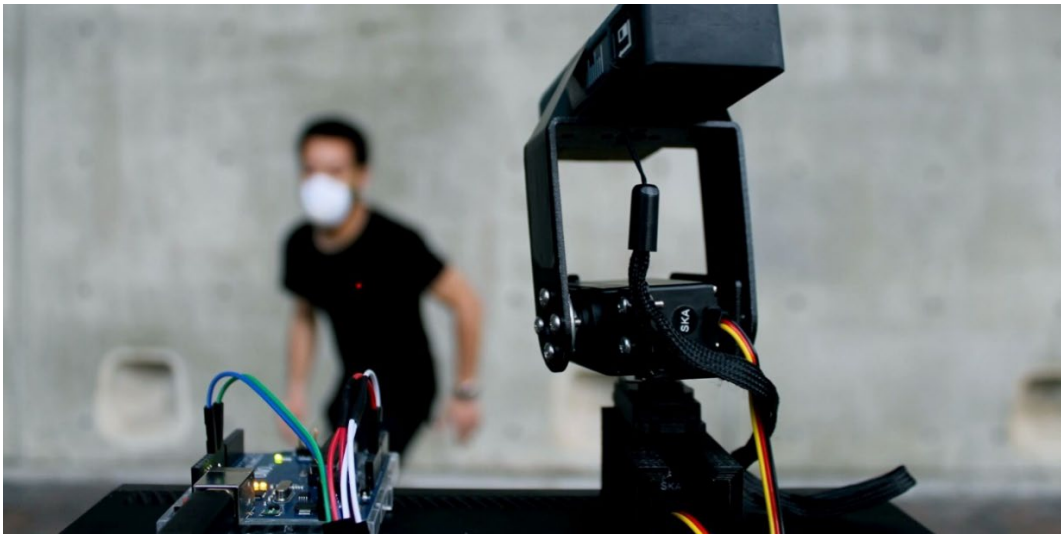
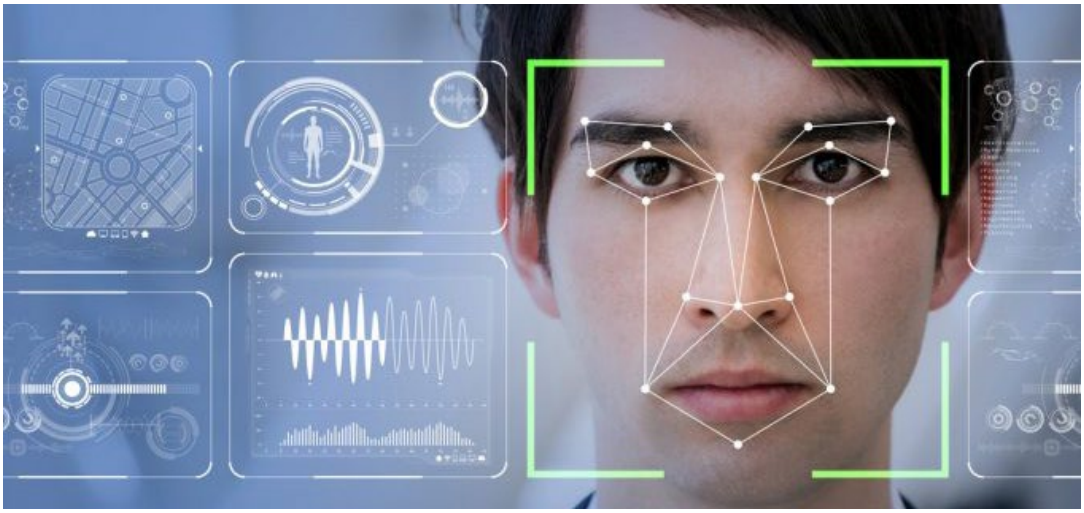
01. STATE OF SURVEILLANCE. ARTISTIC RESEARCH ON THE IMPLICATIONS OF INTRUSIVE URBAN ROBOTICS AND SURVEILLANCE TECHNOLOGY - *Caleb Hawkins, Andreea Vasile Hoxa*



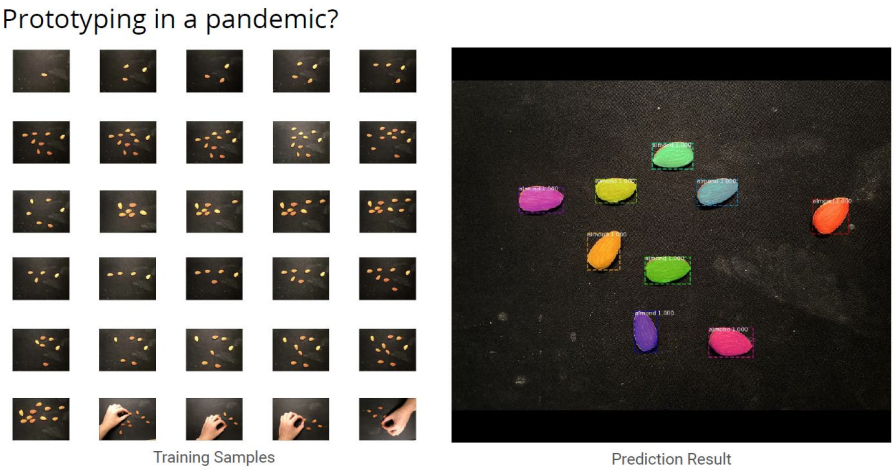
In today's society, we are constantly being tracked and monitored by various economic and political powers. The extraction of personal data and behavior patterns is now integrated into our everyday lives, enabled by the devices and apps we depend on. The use of these technologies in unethical ways to exert power and control over minorities and the general public is a risk we must face are facing in today's society. These technologies are forced into our lives through convenience and there is practically no way to fully opt out. How can we face this reality and bring about an open discussion through design research and art practices? Our project State of Surveillance uses a tactical media approach to the production of performative art and architectural installations that speak to these issues. By holding a physical presence, it acts as a data extraction device as it focuses on the human figure but also as an emitter, projecting itself on to those who come near. This project uses an infrared sensor to detect the location of a human body in space and uses a custom algorithm to target it in real time with a robotically controlled laser measure. This freestanding kinetic sculpture also acts as a participant in an artistic performance between man and machine. Once a presence is detected in the range of the infrared camera, the robotic sentinel acts autonomously and aims the laser dot onto the chest of the first presence detected. Once targeted, the performative aspect comes from the act of evasion and deterrence as the person moves their body to try and avoid the red laser. With the current COVID-19 pandemic, the symbolism of the laser is two-fold; on one hand it brings to mind the laser sights of a police handgun, and on the other a thermostat used to check travelers at checkpoints. People may know they are being tracked, but with the State of Surveillance they can now actually see and engage with these hidden infrastructures of control.

02. THE FUTURE OF MACHINE LEARNING – *Paola Bertazzoni, Desara Haroku, Francesca Seghezzi*



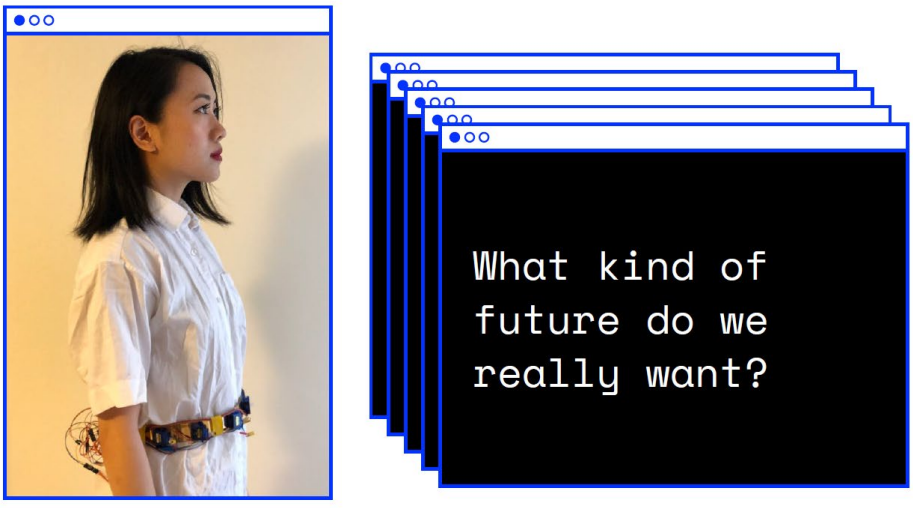
Why could the use of Big Data and Machine Learning be important in the perspective of an ideal healthy city? This paper aims to highlight the importance of the application of machine learning (ML) and artificial intelligence (AI) in the context of an ideal healthy city. Taking into account the current global situation, we explore the ML and AI applications in the context coronavirus pandemic. We found that the introduction of machine learning in the medical field, despite some limits, seems to be a good solution to increase the efficiency and the speed in the diagnosing, to track contagions and to treat diseases. Lastly, we will try to delineate the ideal healthy city from the point of view of ML and AI applications. Key words: coronavirus, COVID-19, artificial intelligence, machine learning, big data, health city, cardiovascular disease.

03. HEALTY CITY. "ENGAGEMENT" IN PUBLIC REALM DUTING A POST PANDEMIC - *Maoran Sun, Leilei Wu, Tongtong Zhang*



What makes a city healthy? Social engagement = raw power and energy within a city. Why enhancing social engagement? Research has proved that people growing up in a community with stronger "bonds" (i.e. tighter relationships, shared sense of identities, etc.) tend to get higher income. Social capital: the effective functioning of social groups through interpersonal relationships, a shared sense of identity, a shared understanding, shared norms, shared values, trust, cooperation, and reciprocity. Within a city, public space is where social activities take place, where bonding among citizens are created. Social engagement is crucial to a city's health. Social engagement in a pandemic? Analysis parameters: If we detect a person in a public space, we can measure his/hers: alone or within a group; moving or steady - to make a guess what type of activity s/he is engaging in; locations within a public space - on a bench; in an large open plaza; in a skate park; time of a day - weekdays / weekends. After the pandemic, we want to encourage social interaction: Social Engagement via Neural Network.

04. GSD 2030. EPISODES IN EXPERIENTIAL FUTURES - *Emily B. Yang*



Prototype: The Laser Lasso. What happens if we can always control who is in our proximity?
Inspired by: Responses to the 2020 COVID-19 pandemic | Inspired by: Science Fiction & Speculative Design
Speculative Design. What is a perfectly happy and healthy community? Where is the utopia? Where is its inherent dystopia? What kind of future do we really want?
Architecture for Serendipity
"It's great if you come across ideas and topics that you didn't specifically select. That can change your day and even your life. A great city exposes you to all sorts of people and ways of life, serendipitously. A great university does the same. So does a well-functioning information market. Serendipity is crucial because it expands your horizons. You need that if you want to be free." - Cass Sunstein, #Republic

05. GOODS DELIVERY BY DRONES – *Filippo Civera, Zoe Ferrari, Elena Tassis*

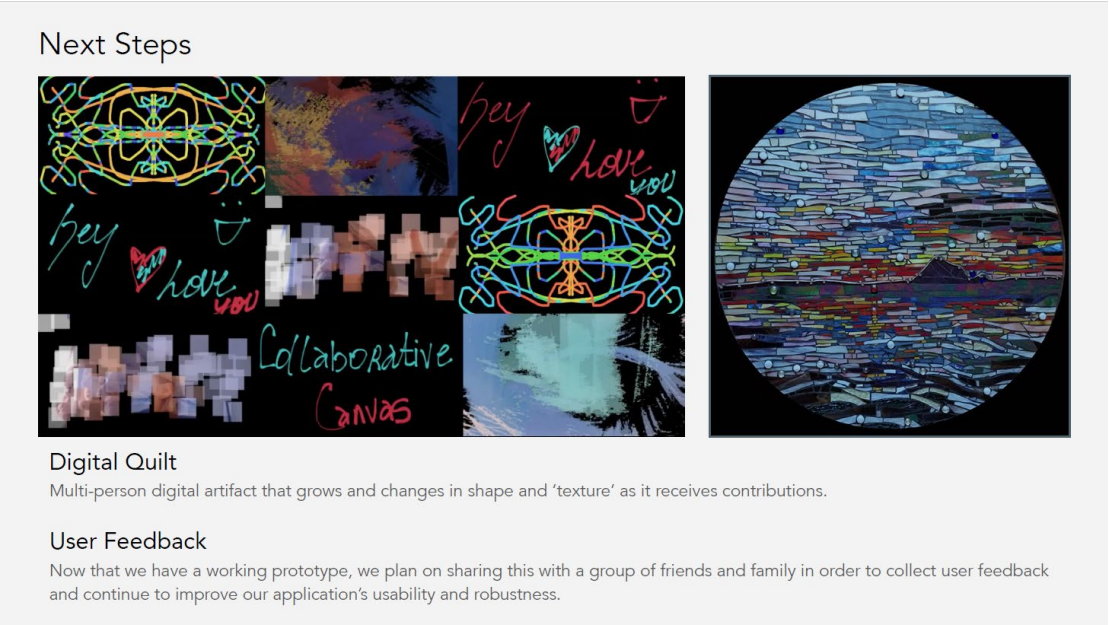
OUR RESEARCH QUESTION: How can the risk of contagion arising from mass gatherings be reduced thanks to the use of drones? The coronavirus outbreak is pushing people to avoid physical contact. Five ways China is using drones to combat Covid-19: 1: Delivering packages, 2: Spraying disinfectant, 3: Public health warnings, 4: Scanning QR Codes, 5: Taking temperature.

06. 50 YEARS – *Xinru Liu, Maria Roldan Castro, Minzi Long* hacking2070

Research topics: Create a better understanding of the effect of technology on culture by understanding interpersonal relations, identity and isolation.

- Interpersonal Relations
  - What are the passive/active interactions that take place in the neighborhood scale?
  - What is the value of the neighborhood scale?
  - How is a smart city making the world more segregated?
  - What is the neighborhood activity in Bergamo?
  - What aspects of its identity is Bergamo losing by becoming smart?
- Identity
  - What are the risks associated with hyper-customization?
  - How do we maintain autonomy and control but still use technology?
  - Is it important to have an identity tied to a physical place?
- Mental health/Isolation
  - How does technology promote isolation?
  - How do the elderly interact with technology?
  - Why does more connectivity lead to more isolation?
  - Is there more isolation because of technology, or is it the same quantity but effects are magnified?

07. COLLABORATIVE CANVAS. FOSTERING CONNECTION THROUGH TECHNOLOGY - *Katarina Richter-Lunn, Sana Sharma*

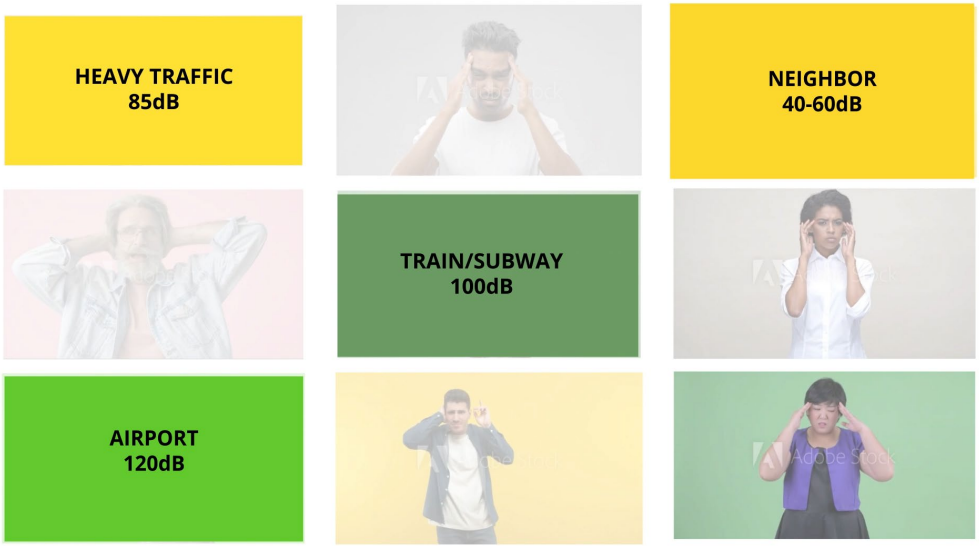


How can we provide a new form of connection usually fostered by the city and its inhabitants? Collaborative Canvas is an interactive, multi-person web application for creating art. Fun and relaxing to use, it hosts several "canvases" that produce unexpected outputs which promote creativity and a sense of calm. Our goal for this application was to make it as accessible to everyone as possible. As long as you have a computer and an internet connection, you can access our creative platform. In addition, we wanted to make the experience intuitive, allowing every age range, and technology skill level to participate in the experience and have fun. We initially looked at the concept of the "paired objects" that could connect two individuals through a variety of multi-sensory output. Our goal with this focus was to foster a new connection with technology, away from one's screens, which would provide a greater feeling of personal connection. We envisioned this taking place through a series of personally-tailored objects that could seamlessly integrate into the daily lives of paired individuals. However, the impact of COVID-19 on the semester has shown us that interacting with our screens has become a necessary component to combat isolation, especially in the current climate. We decided to re-interpret these screen-based interactions into something more playful and collaborative than what we now find ourselves in on a daily basis. We examined a number of digital presidents in order to foster a similarly calming mentality and a collaborative approach to play.

08. TELEPRESENCE. TO BRING PEOPLE TO PEOPLE – *Silvia Bellinghieri, Paolo Calegari, Annachiara Carcano, Chiara Foiadelli, Mariantonella Todaro*

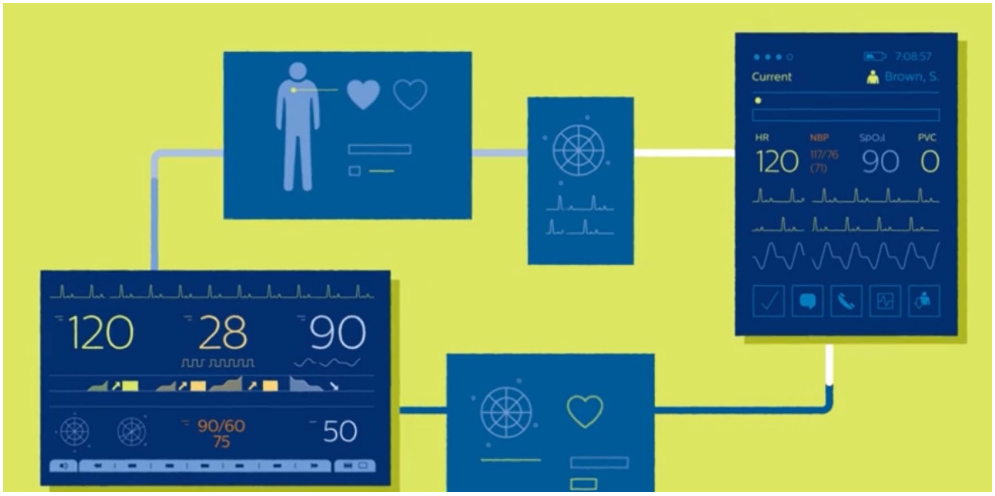
To reduce distances between patients and their families during COVID-19 outbreak, San Raffaele hospital is going to use two telepresence robots. To overcome loneliness and social distancing, a family member can share remotely moments and places with a patient who cannot leave the hospital. In the future, this technology may enable and may overcome difficulties during patient's rehabilitation therapies, and also reduce the patients' lack of social support perceived in these difficult times.

09. LALLA. TRANSFORMING NOISES IN HIGHLY DENSE LIVING SPACES - *Tosin Alliyu & Hyemin*



Living in today's urban spaces, we are constantly surrounded by noise from Heavy Traffic 85dB, Train / Subway 100dB, Neighbor 40 - 60dB, Airport 130dB, etc. The problem with all this noise is that it is a major health hazard: Hypertension. Cardiovascular disease, Hearing loss, Anxiety, Dementia, Other Psychological effects. With the onset of COVID-19, people are spending more time inside, resulting in even higher exposures to hazardous noise for a longer period of time. Not only high decibel noises put people in health risk, but living environments that bothered by constant unwanted noises, even they might be in low decibel level, is stressful and decrease the quality of life. Our goal is to absorb outside noises with high decibel levels, which put residents in great health risks, without blocking fresh air flow or degrading ambiance. With reduced & transformed sound, people can mitigate health risks that are presented by the constant exposure to hazardous city noises. And thereby turn their living experiences from unpleasant to pleasant by creating more ambient environments.

10. NOISESCAPE - *Sherihan Akkawi*



What is noise pollution & how does it affect the heart? It is one of the most dangerous CVD risk factors. Unhealthy noise higher than 70 DB has a negative impact on the neuroendocrine homeostasis. The neuroendocrine system is the mechanism by which the hypothalamus maintains homeostasis. Neuroendocrine Homeostasis is responsible for: Regulating metabolism, Reproductive system functionality, Eating and drinking behavior, Energy utilization, Blood pressure. By converting annoying sounds into pleasing ones, people become the designers of their own acoustic atmosphere. They can customize their environments based on their personal preferences. Thus, boosting their mood which has a positive impact on their daily lives. This will also allow them to change the perception of sounds that are associated with negative experience into positive.

11. THE FASHION OF SOCIAL DISTANCING. PANDEMIC PROXEMICS. *Chenlu Wang, Meichun Cai, Ruijun Liu*

Our design idea is to create a movable and changeable personal space by generating a fluid, subtle and movable personal boundary: it expands or shrinks the visible personal space according to the distance to other people and according to user's perception and psychological needs. The inspiration comes from Queen Victoria's dress, which had an unintended effect of distancing people. To control the shape of the wearable device we used two different methods: the first is a joystick, that the user can play when he or she sees someone coming, therefore controlling the wearable server motor by pushing the joystick one or more times, so expanding its own personal space according to his or her culture and habits.

When the user wants to take things off, he or she could simply move the joystick to the right a couple of times and the wearable will return to its original state. The wearable also includes a proximity infrared sensor (PIR) placed on the back that can activate servo arms to enlarge the wearable where needed. The wearable will not return to its original state unless the other person has moved about three meters away from the user. With our product, people could generate their personal space to maintain their safety zone, and it also reminds people to keep distances during the pandemic; in crowded urban spaces will help people to keep their personal zone if they feel uncomfortable with closer contact with others. Working in the opposite way our product can also be used to show people's friendliness when they want to contact others. The current product has limits: the borders can be spread to generate only a limited personal space and the portability of the wearable might be an issue due to its weight and size, although it can be improved by using 3D print of supports and diversifying the amount of spreading to obtain a customized personal space.

12. LLUCEO. MANIFESTING THE NEW SPATIAL RELATIONSHIP – *Maximilian Mueller, Barbara Alonso*

POST-PANDEMIC REEMERGENCE. How we feel in a space in the built environment will be different than before. Before being in a place like this might give us a feeling of happiness, enjoying the sun, the laughter of the people. After COVID-19, a public square may manifest very different feelings. What is produced: location health. How is it used: investigate why some places are failing/succeeding, visual pheromone/atemporal communication. Then what? targeted interventions, extract and apply elsewhere what is working, inspire inclusive behavior. User expresses how they feel as they pass through a place > cumulative feeling manifested > ACCOUNTABILITY: visual pheromone (Beauty) and targeted intervention or extract and apply elsewhere what is working.