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Source *NJP Reader #7 Coevolution: Cybernetics to Posthuman*, pp.219-230

Publisher Nam June Paik Art Center, Yongin

Sudden Unintended Acceleration as a Psychosis of Machine

Colophon

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Published on 27 December 2017

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He is a machine critic and professor in the intermedia art department at Kaywon University of Arts. He loves machines more than humans. His joy and mission in life is to go and meet exquisite and heavy machines. He is interested in all things that are peculiarly structured and built with rare materials, and those which move and function, from sawing machines to high-tech jet engines. He was originally a photography critic but changed his course with a desire to explain his great curiosity about machines. As a result, he has written a number of

books: *Machine Criticism: a Humanist's Walk on Machine Civilization* (2006), *Pegasus 10,000 Miles* (2012), and *Jo Choon Man's Heavy Industry* (2014). He also wrote a book on photography: *Critical Eyes* (2008), and a book on image criticism: *The Bright World of Image Criticism* (2012). The exhibitions he organized include *Photos Look at Us* (1999), *Western Manners for Space* (2007), *XYZ CITY* (2010), *Seoul Photo Festival 2010*, *Han Yong Kim The Birth of Consumers* (2011), and *Space Life* (2015).

There is a great number of people with extreme apprehension over artificial intelligence as a cause for the fall of the humankind. There is nothing for them to worry about because there is no “humankind” to be doomed in the first place. Often, people believe that the humankind is a kind of being that exists in the outer sphere of a machine, which is driven by their belief that a machine is consisted of cold metal backed by strict theories and that a human being is an emotional and sentimental being. At the core of a machine, there lies its capacity to align and operate an object to perform certain functions in line with rules and disciplines. Humans controlling the machine dictate certain rules. Otherwise, machines would not perform desired functions or would be out of service if operated thoughtlessly without control. Since the Industrial Revolution at the very least, humans have adjusted their mind and body to the rules and disciplines they have set for machines. A person is deemed to be inhumane if the person is acting unruly without abiding by such rules and regulations and thus harming others. For a person to be deemed “humane”, the duties required of the person shall be fulfilled. For instance, a teacher shall come and teach a given subject on time. A staff at a community service center shall issue a copy of residential registration on time upon receiving a request and a fee. A parent shall scold a child with rigor for a misdeed. These acts are what make a person humane. It is inhumane if a teacher goes fishing without coming to class on time, if a staff at a community service center hands over a love letter instead of a requested residential registration copy, or if a parent turns a blind eye to a misdeed done by a child. Maybe a poet could lead a life in such a way. Even such a poet submits a manuscript to a publisher in a given format within a deadline. Therefore, I would like to declare that being humane today means being mechanical. This might cause discomfort to many people. They may think such an assertion is too stiff and too menacing. Let’s not forget that the house you live comfortably in now is what you bought after taking out a loan at a fixed interest rate through a loan application assessed based on withholding tax receipts. The house is not the result of your humane plead to a bank for a comfortable house. People have long been adjusted their lives to machines and, as a result, led a mechanized life. Thus, there is no human to parish due to advancing machines. There is no human being in existence outside the machine. The problem is people who

do not accept this fact. It is probably attributable to the elementary, junior high and high school times when people learned to believe “humanity” is a sort of affection rooted in cheap sentimentalism. It is a human who creates a machine to treat a disease while it is also a human who uses a machine to kill or exploit others. Again, it is a human who employs a machine to create art. There is a diverse range of humans.

Therefore, what is asserted here is not to deny the existence of the machine. There is no one who denies the machine in words, to be sure, but people unconsciously let it show. Intentional malfunction, clumsy operation, operating sequence out of order and all the others so called human errors signify pointless attempts made by humans to resist the machine. Humans mess up their driving by various reasons such as improper driving habits, self-centeredness, clumsiness, driving under influence, emotional eruption and distraction while refusing to be fully assimilated with a car the machine. Moreover, it is also an act of disapproving the machine if humans either cause an accident or ignore the rules set for the road that is a bigger mechanism embracing a car. It is another act of disapproving the machine if humans yearn for machines of old generations while using machines of new generations. A case would be where a picture is taken digitally but is edited to give analog photo effects.

The machine shall not be disapproved, as asserted here, because humanity has already been embodied in the machine. How has it been embodied? It is possible from the concept of control. At a low level, cybernetics can be defined as a degree of integrated control over humans as well as machines. In short, certain keys need to be stroked by a human to use a computer because a computer is designed to be used in a certain manner by a human. A human needs to be in alignment with a computer, and that is the same for a computer. Such alignment process is what we call, basically, cybernetics. Throughout such process, a display plays a crucial role because it is a medium that connects humans with machines. For this process, disciplines are needed for humans to adjust to the rules of machines. In other words, humans need to do what they are told to do so that a machine can be used efficiently without damage. If so, people would feel that they are subordinate to machines. That’s why they resist the machine.

In his book entitled *Discipline and Punish*, Michel Foucault

seemed to have depicted disciplines quite critically. He did not criticize disciplines per se. Rather, he pointed out that the essence of the human subject living in the modern times was not driven by free will but by discipline. Only when disciplines are internalized by humans, people could truly become modern. Otherwise, people would not be able to act as a human. Accordingly, disciplines shall not be denied. The same holds true for machines. In the end, humans shall be able to control themselves as much as they want to control the machine. And, modern people lead a significantly controlled life.

In connection with control, let's take a look at the sudden unintended acceleration of a vehicle. This is a case where the control function does not work. As a matter of fact, a machine, by its nature, is susceptible to the possibility of error to a certain degree. Thus, such a failure is bound to take place. The cause of the sudden unintended acceleration simply remains to be unknown. Despite remarkable medical advancement, cold and cancer are yet to be conquered. As such, the acceleration issue could be deemed as a kind of symptoms in a world where machines are prevalent. As vehicles are controlled increasingly more by artificial intelligence, people could be embroiled in a cognitively more complicated accident without a known cause. Then, in which dimension does machine intelligence exist? Machine intelligence here does not mean artificial intelligence of high complexity. Instead, it literally means a simple "mechanical" and causal dimension. In short, an answer is given at the flick of a switch. Here is another look at the fundamental meaning of machine intelligence and control. A simple example of machine intelligence can be found in a steam engine. In this case, I would like to define machine intelligence as "objective logics embedded in a machine itself independent from any will or subjectivity of a human". The world has become hostage to such logics ranging from the design of a cogwheel without much noise and with less abrasion to a speed regulator or a governor that regulates power of a steam engine by using centrifugal force. Interestingly, the word, "governor", also has the meaning of a ruler or a governor-general. In other words, the speed regulator came to have this word of "governor" due to its aspect of controlling the movement of a machine. As a machine is set in motion, centrifugal force drives a governor's steel balls outwards and hence upwards. Once the balls are wide apart, arms are pulled down for a valve to block air flow. Without a governor, the steam flow

to an engine would be increased excessively for the machine to reach uncontrollable speed. The machine might break down in an extreme case. Thus, a governor regulates the speed of a machine so that such a case could be prevented. In short, a governor uses centrifugal force to control a steam engine. This is a simple control logic, which serves as the basis. This is exhaustively a mechanical structure without any human intervention to regulate speed by force. In other words, this is intelligence completely independent from humans.

A machine with slightly more advanced intelligence is a vending machine. The inner structure of a vending machine is surprisingly complex. The critical factor is not its complexity but each component of the structure to function in sequence logically and intelligently pursuant to a flow chart. A vending machine does not work in an idle state defined by a flow chart. A state is considered to be idle when coins are not inserted or when coins are not enough after counting inserted coins. A soda vending machine would dispense a soda only after enough coins are inserted and after a soda is selected. This flow chart is a simple diagram of working logics behind the vending machine. The logical formula is the core of the machine. In other words, it is a software of a vending machine. The author, Lev Manovich, of the book entitled *Software Takes Command* said that the title was influenced by the book, *Mechanization Takes Command*, written in 1948 by Sigfried Giedion. As a matter of fact, software lies at the heart of today's machines.

Just like the previously mentioned governor, a camshaft installed in a vehicle's engine is also a case where intelligence is embodied through its physical structure. A cam is a plate with an irregular outline, which is inter-locked with a shaft. A cam shaft has a simple structure of striking a lever on its circular path. At present, this irregular shape of a cam controls a vehicle's intake and exhaust valves. The cam shaft is connected to a vehicle's axis of rotation. Once an engine is started, a chain of reactions ensues starting from a cam shaft rotation to the opening and closing of intake and exhaust valves. As the piston goes up, the intake valve opens to pull in air before compression, ignition and exhaust valve opening. In this order, a cycle repeats itself. This is a machine created before software came into power, which is a structure in existence before the invention of a car in 1898.

Even though it is not used anymore, a carburetor acted as a

respiratory system for a car until the 1980s. When a plate is opened, much air is pulled in with much fuel being sucked in accordingly. This revs up the engine to raise engine output. The “Venturi effect” increases the flow speed of liquid as a passage narrows. The faster the flow, the lower the pressure. If an air inlet hole into an engine is closed on through the Venturi concave, the fuel is sucked into a low pressure area. When a driver steps on and off a gas pedal, the throttle valve opens and closes to increase or decrease the output. This is the working mechanism exhaustively driven by the physical structure comprised of a Venturi pipe of varying diameter, the volume of intake air and of exhaust air. This is truly the basics of machine intelligence. Of course, it is based on the assumption that objects without any intelligence are actuated solely by the structure itself. Intelligence is the ability to think and to judge while machine intelligence is to enable certain functions to be performed solely driven by the mechanical structure without any data input entered by humans.

Since the 1990s, a fuel-injection system has been used for a car instead of a carburetor while engine control unit or ECU has replaced a carburetor. ECU controls the engine comprehensively through a great number of sensors for intake air volume, fuel injection volume, throttle position and accelerator pedal position. With the emergence of a fuel injection system, electronic devices have been installed. As such electronic devices become increasingly complicated and sophisticated, malfunctions are suspected to be caused by electromagnetic interference and others. This is so called known as sudden unintended acceleration. However, if only the engine is controlled electronically, then sudden unintended acceleration could be prevented at source by cutting off engine torque to wheel torque with gear transmission changed to neutral. This has been proven by a number of video clips posted on YouTube. The problem of today is that there is a trend of equipping luxury cars with electronically controlled gearbox. Beyond ECU that controls just the engine, there is now transmission control unit in use. In this case, putting the car in neutral whilst sudden unintended acceleration would not stop such acceleration since TCU refuses to cut off engine torque delivered to wheel torque. Sudden unintended acceleration caused by malfunctioning ECU is similar to a brain disorder of a human while such acceleration caused by malfunctioning TCU is

similar to a leg-related condition. Now, the car as a machine is faced with abnormalities arising not only from its brain but from its whole body. Experts have singled out electromagnetic waves as the cause for such acceleration. Our atmosphere is filled up with such waves in an amount unprecedented in human history. They suspect that a countless number of wave-transmitting devices including smart phones and blue tooth may cause interference affecting ECU.

As the machine evolves from a mechanical object to an electronic object, the level of its intelligence has also changed. Now, I suspect that the elevated level of intelligence makes the machine vulnerable to a mental illness. The aforementioned sudden unintended acceleration can be a symptom of such illness. According to Freud, neurosis is structured in the following manner. First, a human subject perceives the external reality presented as representation. The most fundamental element starts from senses that enable a human to sense whether the weather is hot or something is red. A human perceives the surroundings in simple representations. Here a representation has two meanings. When data collected through senses is received, a judgement is made whether something is red or not. This is called "Vorstellung" in German, which means facing an object in the front. It is not a representation when there is just a vague idea. Only when a clear image is formed in the mind, it becomes a representation. When it is expressed in words or gestures, it also becomes a representation. In the end, a representation is a mental image that comes up in the mind. Jacques Lacan called it "signifier". What if, however, a subject can not process a reality properly through a representation? In short, if a chain of representations is not intertwined properly, then this is referred to as neurosis. Then, what would be considered as the neurosis of a car? As the car is equipped with artificial intelligence increasingly more, humans are being replaced. And, "in-circuit signal processing" has become the representation. If road conditions, road structure, pedestrians, weather, and other circumstances in the reality are not represented properly so as to strike a balance, neurosis may develop.

If so, there emerges an issue of whether we would be able to control such representation. According to Lacan, the human subject is an empty being and thus does not have the ability to control a representation. Rather, the sequence of signifiers makes up a subject. For instance, a principal writing a speech logically is an agent. A

journalist writing an article logically is also an agent. It is entirely dependent on the mechanism of signifiers these agents sequence as asserted by Lacan. Let's expand a signifier into a representation in general. All the signifiers of technological objects, such as data, signal and mechanical components, shall be represented systematically in a logical sequence for a machine to operate and for a human to play as an agent accordingly. In other words, a machine shall be controlled properly for a human to act as an agent. Yet, controlling is not simply about A dictating B to do something. Something may seem under control, but it may not be so in reality. The authorities of a nation control the speed of individual vehicles by regulating speeding vehicles since the safety awareness of individual drivers cannot be trusted completely. What the police authorities do is to take a picture of a speeding vehicle, send a penalty notice and take a follow-up administrative measure. The authorities can not do anything about a speeding vehicle at the very moment of speeding. In other words, the police authorities are not doing anything about the fact that a car is speeding right before them. A train is controlled at a different level. Automatic Train Stop (ATS) is embedded to stop a train by force if a train is passing a certain point at an excessively fast speed. In cases where a train driver passes out or where there is a problem with a train's control system, the train is stopped. ATS and speed cameras are fundamentally different. Just as the speed of fan wings cannot be controlled just by glaring at them, the speed of a vehicle cannot be controlled just by taking a picture and imposing a penalty.

Rather, the control by the authorities may be controlling at another level in general since a machine is not just a single object nowadays but includes a comprehensive operating system that surrounds the object. It may not be about reducing the speed of a single machine, in this case a car, through a physical means but about controlling the entire ecosystem comprised of cars, drivers, roads, rules, customs and attitude, which is referred to as an actor network by Bruno Latour. An actor includes not only a human but also the entire machine. The issue of controlling a machine is beyond the dimension, where a certain function is actuated or stopped by adjusting a switch right before the eyes. All sorts of machines are now omnipresent throughout the world and are intertwined through inter-mechanicality. Therefore, controlling the machine means

controlling the network through which machines are intertwined. In case of a speed camera, it reveals that it is beyond the capabilities of the police to intervene in the network consisted of various factors that lead to speeding, such as a driver's driving habits or personality, speed-pursuing civilization, urgent matters, and speed-tolerant road systems. In other words, speeding is a complex phenomenon too significant for speed cameras to handle.

In this respect, it is only natural that commanding the control on a global scale failed. The United States and the former Soviet Union attempted to control each other by trapping the entire world in the cold war through the 1960s. This has been well captured in the movie, *Dr. Strangelove or: How I Learned to Stop Worrying and Love the Bomb*, directed by Stanley Kubrick. The movie is based on Operation Chrome Dome between 1960 and 1968. During this period, the United States kept B-52 bomber aircraft fully armed with nuclear weapons on continuous airborne alert to hold nuclear threats posed by the former Soviet Union in check. The B-52 bomber aircraft flew close to the Soviet Union border through routes that got on the nerves of the Soviet Union. The U.S. Air Force leaked its daily flight schedule to the press to make sure that the Soviet Union is informed. For instance, the aircraft took off at Sheppard Air Force Base in Alabama to fly all the way to Greenland, slightly beyond which is the territory of the Soviet Union. It was an act of rattling its nuclear weaponry in the face of its enemy. This was the moment in the human history when the human kind was on the brink of ruin. In Kubrick's movie entitled *Dr. Strangelove*, the B52 bomber aircraft flew over the Soviet Union by some kind of mistake. The U.S. government ordered the aircraft to fly back as soon as grasping the situation. But, the aircraft cannot fly back even at the request of the President of the United States or a mother once it crosses a certain line. It is designed to advance to the attack since even the voice of a person can be fabricated. Therefore, in the movie, the President of the United States makes a call to the General Secretary of the Communist Party of the Soviet Union through a hot line to ask for shooting down the U.S. B-52 bomber aircraft. The movie ends with a scene where Major Kong the warmonger straddles a nuclear bomb while shrieking and falling to the target. Back then in 1964 when the movie was produced, this system was the means for the U.S. to maintain the global peace. In retrospect, it was a forewarning of and a threat against a great

catastrophe for the entire human kind. Afterwards, both countries of the U.S. and U.S.S.R. agreed to Strategic Arms Limitations Talks (SALT) out of their concerns for possible destruction of the Earth. In line with SALT, the U.S. made its bomber aircraft into pieces and displayed them in Arizona Desert for the Soviet Union to see through its spy satellite. A question may be raised to ask whether this kind of process is actually enabling control. As a matter of fact, this is not controlling. This is just an act of cutting off a circuit embedded in this device in wreckage called a nuclear weapon for the sake of the entire planet instead of properly adjusting and reasonably disentangling this device. Cutting off a circuit is not equal to controlling.

Then, what could be the means for people at large to intervene in a carefully designed system that is challenging to approach, understand and control? In the early 1960s when Nam June Paik started to work on video art, there were other artists with similar concerns. The question was what to do with a television considered to be a box for a fool. The essence of a powerful system comprised of TV channels lied in a broadcasting system that creates contents to be broadcasted through channels. It did not lie in the receiver of a television monitor. This kind of system is difficult for an individual to intervene unless it is possible for a person to break into a studio just as a young mental patient broke into a MBC studio airing a live news back in 1984. The young man shouted, "there is a wiretapping device in my ear", on the air. It is now impossible for any individual to make such intervention on air after broadcasting stations tightened up their security systems greatly. Nam June Paik reacted to an unapproachable and unidentifiable system with carelessness. Nam June Paik's *Magnet TV* is a simple work of art, altering the electromagnetic flow of electrons from the cathode ray tube by applying a horseshoe-shaped or coil type electromagnet to a television monitor. The electrons affected by the magnetic field displayed distorted signals. As if a naive child reveals the King's secret, Paik intervenes in the system surrounding the television through his seemingly naive art work. In his another art work entitled *TV Buddha*, there are a monitor in the pile of earth and a TV camera. The art work is far from anything carelessness considering the fact that CCTV was not in common use even in the U.S. back in 1974. Yet, Nam June Paik created his art work as if he predicted the future rampant with CCTVs. It is very important to notice that the Buddha is

watching the CCTV in introspection since the Buddha was depicted as a narcissistic figure in a deriding manner. However, this is a very profound art work that invites modern people to think about the time and space for introspection since they spend many hours a day in front of a TV monitor.

After all, humans desire to command tight control but soon realize that having such control is accompanied with various loopholes and weaknesses. We are at a crossroads, facing two questions. One is how to avoid an issue by commanding control more tightly while the other is how to conform to the providence of Nature and coincidence by giving up to take control. It is clear that the latter is not the path we would take. Even so, there are many people who still do not accept the machine as the reality. The question to be asked now is not about how to humanize the machine but rather about whether humans are mechanical enough. The problem lies in the severe imbalance of cognitive powers between humans and machines. Still, humans do not accept today's world where machines have become its master. With advancement of artificial intelligence, the expected outcome would be that there would be many things for humans to learn from the machine. We receive and live on the tremendous amount of data generated by the machine. Such data is being translated humanly to serve various purposes. For humans to be able to learn from the machine, machines and humans need to teach and learn from each other diligently. To this end, humans need to hone their capabilities to understand and recognize the machine. People need to ask and understand the following: how can a vending machine dispense a desired beverage?; how can a car run for many hours without breaking down even if there are thousands of explosions taking place every minute within an engine cylinder?; how can a Boeing 747 fly in the sky even though it weighs 400 tons?; and how can a Korea Train Express be still safe and comfortable even at a dreadful speed of 300 kilometers per hour? The brain and nerves of humans have been advanced through a long evolutionary process, thereby equipping themselves with own measures to cope with a problem. It is now time to ask ourselves whether machines developed by humans do have such coping capability. Only when humans become mechanized exhaustively, the history can truly enter into the next era of human-machine.