary. As reflected in the ongoing development process of intelligent video surveillance systems, similar to the variety of interpretations and prototypes of technology that fall under the umbrella of video surveillance, there is an ever-increasing list of relevant social groups that control and direct the development process. Be it the government agencies regulating the usage of intelligent video surveillance systems or its relevant use case (drone flying regulations for instance), the individual outfits campaigning to influence the technology or even the user groups trying to implement the technology for surveillance and data collection[arham5], all these bodies represent the relevant social groups that have constantly been striving to alter the course and development of video surveillance and analytic in different ways.

On one end of the spectrum, there are scenarios where governments and organizations have been utilizing intelligent video surveillance to tap into the lives of masses and collect data on them to go as far as to control them for political gains. Taking the Chinese government for instance, that since the first proposed tracking system in 2011, has created a vast network of up to 626 million cameras[arham10] and surveillance equipment to monitor, track and perform unconsented analysis on their citizens. Furthermore, with plans to utilize intelligent video tracking for domains ranging from individual tracking and criminal activity monitoring to something as trivial as making a purchase[arham10], the government has gone forward to neglect the notion of privacy and utilize the technology to create a dystopian society. Apart from this, a large number of firms are inclining towards usage of surveillance and tracking mechanisms in workplaces to monitor their employees. Firms that utilize such solutions monitor employee screen times, content accessed, entry-exit times, track their movements across the office and even go as far as recording the time they were away to the toilet[arham9]. Now, although this may be considered as a step forward in the direction of increasing productivity in workplaces, it is a huge step away from the basic human right of privacy and is against many constitutions worldwide but is allowed in lieu of loopholes in the law [arham7]. So considering social groups that’s pushing the technology of video surveillance in the direction of complete uncontrolled surveillance that may be used to manipulate and control the masses for political gains and if left unchecked, is bound to have more of a negative on the society than the society on it.

But not every effort has been to utilize the technology for political gains and to control the masses. As mentioned earlier, there have been extensive efforts by groups on the other end of the spectrum to regulate the usage and impact of video surveillance and analytics. For instance, the Ontario government passed laws in 2001 enforcing users to disclose the exact data being monitored and stored to the target audience before even recording it and to implement options to bypass the surveillance tactics in case of a denial [arham6]. Similarly, another law passed in Canada in 2007 states restricted storage of surveillance footage and relevant data and restricts its export outside of the facility to other firms and enforces its deletion after a certain amount of time. Now although individually these laws and legislations seem trivial in the shadow of the scape of the interconnected system of surveillance technology, combined together they create a proper channel for ethical development and usage of the technology. Hence, where it might be feared that this technology will enable universal surveillance and eliminate the idea of privacy, the truth is that currently the technology of video surveillance is extremely contingent and under extensive debate by governments and independent law forming bodies and think tanks[arham8]. Now although not everywhere, but the social influence is having an effect in shaping the technology to something that we all can mutually benefit from and utilize to avoid a dystopian future, rather than proceed towards it.

This constant struggle between the relevant social groups dictates the contingency of the video surveillance systems we currently have and explains how society is influencing the future of this. As explained earlier, although many relevant groups are striving to utilize superior and highly-invasive technologies like drone-swarms, high-resolution cameras and other sensor arrays to monitor as thoroughly as possible, there are regulatory bodies that are forcing the masses to constantly choose privacy and basic human rights over efficiency and control. Hence, considering the constant ongoing debate and multidirectional development model, it is evident that intelligent video surveillance and analytics is still an emerging technology and is far from reaching a stage of closure. Yet, although there is a healthy amount of ongoing debate advocating the usage of this technology, the prowess of such systems and the negative effects they can have on the society cannot be denied and need constant thought and checks to regulate its development.

[arham1] <https://kintronics.com/the-history-of-video-surveillance/>

[arham2] <https://erncip-project.jrc.ec.europa.eu/sites/default/files/ReqNo_JRC100401_Surveillance%20Use%20Cases%20Focus%20on%20Video%20Analytics.pdf>

[arham3] <https://ncavf.com/blog/evolution-of-video-surveillance-systems/>

[arham4] <https://link.springer.com/article/10.1007/s00138-008-0152-0>

[arham5] <https://carnegieendowment.org/2019/09/17/global-expansion-of-ai-surveillance-pub-79847>

[arham6] <https://www.ipc.on.ca/wp-content/uploads/Resources/2015_Guidelines_Surveillance.pdf>

[arham7] <https://backend.orbit.dtu.dk/ws/portalfiles/portal/110934780/Video_Surveillance_Privacy_issues_and_legal_compliance.pdf>

[arham8] <https://www.law.berkeley.edu/files/Video_surveillance_guidelines.pdf>

[arham9] <http://faculty.bus.olemiss.edu/breithel/final%20backup%20of%20bus620%20summer%202000%20from%20mba%20server/frankie_gulledge/employee_workplace_monitoring/employee_monitoring_privacy_in_the_workplace.htm>

[arham10] <https://www.theguardian.com/cities/2019/dec/02/big-brother-is-watching-chinese-city-with-26m-cameras-is-worlds-most-heavily-surveilled>