ESC203 Final Exam

**Using specific examples from the course, explore how at least two different conceptions of technology expose the challenges inherent in the three crises explored in the course.**

* Postman
  + Sustainability
    - Is “ecological” – technology affects EVERYTHING, even if it doesn’t concern the creators
    - Oftentimes the environment is affected
    - Example: automobile
  + Equity
    - Technology is a trade-off and there are always winners and losers
    - Example: automobile again
      * Automobiles are expensive – rich people can own but it’s very inaccessible to underprivileged populations
      * Makes transportation in general less accessible
  + Security
    - Media tend to become mythic
    - Example: Phones, digitalization, big data, AI becoming more and more embedded into society
    - Newer generations grow up with this technology “perceived as gifts of nature” CITE POSTMAN
    - Not easily susceptible to modification or control
    - They will not question it, they are not aware about potential dangers in terms of security
* Nightingale
  + Sustainability
    - 3rd definition – Technological regime
    - Technology requires wider social, physical environment of complementary stuff to operate
    - This is influenced by society’s values, etc.
    - Example: Industrial revolution
      * Everything was for innovation, etc. Technological regime didn’t support sustainability
  + Equity
    - 3rd definition – Technological regime
    - Influenced by institutions with biases embedded into them
  + Security
    - 7th definition – Way of seeing the world
    - Tacit nature of technological knowledge hides the technology

In today’s day and age, technology is often viewed as applied science implemented in devices that help solve problems. But this oversimplified view is misleading and often dangerous for society. Neil Postman and Paul Nightingale provide different perspectives on technology that help expose challenges in the sustainability, equity, and security crises.

Postman’s article touches on five ideas on technology that are often overlooked by society, the fourth of which exposes the sustainability crisis. Postman’s fourth point is that technology is “ecological”, figuratively, and to emphasize my point, literally as well. Postman wrote “ecological”, meaning that any technological change or innovation will always have an impact on everything, whether it be good, bad, intended, or unintended. The environment is often being negatively impacted by technological change. An example is the automobile. The creators of the car developed it to revolutionize transportation and make money; the fact that it is now one of the largest sources of environmental degradation did not cross their mind.

Postman’s second point – that there are always winners and losers for any technology – exposes the equity crisis. With any technology, there will always be some who receive the benefits and some who are negatively affected. We look at the automobile example again. Automobiles are a relatively expensive piece of technology to the average individual, so while it is a fairly common technology among the middle and upper class, it is much less accessible to underprivileged populations. With the world’s infrastructure adjusted to accommodate the automobile, transportation in general becomes less accessible to these underprivileged populations. Furthermore, the negative impact automobiles have on the environment only contributes to environmental inequity, affecting these populations even further.

Postman’s final point exposes the security crisis. He states that technology often becomes “mythic” – it becomes embedded in part of the natural world in our eyes. A prime example is the increasingly ubiquitous nature of phones, laptops, and digitalization in general. These technologies are becoming permanently incorporated into our society, and newer generations grow up perceiving them as “gifts of nature”, making them unsusceptible to modification. This is dangerous, as these future generations will become less and less aware of the potential dangers of the technologies that allow these devices to operate – in particular, the concerning issues with security in big data and artificial intelligence.

Nightingale’s enlightening definitions of technology allow us to see these three crises more easily as well. His third definition helps expose the sustainability crisis. The third definition focuses on the fact that technologies are heavily influenced by other technologies, systems, social constructs, rules, norms, institutions, etc. which form a “technological regime”. This technological regime is dependent on the values of society, which oftentimes do not align with sustainability. A prime example is the Industrial Revolution. At the time, essentially every aspect of society pushed for technological innovation and development with little regard for sustainability.

This way of seeing technology as a part of a wider social and institutional regime also exposes the equity crisis. With biases and inequities already embedded and built into the social systems, norms, authorities, and institutions that affect technology, it isn’t difficult to see how technology itself can be reflective of these biases which have a significant impact on the equity crisis.

Similar to Postman’s final point on technology, one of Nightingale’s definitions of technology describe it as a way of seeing the world. As a technology becomes increasingly embedded into society’s functions, we begin to “assign the properties of technology to the world” and do not bother to investigate these properties. This “tacit nature of technological knowledge” conceals the technology that lies behind the devices we use and renders us oblivious to the workings of big data and AI and the associated security risks. Nightingale’s definition makes this aspect of technology more transparent and allows us to be more aware of the security crisis.

**Using specific examples from the course, consider whether and to what extent the design frameworks offered by Leydens et al. and/or Constanza-Chock support ethical ways of resolving any of the crises.**

* Leyden’s design-for-social-justice framework wholly supports ethical ways of resolving the three crises, limited only by the subjectivity of ethical values (DFSJ aligns the best with liberal people)
* This is because any design created through the design for social justice framework meets the DFSJ criteria in which macro-ethics is an explicit focus
* Design ethics consists of micro and macro-ethics
* Micro-ethics is already often considered in most professions
* Macro-ethics is the next step for design ethics and engineering ethics
* Most macro-ethics issues are social justice issues due to nature of macro-ethics
* Social justice issues is at the core of design for social justice framework
* Here are some criteria to prove my point:
  + Increasing human rights
    - Covers individualizing foundations of fairness/reciprocity, harm/care
      * Emphasis on rights and welfare of individuals
  + Increasing opportunities and resources
    - Covers justice
  + Reducing risks and harms
    - Covers non-maleficence
  + Enhancing human capability
    - Covers individualizing foundations
    - Go over some capabilities
      * Other species is one of them LOL good for environment
    - Main goal of social justice is to enhance human capability
* Design for social justice doesn’t hinder other design processes – simply “renders visible” social justice dimensions that should be inherent constraints in the design process
* Therefore the DFSJ framework’s purpose is to support ethical ways of design – that is pretty much full extent
  + Qualifier: mostly liberal ethical foundations

The design for social justice framework offered by Leyden’s et al. wholly supports ethical ways of resolving the three crises, limited only by the subjective nature of ethics (the design framework supports predominantly liberal ethical values). This is because the design framework has specific criteria whose purpose is to ensure an ethical design process and ethical designs. As stated in the article, engaging these criteria “ensure that attention to social justice is incorporated into design solutions”. A few of these criteria are discussed later in this response.

Design ethics consists of micro and macro-ethics. While micro-ethics is already frequently considered in most engineering and design practices, macro-ethics is far from being deeply incorporated into these practices. Due to the nature of macro-ethics and how it is defined, nearly all macro-ethical issues are (or are at least related to) social justice issues. The reason why the design for social justice framework wholly supports ethical design practices can be seen from the name of the framework itself – the consideration of social justice issues are at the core of this design framework. Its entire purpose is to introduce macro-ethics into engineering and design practices. The framework ensures this by specifying criteria that define the framework.

One of the criteria specified is “increasing human rights”. For this criterion, the article emphasizes that designers must be aware of how their designs affect the human rights of which people; that their designs and products have the ability to enforce laws, and therefore *can* be designed with purpose of enforcing laws which protect human rights. The design for social justice framework changes the “can” in the previous sentence to “should”, making the consideration of human rights an integral part of the design process. This criterion strongly supports the individualizing foundations of fairness/reciprocity and harm/care discussed in the article by Graham et al. on liberal and conservative moral foundations.

“Increasing opportunities and resources” and “reducing imposed risks and harms” are two other criteria defining the design for social justice framework. The framework employs a “contextual listening framework”, making it easier for designers to unearth these “social justice dimensions” embedded in designs that would otherwise be difficult to uncover. These two criteria push designers to consciously look for ways to increase equity and social justice. We can judge the ethics of the design for social justice framework with Reflexive Principlism discussed in Brightman and Beever article. In this case, increasing opportunities and resources pushes towards the justice axis, while reducing risks and harms covers the non-maleficence axis.

Another criterion for the framework is “enhancing human capabilities”, where “human capabilities” is defined as “what people are effectively able to do and be or the positive freedoms that people have to enjoy valuable ‘beings and doings’”. Essentially, the idea of “human capabilities” addresses the welfare and well-being of individuals. Similar to the criterion on “increasing human rights”, this criterion is heavily rooted in individualizing moral foundations. Among ten established “human capabilities” which the article refers to, one of them is “other species” which focuses on our respect for the environment, therefore incorporating sustainability into the definition of ethical design as well. Ultimately, the article attributes the enhancement of “human capabilities” as one of the main goals of social justice (the others being the equitable distribution of opportunities and resources while reducing risks and harms, discussed in the paragraph above).

Lastly, the article made it important to note that design for social justice doesn’t hinder other design processes. Instead, it simply “renders visible” social justice dimensions that *should* be inherent constraints already but are often overlooked due to our lack of regard for macro-ethics in engineering design. Therefore, the entire purpose the design for social justice framework is to support ethical forms of design processes. This is essentially the fullest extent possible to which it can support ethical ways of resolving the three crises. The only limitation/flaw in the offered framework is that the framework itself is biased towards liberal ethical values, and therefore people with differing ethical values may not completely agree with the values held by the framework.

**In the course, we explored the mechanisms by which corporations and government surveil citizens and use data for various commercial and control purposes.**

1. **Identify a selection of relevant actors (human and non-human, minimum of 10), and  
   represent them in a network. Position yourself as one of the actors within the network.**
2. **In what ways does the network—through translation, ordering, depunctualization,  
   resistance, or otherwise—reveal the tension between convenience and privacy?  
   Explain how the tension(s) function in the relations between specific actors.**

* Since my actor network is focused on my use of the most common social media applications and search engines and mobile services, pretty much everything on the network is part of an ordering
  + Has been engrained into my life (as well as most others) – society uses it every day in everything we do
  + The translation that established this network was locked into ordering a long time ago
* The tensions between convenience and privacy are unearthed when you depunctualize these orderings and identify how, in order for certain actors to provide affordances, requests/demands must overcome resistances
  + In Actor Network Theory terms, the tension between convenience and privacy is a tension between the requests/demands of technology and the resistances of the users
* I will discuss three relationships in my network that help illustrate this tension between request/demand and resistance, and how the tension functions in the relations between specific actors
* Google and the services it provides is a huge ordering in itself, but I will first look at my relationship with Google Photos
* Google Photos
  + An online photo sharing and storage service provided by Google
  + As someone who is into photography as a hobby and greatly values pictures as memories with family and friends, Photos has many convenient features that I use
    - Organizing based on time, theme of photo
    - Facial recognition
    - Organizing based on location of photo taken
  + Google Photos affords me convenience, affords me these services, but in order to provide this convenience, it demands photos, names, locations, and can use these in combination to extract other data about me
  + This demand conflicts with my resistance of wanting privacy (not a very strong one though)
    - Conflicts with friend’s privacy too – some feel uncomfortable
  + As mentioned, it also requests location, which leads to the next relationship I wish to discuss…
* Location Services
  + Location services such as Google Maps, Snapchat Maps, etc. offers lots of conveniences that we use everyday
    - Navigation purposes
    - Easily finding where friends are
    - Local recommendations
  + These are conveniences I use every day (and so does everyone else)
    - Simply embedded into our lives
  + Afford me these conveniences, requests location, resistance overcome is my location privacy
    - In combination with Google Photos, it once again also affects my friend’s location privacy
  + But again, the data it collects is not just confined to this one relationship for these sole purposes – it is connected to other things…
* Advertisements, search suggestions, social media explore pages
  + Describe what each one is
  + Affords me convenience of seeing interesting things on my explore page, less effort spent searching for what I want, etc.
  + In exploring the requests/demands, resistances, an interesting difference from the previous two relationships arises
  + Out of the three relationships I discussed, this one is the most concerning for a few reasons
    - Different from the previous two in that: the entities that provide these “conveniences”, their advertised role is not to provide these conveniences, so you are not expecting them
      * For photos and location services, they provide you with the conveniences they are advertised for
    - It’s difficult to depunctualize – it really is a black box
      * We are not aware of what they are requesting and demanding in order to provide these conveniences and therefore we’re not sure what resistance to put up – we are simply uncomfortable with the fact that they have this information
      * Very unobtrusive, not clear how they get the information
        + Zuboff said 12:10: they have been engineered to be undetectable
    - Concerning part is the lack of resistance due to the lack of awareness of what’s being demanded from us in the first place
    - Like Zuboff said 2:40: we feel as though we are in control of what we give them but that is not the case – the attempt to depunctualize this relationship gives us a glimpse of this idea
    - 2643: “you are paying with your privacy without you knowing” – Carlo van de Weijer
    - “you can use the car as the Trojan Horse to collect all that data”

Since my actor network is focused on my use of common social media applications, search engines, and mobile services, the entire network is essentially part of an ordering due to the interconnected nature of digital technology and how deeply engrained it is into society. The tensions between convenience and privacy are unearthed when certain orderings and actors are depunctualized. It is most often the case that, in order for certain actors to provide affordances, requests and demands must be made by the actors that must overcome resistances set by those who receive their services. The tension between convenience and privacy is a tension between the requests/demands of technology and the resistances of the users. I will discuss three relationships in my network that help illustrate these tensions.

Google combined with all the services it provides is a huge ordering in itself, but I first examine my relationship with Google Photos. Google Photos is an online photo sharing and storage service provided by Google. As someone who is involved in photography and greatly values photos as a way of collecting memories with family and friends, Google Photos has many convenient features that I frequently use, such as the organization of photos based on time and the content of the photo (if it’s related to sports, a concert, etc.). It also offers facial recognition and can organize photos based on the people found in it. While Google affords me these conveniences, in order to provide them, it demands my personal photos and the names of people in them. This demand conflicts with my resistance of wanting privacy. My family and friends also provide resistance to this demand, since it is their privacy being given up as well – they are in my pictures and their names are being used to identify them. Google Photos also provides the convenience of organizing photos based on the location they were taken, which leads to the next relationship I wish to discuss.

Location services such as Google Maps, Snapchat Maps, etc. offers lots of conveniences that we as a society use every day. This extensive list includes (but is definitely not limited to) navigation purposes, locating where friends and family are, and local recommendations/suggestions. These location services are simply embedded into our lives and afford me numerous conveniences I use without thinking twice. In return, they demand my location, and the resistance that is overcome is the privacy of my current location. In combination with Google Photos, this once again affects the location privacy of my friends and family as well. In these examples with Google Photos and location services, the relationships have been fairly simple to analyze – the requests, demands, and resistances are all fairly obvious and we are all aware of them. But as Zuboff discussed in the documentary, even though we feel as though we know what data we are giving up and we are in control of our privacy, that is almost never the case. While I am fully aware that I am giving away my photos, its association with the names of the people in my life, and my location, the data that companies collect goes much deeper than this.

The advertisements I see online, the search suggestions I receive, the posts I’m exposed to on social media pages – it’s always seemed uncanny how quickly and accurately they reflect things happening in my real and personal life. They afford me the convenience of viewing things I’m interested in without having to spend effort searching for them, but in the process of identifying the tension by identifying the requests, demands, and resistances, interesting differences from the previous two examples arises. Firstly, the entities that provide these conveniences do not advertise their role as such – I do not expect them to provide me with real-time tailored ads because they do not explicitly tell me they will. Second, these ads and search suggestions are very difficult to depunctualize because they truly are like a “black box” to us, the users. We are not aware of what they’re demanding in order to provide these conveniences and therefore we’re not sure what resistance to put up; we are simply uncomfortable with the fact that they somehow have enough information about us to provide us with the conveniences they do. In other words, there is no tension because there is no resistance, and there is no resistance because we lack awareness of what is being demanded from us in the first place. As Zuboff said, “they have been engineered to be undetectable”. It is only the realization of this unobtrusiveness that materializes the tension between convenience and privacy. In the words of Carlo van de Weijer (from the documentary), “you are paying with your privacy without you knowing”, where he provides an analogy that the conveniences that we use every day are the Trojan Horse companies use to collect our data.

1. **How does your privilege or lack of it impact your relations to power in the network?**

* I’ve had the privilege of being raised in the 21st century
  + Age of digitalization
  + Information is so accessible
  + Many things are so convenient that were previously very difficult
* But while there are so many benefits and abilities that this privilege brings me that other people did not have if born another time, in a way I have less power than they do – I am powerless in this actor network
* Being brought up in a world of digitalization, it has become part of the way I view this world, it has become mythic, like nature to me
  + Aspects of the technology (like shadow operations discussed in doc) are hidden to me
* This lack of awareness reduces my power and companies use this ignorance to their advantage
* They possess power because they are not providing you with products and services, YOU are the product, YOUR DATA is the product and the consumers are other businesses that use the data to make money
* Our ignorance makes us powerless
* Lose power by allowing technology to use you
* Counterintuitive because age of information should make awareness easier, but it’s not

I believe, without a doubt, that it’s been a privilege to have been raised in the 21st century. With the advancements of all fields of science and technology, quality of life is objectively better than it was during any other time in history. In particular, this age of digitalization has made information and learning incredibly accessible. But while there are many benefits this privilege brings me, this privilege also renders me powerless in this actor network.

Being brought up in a world of digitalization, it’s essentially become part of the way I view this world – it has become “mythic”, like nature, using Postman’s conception of technology. Like Postman and Nightingale discussed, the ubiquitous nature of digitalization is dangerous because it makes it unsusceptible to change and hides the inner workings of the technology. This lack of awareness reduces my power and companies use this ignorance to their advantage. In this actor network, the big tech companies are the ones with the power because, like Zuboff suggests, they are not the ones providing me with products and services, *I* am the product; *my data* is the product that I provide to them for free and they sell to other businesses who use it to make money. Behind the privilege of being raised during the Information Age lies the ignorance of a society in the grips of a regime of digitalization, and it is this ignorance that makes us powerless. In the words of the Amish people from Zuboff’s documentary, we think we are the ones using technology, but in reality, technology is using us.