Expert Group Meeting on Virtual Race, Tech, and Borders
UN Special Rapporteur on Contemporary Forms of Racism, Racial Discrimination, Xenophobia
and Related Intolerance
June 16-17, 2020

Reflection on Technology and Boundary Making
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In my brief intervention I want to stress three things. First, that whenever we broach digital and other so-called cutting edge technologies, we should think about how they work in conjunction to their contexts of research and development, and of use. Paying attention to local actors, their meaning making practices, and their methods of production helps us understand the social, political, cultural, and economic processes shaping technology and the work their meant to perform. While in the abstract an algorithm follows and implements a logical structure, something that's already entangled with a rational political vision, its site of operation feeds into the algorithm localized relations. This links to the second point in considering such contexts. We should grasp the histories of place and space as they harbor specific asymmetrical relations between groups which are part and parcel of what gets embedded in artifacts. Though a commonplace in the field of Science and Technology Studies, it merits stating the third point which is that technology is never neutral. Coded within it are myriad of political visions and affordances that enroll humans as "users" to enact specific functions. In other words, it is not merely that technology impacts society. Rather, there is a co-construction between the social and the technical. The social shaping of technology is entangled to the technological shaping of the social.

Enforcement technologies can be organized through their objectives, though there are times these intersect. First, there are those artifacts employed to enforce national boundaries and, as a result, they are known as *border enforcement* technologies. These artifacts not only help maintain the demarcation of border lines, they in fact create such demarcation. Examples of these artifacts are walls, fences, and ground sensors. The latter of these can also be grouped with drones, CCTV systems, and radio communications, among others, as *operational technologies* because they play key roles in organizing on-the-ground efforts by actors. Lastly, there are those technologies aimed at executing *immigration enforcement*. They go from apprehension forms and identification documents to facial recognition algorithms and databases. These artifacts help articulate immigration legislation and policies. These conceptual groupings allow us to scrutinize the specific political objectives embedded within a given technological artifact or system, especially when it comes to producing boundaries of exclusion and inclusion, and the simultaneous conceptual and physical separation of subjects. Let me offer an example of one of these enforcement technologies.

The case of so-called "smart walls" or "smart fences" is shared by many countries around the world.[1] Often times they comprise a series of interconnected sensors that are triggered by different phenomena like infrared light and ground motion. Sensors pick up any corresponding signal and transmits data on the time and location of its trigger to a border policing headquarter. From there agents are aided by an algorithmic system or they use CCTV and drone visuals to determine the nature of the trigger event—was it a human body or some wildlife. In the U.S., Anduril Industries is spearheading the latest iteration of a "smart wall" through its integration of their Lattice system—an artificial intelligence, sensor fusion platform—with sensor towers and small unmanned aerial systems.[2] Lattice combines sensor input data into a "total awareness"

visualization so that its user can examine what the sensors are picking up in real-time. The system's algorithm helps determine the nature of what the sensor recorded by performing a statistical analysis on its target. While the public is not informed of how this analysis is performed, we do know it determines the statistical likelihood the target is human or nonhuman. In a demonstration for *Wired* magazine, Steven Levy comments on using Lattice's virtual reality headset and seeing how a glowing green square called attention to a "PERSON 98%" while another read "ANIMAL 86%." This means that a boundary is created between the human and nonhuman by reducing someone's full humanity to a statistical probability.[3] Such a reduction speaks to a historic and systemic orientation in instituting "order" in the southwest frontier by diminishing the Other.

The "virtual wall" project is but the latest attempt to police and govern the borderlands that is the product of a settler colonial and imperial infrastructure. In the 1970s, the Border Patrol installed an "electronic fence" that combined ground sensors, computers, and radio communications. While it operated in a similar fashion to the "virtual wall," the "electronic fence" was known as an intruder detection system. It enrolled unauthorized border crossers as "intruders," a menace to the nation.[4] The "electronic fence" was in fact initially designed for border enforcement during the Vietnam War as a way to control the northern border of South Vietnam and prevent the actions of enemy forces. Known as the "McNamara Wall," it was developed and tested at Fort Huachuca, Arizona. The Fort has a vast, troubled history as a military outpost linked to U.S. imperial formations. It was established in the late nineteenth century to displace, control, and eliminate Native American populations. During the mid-twentieth century, Fort Huachuca was used in the research and development of military technologies such as the "McNamara Wall" and the "electronic fence" as well as drones used in

the "War on Terror" and by the Department of Homeland Security. As a military outpost, the

Fort played an important role in policing the boundaries of the nation by fighting what actors

deemed to be their "enemies." Artifacts developed and tested at Fort Huachuca are entangled

with this military logic of enmity. And enemies are either captured or eliminated. The racialized

migrant, especially Asian, Latina/os, Arabs, and Muslims, have been historically treated as a

foreign menace to the imagined purity and supremacy of the ("White") American nation.[5]

To conclude, let me restate my three points: that when examining technology we should

pay attention to how it works in relation to its context of research and development, and of use;

that a focus on said contexts should converse with the histories of space and place that ground

power relations; and that technology is never neutral. Unauthorized border crossing is configured

by actors as a technical problem. But in doing so they perpetuate the settler colonial and national

logics operating in the processes of border and immigration enforcement. This is the demarcation

between legible and illegible subjects, between those deemed reliable and those imagined as

unreliable. As a result, actors build technopolitical regimes that seek to operationalize such

demarcations and that determine specific technological styles. Our contemporary moment is

distinctly marked by an obsession with data, digital systems, and their seeming purity, their cool

logic. Such obsession was instrumental in the development of what I call the cybernetic border,

an arrangement centered on data capture, management, and processing meant to institute order

on the borderlands. The cybernetic border is a technopolitical regime in as much as it both

produces and prescribes the kinds of subjects and objects to be included/excluded from it.

Enforcement technologies like the "virtual wall" are both products and producers of the

cybernetic border. They also continue to be entangled with the white settler project and with US

imperial formations despite all attempts by actors to frame said artifacts as neutral techniques.

They are in fact infrastructures of enmity.

1 Raed Al-dhubhani, et al., "Smarter Border Security: A Technology Perspective," Conference Paper, 1st International Symposium on Land and Maritime Border Security and Safety, Saudi Arabia, October 15-19, 2017; Karine Côté-Boucher, "The Diffuse Border: Intelligence-Sharing, Control and Confinement along Canada's Smart Border," *Surveillance & Society* 5, no. 2 (2008), 142-165; Will Parrish, "The U.S. Border Patrol and an Israeli Military Contractor Are Putting a Native American Reservation under 'Persistent Surveillance'," *The Intercept*, August 25, 2019, https://theintercept.com/2019/08/25/border-patrol-israel-elbit-surveillance/; Helle Stenum, "The Body-Border: Governing Irregular Migration through Biometric Technology," *Spheres: Journal of Digital Cultures* 4 (2017); Dean Wilson and Leanne Weber, "Surveillance, Risk and Preemption on the Australian Border," *Surveillance & Society* 5, no. 2 (2008), 124-141.

2 Steven Levy, "Inside Palmer Luckey's Bid to Build a Border Wall," *Wired*, June 11, 2018, https://www.wired.com/story/palmer-luckey-anduril-border-wall/.

3 John Cheney-Lippold analyzes a similar dynamic in the production of what he calls algorithmic citizenship. "*Jus algoritmi*: How the National Security Agency Remade Citizenship," *International Journal of Communication* 10 (2016), 1721-1742.

4 Iván Chaar-López, "Sensing Intruders: Race and the Automation of Border Control," *American Quarterly* 71, no. 2 (June 2019), 495-518.

5 Evelyn Alsultany, *Arabs and Muslims in the Media: Race and Representation after 9/11* (New York: New York University Press, 2012); Leo R. Chavez, *The Latino Threat: Constructing Immigrants, Citizens, and the Nation*, Second edition (2008; repr., Stanford: Stanford University Press, 2013); Miguel Díaz-Barriga and Margaret E. Dorsey, *Fencing in Democracy: Necrocitizenship and the US-Mexico Border Wall* (Durham: Duke University Press, 2020); Erika Lee, "Enforcing the Borders: Chinese Exclusion along the U.S. Borders with Canada and Mexico, 1882-1924," *The Journal of American History* 89, no. 1 (June 2002), 54-86; Mahmood Mamdani, *Good Muslim, Bad Muslim: America, The Cold War, and the Roots of Terror* (New York: Three Leaves Press, 2005); Natalia Molina, *Fit to Be Citizens?: Public Health and Race in Los Angeles, 1879-1939* (Berkeley: University of California Press, 2006); Mae Ngai, *Impossible Subjects: Illegal Aliens and the Making of Modern America* (Princeton: Princeton University Press, 2005); Nayan Shah, *Contagious Divides: Epidemics and Race in San Francisco's Chinatown* (Berkeley: University of California Press, 2001) and *Stranger Intimacy: Contesting Race, Sexuality and the Law in the North American West* (Berkeley: University of California Press, 2012).