

Technology and Information Ethics Issues Raised in Ghost in the Shell

Ghost in the Shell (GitS) is a fascinating fictional platform in which multiple issues of the ethics of technology and information are raised and explored. This short article presents a summary of some of the issues raised and the real world issues that they are reflecting. GitS encompasses multiple variations and formats (manga, anime movies, long run and short run episodic anime). This article focusses on the long-run episodic “Stand Alone Complex” (SAC), applying a *close reading* to the text to explore these ethical questions.

Is she really human? From the title, and the title song, the question of what it means to be human is a key theme. In GitS, Motoko has had most of her biological body replaced with machines, starting in childhood. Thus her biological development from childhood through adolescence and into adulthood has been in a partially disembodied state. We already have ethical debates about such issues, for example regarding the question of cochlear implants for (some) congenitally deaf children for whom this implanted device provides them with a very close analogue of the development of someone without the non-functional cochlear. The debate centres around the different neurological development which occurs when the implant is done at around 18 months, compared to later (at, say, 7 when the child would be allowed to express some level of consent, up to somewhere around 16 when they gain the legal right to consent). Pacemakers, deep brain stimulation and other implantable technologies are spreading although the broad replacement of a body as in GitS is still a long way off it would appear.

In the second season of Stand-Alone complex she has expanded out her ability to “inhabit” this body to enable her to remotely occupy machine bodies. In parallel with her evolution from biologically embodied human to cyborg, to disembodied “Ghost” inhabiting purely technological bodies, the artificial intelligence Tachikoma makes a similar move from an AI in a robot body to an AI “in the network”. It’s left to the viewer (at least so it seems to me) whether Tachikoma is one entity, multiple entities with some gestalt merging at the edges, or multiple separate identities.

Recent developments in endocrinal biological studies and neuropsychology have revealed just how much our physical embodiment effects our thought processes and emotions, and which raise the question of whether a human brain in a robot body remains “really human”. Keith Miller has discussed these questions in the last few years, in particular the issue of where along the 100% biological human to 100% technological “AI” we might draw any bright line between human and non-human.

It is clear that bio-mechanical and synthetic biological body parts will come at some point in the future, perhaps still decades off or perhaps we will see a sudden S-curve development as we have recently with AI research. We need the debate now about how we will treat people with such elements of their body, or we risk creating a dehumanised class of people, excluded from various human activities. This is already occurring in sports with various forms of chemical treatment available to non-sports participants being banned for use by athletes because of their potential misuse. This includes limits on external equipment and on embedded technologies and even on some elements of naturally occurring differences (excess testosterone production in female athletes for example).

Perception is everything. Another of the key themes of all versions of GitS, and SAC season 1 particularly, is the nature of reality as a social/individual construct formed from the information

available. The ability of the Laughing Man, the main antagonist to Motoko and her Section 9 group in SAC season 1, to replace video and still camera capture of his face by his logo, shows the weakness of a social system of mass surveillance to the elision of information by a powerful actor. This concept is highlighted even further in a scene where Batou runs out of the Section 9 headquarters believing the Laughing Man to be physically present and watching them. Batou's large physical presence and his demonstrated ability in both hand-to-hand combat and with firearms is turned impotent by the Laughing Man's ability to edit his entire presence out of Batou's field of vision by hacking his artificial eyes. Those artificial eyes were implanted to grant Batou even greater ability with weapons, turning an excellent shot into a superb sniper. Yet he is unable to bring his physical power to bear without knowing where to direct it.

Real world versions of the video-alteration capability have been developed, albeit with less accuracy. Such developments have been mostly done as part of privacy-enhancing technology research. Although at present the capability to do such real-time alteration of video-camera footage requires significant computing power, the concept (as considered in my 2014 paper "The Future of Video Analytics for Surveillance and its Ethical Implications") is aimed at possible implementation within the camera itself. The benefits of this are to allow deployment of video cameras in more places without worrying that their output invades individuals' privacy significantly, by scrambling the details of figures (their outlines, the details of their clothing and/or faces) while maintaining tracking of the people within a scene. We can thus see the roots of the GitS concept in today's research technology. We can also see how such potentially socially beneficial technology could present new opportunities for bad actors to subvert surveillance to allow them to hide in plain sight.

Political events including the UK's EU referendum, the election of Trump as US president and various other elections around the world, are alleged to have been deeply influenced by social media advertising based on military psychological operations approaches implemented by SCL Elections, Cambridge Analytica and Aggregate IQ. These demonstrate the broader power of controlling the information that people see. These ideas of propaganda go back to the late nineteenth century, but one of the key developments now is the ability to individualise the messages and present anti-immigration rhetoric to one group, support for low pay workers in another, and a message of nationalism to a third. If each viewer has a positive view of one of the messages and a negative view of the others, then their view on seeing all three would be negative. Seeing only the one which fits their prejudices, however, they gain a positive view of the campaign.

Data Shadows and Real People. These concepts of perception creating reality are not only one way, imposed by the powerful on the masses. The perception of the individual by others is also heavily influenced by the information about them available to others. This has long been a theme in the surveillance studies literature, and is echoed by various events in GitS. In SAC season 1, as well as in many of the other iterations of the work, the *data shadow* is shown to be often interpreted as an accurate representation of a real person. In some cases, this expands upon the *perception is everything* theme, when it turns out that no such person exists – they are merely a false persona for bad actors to inhabit. In other cases, they are mis-representations of real people. Bad actors have cover stories showing themselves as honest citizens. Honest citizens are also set up as false trails for Section 9 to investigate. The consequences for these innocent people range from short term inconvenience in being questioned, through serious disruption of their lives in being arrested, and even up to their deaths.

The real world versions of this are already all too frequent. One of the most obvious examples was the shooting of Jean Charles da Silva e de Menezes in 2005 by UK police. He was mistaken for a man suspected of planning a suicide bombing attack on the London Underground and shot and

killed with no warning. His only connection to any suspicious activity was leaving a house with a vague link to a prior unsuccessful suicide fire-bombing attempt. This problem is bad enough when law enforcement operations are mistaken, but this has been supplemented in recent years by the emergence of *Swatting*: the deliberate reporting of a fictitious ongoing incident of the type likely to generate a response by armed police (in the US, frequently SWAT (Special Weapons and Tactics) teams). Anonymous reports of threatening behaviour are called in to emergency police communications in order to spur the dispatch of armed officers to at minimum disrupt the regular law-abiding activities of the harassee, and in severe cases leading to their injury or death.

Ghost in the Shell continues to remind us of the immense potential benefits of modern computers, robots, and artificial intelligence, but it also contains explorations of the security and safety risks these technologies represent.