

Centre of Biomedical Ethics and Culture

Bioethics Links

In this edition, Dr. Ibad Kureshi's article discusses digital surveillance of data for capitalist ends, while Dr. Muhammad Fayyaz looks at the impact of using Artificial Intelligence in war. Also included is a report on the CBEC-WHO conference and workshop on deceased organ donor programs held in June 2019, and brief updates on workshops and events in which CBEC faculty were involved.

Editor

Big Data: Surveillance Capitalism and Our Digital Selves

*Ibad Kureshi**

In a presentation given at CBEC on 22nd December, 2017 entitled “Big Data: Losing Control of your Digital-Self,” I lamented about the ease with which companies have surreptitiously amassed a wealth of knowledge about us - 'us' as in the individual you or I, not an aggregate sum. This data is being used in a multitude of ways and even where not malicious its use may cause harm.

Our world is changing. Behind all the apps, all the smart devices, and all modern digital comforts, there is one impetus: collect all the data all the time. The most valuable commodity in the digital world is not a cryptocurrency but in fact our data. Even in the physical world data is more valuable than oil [1]. Everything we do leaves a digital footprint. Landing on a webpage creates a trail of evidence of our activities, both on our own devices (in the form of cookies) and on the servers running the website (in terms of access logs). The advertising eco-system that now drives the Web 2.0 and e-Commerce world, in fact exposes our data to hundreds of other entities without us knowing the extent or giving explicit consent.

While we consider this a necessary evil of the digital world, the ubiquity of digital devices means that this phenomenon of data

harvesting translates to the physical world as well. As we walk through a public place or any place we leave traces of our presence. The signals (WIFI, GPRS, Bluetooth) emitted by our devices are detected and logged. Should you be so inclined, your home router can be converted to spy on the comings and goings of your neighbour or their income level by counting the number of smart devices. Linking these detector systems with CCTV, loyalty cards, other smart devices (bulbs, home assistants, device finders) allows organisations to create rich models of 'us'.

These rich models are the new commodity of the *surveillance capitalism* *Continued on page 4*



Connected through technology: A man accompanying a patient from a village in Sindh sits on a Karachi sidewalk to charge his cell phone using a solar panel he has brought with him.
(Photo by Aamir Shehzad with subject's permission)

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Artificial Intelligence & Future of Warfare

Muhammad Fayyaz*

War is hell, as the saying goes. War showcases the ultimate competitive nature of human beings. Few human activities raise as many moral questions as wars do. Still, no era of human history is devoid of them. War reveals the enigma of human nature: it transforms a person into a warrior who takes lives, destroys properties and damages the continental environment, but interestingly, is still feted as a hero by many.

Warfare, the means by which we fight war, has changed a lot over human history. It has transformed from sticks to spears, to arrows and bows, to canon and machine guns, to artillery and tanks, to airpower and missiles/UAVs (Drones). Recently, the pace and content of these astounding transformations in war technologies has led to reigniting the debate about parameters of *just* war and warfare in human civilization.

Machines and computers are getting really smart these days. Since many decades, engineers have designed algorithms to help machines learn and to automate certain functions having a *fixed* and predictable output, for instance, assembly automation systems in the manufacturing industry. In warfare, 'automated machines' are a great help, especially in logistics, intelligence, surveillance and reconnaissance. But this kind of automation, in which the outcomes are fixed and restricted within established parameters, is changing fast, with the ongoing development of completely 'autonomous machines'. The term 'autonomous machine' means: a machine having the capability to perform tasks which normally require human intelligence, now called 'Artificial intelligence' (A.I.). It implies decision-making skills by

self-learning, without active human input. Autonomous machines would be *probabilistic* and would be able to *vary* their output or responses, by comparing the inputs they receive with existent databases. Let me describe a few autonomous weapon systems which currently demonstrate capabilities that can be termed 'probabilistic':

Platform-M and Argo: These are two kinds of military robots developed by Russia. Worryingly, it is claimed that Russian forces in Syria tested and deployed them in December 2015, in real battle environments, in collaboration with other elements against ISIS, to take back the control of 'Syriatel' tower. These autonomous robots went within 100 meters vicinity of enemy fortification, detected fire points when attacked and retaliated by firing themselves. Reportedly, 70 enemy fighters were killed in this operation. Valery Gerasimov, Russian Chief of General Staff, shared their plans to completely automate the battle in Syria, back in 2016. Similarly, 'warbots' like Prohod-1, Udar, Nerehta, Vihr etc. from Russia, Phantom from Ukraine and THEMIS from Estonia are different autonomous weapon systems in development to fulfill the different battle needs in the future.

A.I. Directed Kalashnikov: The Kalashnikov Group, the famous producers of AK-47 Assault rifles, have developed fully autonomous A.I.-directed combat modules, which can identify and engage targets without human control. These combat modules, when wheeled, can act as lethal, focused and unhindered robotic soldiers in the field.

Intelligent Micro-drones: 'Perdix' are micro-drones developed by MIT students and later modified on the direction of

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**“Ethical Deceased Organ & Tissue Donor Programs
and the Role of Transplant Coordinators”
June 24-25, 2019**

Despite the promulgation of the Transplantation of Human Organs and Tissues Act, 2010 and transplantation services now offered in public and private institutions in the country, Pakistan has been unable to establish self-sufficiency in organ transplantation in the absence of deceased organ donor programs. Organ transplantation began in 1985 but so far, there have been only 5 Pakistani deceased organ donors. It is estimated that over 50,000 Pakistanis die each year due to organ failures and the non-availability of suitable living related donors.

Against this background, CBEC, SIUT, a WHO Collaborating Centre for Bioethics organized a two day conference and workshop on the theme of deceased organ donation. The aim of the conference was to bring together international and Pakistani experts and scholars to discuss the ethical and practical challenges faced in establishing deceased donor programs and the important role of transplant coordinators in addressing them.

The well attended plenary session on the first day began with a welcome speech by Dr. Adib Rizvi, the Director of the Sindh Institute of Urology and Transplantation (SIUT) and an introductory talk by CBEC's Chairperson, Dr. Farhat Moazam who emphasized that a deceased donor program in Pakistan is a necessity, not a luxury. In the first of three invited talks, Dr. Jose Nunez, Advisor to WHO, Geneva on Medical Products of Human Origin, discussed WHO guidelines for safe and ethical transplantation and highlighted the global importance of developing deceased organ donor programs.

Following this, Dr. Alicia Perez Blanco of Spain's National Transplantation Organization in Madrid discussed factors that had made the Spanish deceased donor

program the most successful in the world. Dr. Valerie Luyckx of the Institute of Biomedical Ethics and History of Medicine at the University of Zurich, Switzerland spoke of the ethical aspects of organ donation and the role that WHO collaborating centres can play in global efforts to promote deceased donation.

This was followed by a panel discussion and lively question and answer session with four experts with extensive experience in the field of transplantation. These included urologist, Dr. Sunil Shroff from Chennai, India (on Skype), transplant surgeon, Dr. Iftikhar Khan from Dammam, Saudi Arabia, Dr. Katayoun Najafzadeh of the Iranian Society of Organ Donation, Tehran, Iran and Dr. Anwar Naqvi, Professor of Urology at SIUT, Karachi. Providing country specific perspectives, the speakers highlighted the importance of creating nationwide systems for deceased donation and the crucial role of transplant coordinators in facilitating the process of donation.

Post lunch, participants from institutions in Pakistan attended a workshop focusing on the role of transplant coordinators. In two interactive sessions, SIUT faculty, Dr. Farina Hanif and Dr. Arsalan Khan, *Continued on page 7*



Workshop participants, facilitators and CBEC faculty, June 25, 2019

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era.

A term coined by Shoshana Zuboff in 2015 [2], *surveillance capitalism* is a new economic order that claims human experience as free raw material for hidden commercial and security practices [3]. The addictive nature and reward schemes of cyber (e.g. Snapchat), and cyber-physical (Pokémon Go) apps has led experts to estimate that we touch our mobile devices anywhere between 80-2000 times a day [4-5]. Through this constant use of our devices, the phone manufacturers and the app designers are able to collect data on us passively. Sensors within the device such as Accelerometer, GPS, App Census and Usage, 3G/4G signal strength, available WIFI connections and device specific information sensors [6], allow the data collectors to infer our age, gender, income, level of education, sexual identity, activity and preferences, political leanings, eating habits, friendship groups, and health [7]. The common retort to learning of the nature and scale of the data acquisition is, “What's the harm? So what if they personalise my ads?” However, the full context, circumstance and extent of the data use are not fully understood.

Understanding the problem from a Nicomachean lens [8] we can question the problem using the 5 W's. *Why is our data being collected?* Possibly, this is the easiest of the five questions to answer. Our data is being collected to feed a process known as data-driven development. Computer scientists, engineers and domain experts the world over are building wonderful futuristic things, such as medical diagnostic tools, transport and logistics solutions, new business models, tools and services, and revolutionary urban infrastructure planning,

to name a few. These developments have led to new commercial opportunities and a whole sector of pay-as-you-use services. This 'servitisation' first seen in the computer infrastructure world through cloud computing has spread to vehicle ownership (through ride share apps), books, films and music (through streaming services), to tourism (through accommodation sharing apps). The provision of these services and the entire business models is both reliant on our data and generates further data about the human experience.

What data is collected and what is it used for? While the first half of this question was answered in the preceding paragraphs, finding a complete answer to the latter half is problematic. At face value our data is used by those we give it to, to provide us a service, and to determine new products, services, or marketing opportunities. While a benign sounding outcome, new products, services, or marketing opportunities can span the design of a new screw-driver [9], all the way to a targeted campaign to influence elections [10]. Further, as we see in the next questions, when and where the data enters the security apparatus is completely obfuscated from us, the data subjects.

When was the data collected and when will it be used? Rightly or wrongly, many a famous personality find themselves in trouble for comments made 10-15 years ago because in some archive there is an errant tweet or post. While we may believe we have deleted a misinformed tweet as soon as humanly possible, there are data aggregators that are automatically farming our activities in real-time. It is not just large organisations, anyone with a Twitter account can collect and store Twitter activity using the public *Continued on page 5*

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interfaces. Posts and tweets are not necessarily deleted from these archives. This information (known as a firehose) is then sold on to anyone with a credit card. It is foreseeable that an alternate Equifax-LinkedIn hybrid emerges that allows employers to get a moral, ethical or expected performance score of existing or potential employees that is based on their historical data footprint. The young adults (Gen-Z) of today (ages 20 and below) have lived their entire lives under the auspices of surveillance capitalism. The full impact of the data their parents and they themselves have shared about themselves is yet to be seen.

Where is our data being kept? This is where things become murkier. Our data has been collected over the last two decades through different online and physical services by organizations which have changed names and owners hundred times over. Technology evolves every 18 months and companies are constantly cycling deprecated (in the process of being replaced by new technology) equipment. So, what happened to the hard drive holding our biodata when we registered with a website, hotel, or conference in 2009? Is the hard drive still floating between offices? Was it dumped in the trash when the computer stopped working? Did someone else recover that information? Was the data sold on? Is the data still with the organization? Do they keep it in the cloud? Is it secure? Before Hotmail/Outlook and Gmail cornered the email market, think of all the email accounts we had created in the nineties and noughties. Did we delete all the emails, pictures and information from our Supernet or Cybernet accounts? Did it disappear from their backups? Did we delete all our information and pictures from early social

media e.g. Orkut and MySpace?

Who has our data? This is the final question for which no one can realistically give a complete answer. As is already clear from the other W's, we don't know the full extent of why or when our data was collected or what was collected. The European Union's *Regulation on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC* (also known as General Data Protection Regulation: GDPR) tried to make a first stab at solving the 'Who' problem [11]. On the 25th of May, 2018 when the regulation went into effect we got a brief glimpse into the scale as many responsible organizations informed the data-subjects that their data was being held and what it was being used for [12]. However, the data subject either blindly clicked 'accept' to the new terms and conditions or completely ignored the emails [13].

General attitudes in Pakistan tend to either be that Pakistani society is technologically so far behind Silicon Valley that the implications of these technologies are inconsequential, or that it does not matter if the pictures posted on

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CBEC faculty and staff share a light moment on the office patio.

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US Department of Defense for military use in 2013. These are less than a foot in size and fly like a swarm. They are leaderless, controlled not by one drone but by a distributed 'brain' among them. They are adaptive to changes and remain in coordination with other microdrones; a kind of 'single-organism'. The swarm of drones can autonomously perform multiple functions, like taking explosives, killing targets etc., keeping in view the given goal, and can collectively assess if the mission has been successfully completed.

Moral Implications of A.I. Weapons

Platform M, Argo & Perdix are concrete examples of weapons that are capable of making decisions autonomously. The future of warfare will have an abundance of them, with grave consequences for the moral boundaries that have evolved for warfare. 70,000 years of human history has witnessed bloodied human clashes and we have learned a lot from them. Indiscriminate killing of civilians, women, children, and damage to property has been banned. These conventional moral boundaries are best known to human soldiers, and in the last century, we have codified most of them in multiple UN conventions namely *Geneva convention for humanitarian treatment at war*, in addition to earlier Hague conventions under the umbrella of *International humanitarian law* (jus in bello) and supported by *International Human Rights Law*. These moral underpinnings have been upheld to minimize the human sufferings caused by military necessity.

The autonomous 'kill' function in A.I. weapon systems makes them non-conforming weapons to all above-mentioned conventions. This is a revolution bigger than 'gun-powder' and 'nuclear technology' in

warfare. Weapons, making decisions themselves, are a great threat to humanity. Humans are conscious of their actions, right or wrong. Will autonomous weapons be conscious of their acts? We really don't know. Human morality is a complex matter and is informed by many variables. Condensing human morality, an ontological substance, into mathematical algorithms is reductionist. Our sense of values in the case of autonomous weapons is misdirected; judged by profits, capital and political success.

Autonomous weapons will unleash a new era of terror without responsibility. Human sufferings will escalate to levels which have never been witnessed before in human history. Despite this, in my view, A.I. is neutral in structure and a complete ban on autonomous weapons is neither possible nor enforceable. The benchmark is: A.I. should be utilized in a beneficial way for humanity, even in warfare. The world is not ready for autonomous weapons yet and we need to restrict and slow down the pace of their development. Each A.I. weapon system and condition of its possible deployment must become part of a global discussion that looks at all eventualities.



“Calling Karachi Home,” CBEC Forum April 20, 2019: Author Ms. Lynette Viccaji (center), daughters, Zoe and Rachel share experiences of growing up in Karachi as part of a minority group.

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Facebook or Instagram are processed by some algorithm. But the pervasiveness of digital technologies should not be underestimated. A look at Google's Play Store [14] and Apple's App store [15] usage shows that the vast majority of applications downloaded and used by Pakistanis are made and designed by non-Pakistani entities. We are inadvertently surrendering our digital identities to foreign companies. The models they generate to represent us may have inherent biases that can be seen affecting people of colour in the West [19-22]. The new tools and services built on these models will inevitably find their way into Pakistan (banking KYC and loan assessment software, student performance evaluation software, etc.).

We may never know the full extent of who has our data or whether it will come back to bite us in an Orwellian, or Huxley-ian, or Gasset-ian dystopia. The general consensus is that it will be a dystopia.

(References for this article are available in the online version of Bioethics Links, Volume 15, Issue 1)

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gave an overview of Pakistan's Transplantation of Human Organs and Tissues Act, and brain death criteria. Workshop sessions on the following day began with a talk by Dr. Fatema Lanewala, SIUT, on the challenges in establishing corneal donation in Pakistan. This was followed by sessions on the role of transplant coordinators by Dr. Alicia Blanco and Dr. Omid Ghobadi, Iranian Society of Organ Donation.

The workshop ended with a session featuring video clips produced by CBEC to highlight existing social, cultural and religious hurdles to deceased organ donation in Pakistan. The clips provoked rich discussion by framing the issue within the local context.

**Pontifical Academy of Sciences’
Workshop on Personalized Medicine
April 8-9, 2019
Vatican City, Rome**



Participants attending the workshop on “Revolution of Personalized Medicine” held in the Vatican City, Rome

Dr. Farhat Moazam was invited as a speaker in a workshop on the ethics of Personalized Medicine by the Pontifical Academy of Sciences (PAS). Other experts were invited from Spain, United States, Italy, United Kingdom, Israel and Australia. The workshop was part of a series regularly held by the PAS to keep the Academy abreast of scientific developments. This workshop’s aim was to arrive at a consensus statement regarding different aspects of Personalized Medicine, including the theoretical concept, science involved and related ethical issues.

Workshop discussions highlighted that the science of Personalized Medicine is more complex than previously anticipated, and that ethical issues such as equity in public benefits and the erosion of physician-patient trust pose major challenges. Dr. Moazam’s talk entitled “Ethics and Precision Medicine through Another Prism” discussed the potential of Personalized Medicine but emphasized the repercussions on the practice of medicine and scientific research within the context of developing countries.

CBEC-KEMRI Bioethics Training Initiative (CK-BTI): Testing the test

*Aamir Jafarey**

The CK-BTI educational initiatives in Nairobi have provided CBEC with an opportunity to try out new innovations in teaching and testing strategies. One such innovation was tried out during the Clinical Ethics Certificate Course (CC) held at the KEMRI Training Centre in April 2019.

We had so far been using specially developed 'pre' and 'post' tests to assess participants' knowledge prior to and after contact sessions. While the tests generally reflected where students stood knowledge-wise, we thought that they could be used more effectively to address knowledge gaps and inform our teaching.

A transcontinental strategy was developed for this purpose: A pretest consisting of MCQs and other questions was conducted on Day One of the CC in Nairobi. Student response sheets were transmitted to CBEC in Karachi where our team was waiting to score responses. The results were emailed back to Nairobi the same afternoon and displayed according to the confidential roll numbers assigned to students. The students therefore knew where they stood individually, and in relation to the entire group.

The Karachi team also analyzed specific areas where conceptual lacunae existed and shared these with the Nairobi faculty. From Day Two onwards, these deficient areas were taken up in formal and informal sessions to fill knowledge gaps. Each day, unclear concepts were revisited and with the help of examples, approached from different angles.

The results spoke for themselves. While only 7 students passed the pretest, 28 succeeded in the posttest. But the

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educational component of the CC did not finish with the handing out of certificates of attendance: 6 students who had not passed the posttest were offered a Skype conversation with the Karachi based faculty. Two students did schedule a Skype session, and were grateful for the opportunity to clarify concepts.

Workshop: Challenges in Conducting Ethical Research in Humanitarian Settings, March 24-26, 2019 Amman, Jordan



Participants of the workshop on Challenges in Conducting Ethical Research in Humanitarian Settings, Amman, Jordan

Dr. Aamir Jafarey participated in a training workshop in Amman, Jordan that looked at ethical issues encountered while researching in humanitarian settings. The workshop was attended by 20 participants mainly from the Middle East. Dr. Jafarey led three workshop sessions on topics such as informed consent, therapeutic misconception, conflict of interest, and scientific misconduct.

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