Science to Exhibition Document

Project Name: Point of View
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1. Abstract Insight from Living

Our insight stems from our interest in human's gaze. On the one hand, the existence of eyes does not change the nature of things, as the physiological structure of human vision involves the eye, the retina, the optic nerve, the visual cortex and accessory structures working together to process visual information and achieve perception (M. Joukal, 2017), at which level what the "human being" sees in life is nothing more than a series of information. However, explaining gaze from a visual perspective is decidedly incomplete; it is not a simple process, but involves complex, insightful interactions between various neural pathways and processing centres in the brain.

When we then turn to the individual's function of gaze in society. By distinguishing between the gaze of the eye and the gaze, Lacan (1977) refers to the "gaze" as the uncanny feeling that the object of our eye gaze or glance is somehow looking back at us in some way. We may think we can control our eyes, but the materiality of existence ('the real') always transcends and weakens the meaning structure of the symbolic order. Which is, the materiality of the real gazes back at us.

2. What we Found Interesting

We have sought to place the gazer and the gazed at opposite ends of the power relationship and show a new kind of authority relationship by changing the effect of the gaze. This is based the paper according to Weick, McCall, and Blascovich (2017), the direct gaze is often used for domination and is therefore associated with potency, dominance and power, and these qualities elicit negative emotions in others. Whereas Lietuenan (2018) found that direct eye contact increased emotional arousal and automatically triggered positive emotional responses by comparing the different effects of direct eye contact and averted gaze on observers' emotional responses. To this point the gaze as a social behaviour can be placed in a variety of contexts and power relations for people to interpret it, and through deconstruction to dismantle it and give it new meanings. Moreover, what we really want to discuss is the gaze, as a subject itself.

When we look back on Lacan's topic, there is only a tenuous border between the symbolic order and real materiality. In this illusion there is nothing but the screen of our own narcissistic projections. And it is this lack of a core of desire that ensures that we continue to desire. Thus objet petit a (the object of our desire) is ultimately nothing more than the screen of our own narcissistic projection, and getting too close to it may give us the experience of a Lacanian gaze, and thus the realisation of what lies behind people's desires.

Just like the desire in Lacanian gaze, influential opinions also evolve in the long history of human living. First, it may just be a normal enlightening statement. If it fits the benefit of the mainstream,

people start to notice it. As more people pay attention to it, especially to the parts they subconsciously find important, its original meaning may be twisted by everyone's own interpretation. After times, the text's meaning becomes vague. Then people start noticing it again…and the cycle continues.

However, as an individual being in the wave, it is easy to forget such a cycle. We would like to visualise this evolution and to remind our audience of how ideas evolve and hope to make them reflect on related scenarios around them in their daily lives.

3. Feeling Translate into Experience

To transfer such an idea for the audience to experience, we chose two elements: behaviour and semantics. We capture the act of gazing and imagine that the viewer never really cares what the meaning contained in their gaze is (or doesn't realise it), but the moment the viewer focuses and looks hard at a single point, they have chosen to process the information and interpret it in their own way. When this happens, the "original meaning" of the information we present is automatically distorted.

In this world controlled solely by gazing, the audience will experience an extreme world where their attention becomes the stimuli for the evolution of information. Opinions constantly mutate within the gaze, and viewers can see the role of the individual in collective opinion. Each gaze is a reinterpretation of the information, causing the "original meaning" to be continually reconstructed through personal subjective interpretation.

4. What is our Statement? What makes our Statement Compelling?

The central statement of our exhibition is, **"Your view alters reality"**, this is aimed at a further exploration of the power of how human perception (or we say, gaze) can alter what is seen as reality. Displayed through an interactive installation, viewers can witness how their own gaze alters the visual clarity of the text displayed on the wall; as observers gaze at the text, their continued gaze causes the text to become increasingly blurred, and as the blurring reaches a certain point, the reality of the text in front of them changes. This blurring effect not only symbolises the changeability of perspective, but also reflects how individual interpretations can alter the understanding of a shared reality.

The blurred out text is then regenerated by guesswork, a regenerative nature that further emphasises the continuity and dynamic relationship between perception and reality, and finally the whole process of textual change is printed out as a long receipt through the use of a printer. This interplay between viewer interaction and textual transformation in the exhibition is a powerful metaphor for wider social processes of observation, understanding and interpretation, in order to highlight the role of the individual in these dynamic processes.

5. What Constitutes our Installation?

Constitution:

- Interactive Display: As the participant focuses on a specific word/location displayed on the projection, the word being gazed at is gradually blurred. This visual transformation occurs in real time and is the result of the viewer's direct gazing. The act of reading and focusing on the

text triggers the blurring effect, which is technically achieved by eye-tracking techniques that detect the position of the viewer's pupil relative to the eye socket as a reflection of their focus. The library we chose is called WebGazer.js. Its official link can be referred to here: https://github.com/brownhci/WebGazer

Human reason is beautiful and invincible.

Figure 1: Conduct mapping(look at the five red dots and click) to ensure the best focusing effect at the very start

● Regeneration of Text: A set of texts that conveys human consensus will be projected by projection on a white wall. When people stand in front of it, the part they are looking at will be blurred. Every 10 seconds, GPT will check the blurred text, and make a guess about what it originally was.

Original Text

| been gazed

Blurred Text

Displace

| OCR
recognizing

Distorted Text 00

| GPT
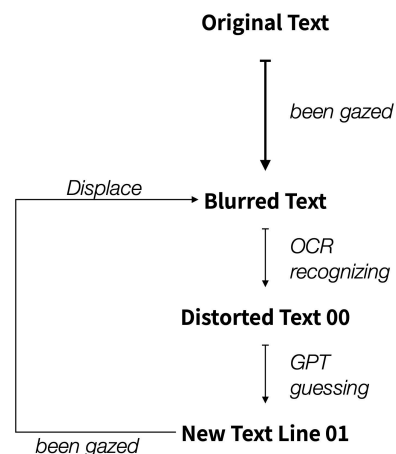guessing

New Text Line 01

been gazed

Figure 2: Workflow of codes

As GPT cannot directly read a blurred text for ethical reasons, we will first use OCR to recognize the blurred text, then feed the recognized result to GPT and let it guess.

Programming language html, javascript and Node.js were used for development. Details can be found in the link: https://github.com/enenmia/s2e-gaze.
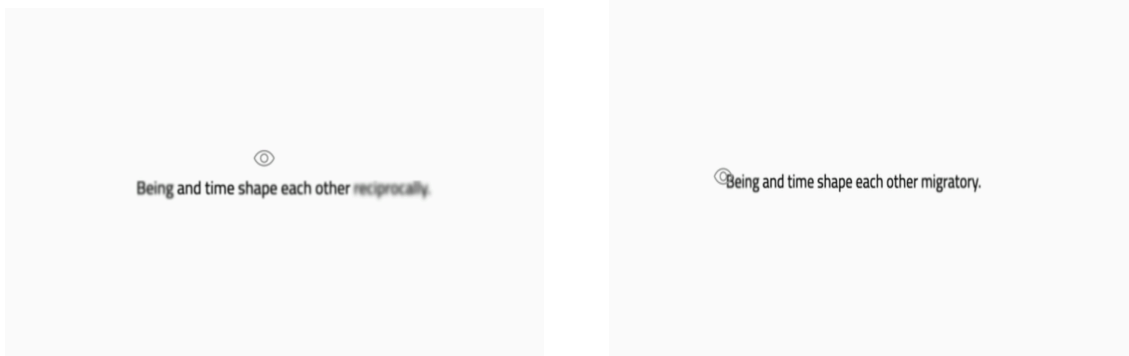

Figure 3: Example of the blurring effect(left), gpt-guessed new text based on the blurred text(right)

- Receipt Printer: After the new text is generated, it will be sent to the printer. It prints the text every time there is new content. Installation-wise,it will produce a very long receipt lying on the ground.

Figure 4: The printer we use

- Other materials to be used: a white wall, projector, sound, camera, stool, stand(to put chin).

Difficulties:

- Problem One: Finding an appropriate printer which can be controlled by VS Code rather than its affiliated printing software.
  Solution: We rented several printers from friends and neighbours and ended up finding one mini receipt printer that we wanted. However for individual users it only provides App to control the printing. So we contact the engineer of that company and successfully receive the sdk they developed for secondary development. It was originally intended for their business clients, but we introduced our special situation and they eventually sent us the code. With the sdk, we were able to control the printer via VS Code.

- Problem Two: It was hard to ensure a good eye-gazing blurring effect as people have different heights
  Solution: First, we found multiple eye-gazing libraries that can predict where exactly people are looking at via mapping and algorithm. We compared their effects and chose the best one: Webgazer.js. However when testing it, we find that the blurring effect does not perform well

when the person is too tall. To solve that, we borrow an adjustable stool from Maarten and plan to have a stable stand with fixed height placed in front of the shelf. With these installations, people can sit and put their chin on the shelf, making sure the eye-gazing function goes well.

6. How does one experience the statement through our work

The physical blurring and re-generation of words due to the viewer's gaze makes the abstract notion of "perception altering reality" tangible. Participants are able to watch first-hand how their continued gaze actually changes the appearance and interpretation of the text, reflecting how their perceptions change the understanding of reality.

As the text changes through personal interaction, it prompts participants to reflect on how their personal views and the views of others shape and reshape a particular narrative. The printed sheet output symbolises the lasting impact of these changes, suggesting that each interaction actually leaves a footprint. The cycle of reading, blurring and reprinting illustrates the ongoing nature of perception and interpretation in human communication. To reinforce the message - Reality is not a fixed entity, but is constantly reinterpreted and reshaped through the interactions and perspectives of observation.

The installation parallels the everyday experience where individual and collective perspectives evolve and redefine our understanding of truth and reality. We capture this aspect to make the experience relevant and profound, encouraging people to think more deeply about the role of individual perspectives in shaping our world. And this immersive and reflective space allows participants to observe the phenomenon and contribute to the whole, making abstract concepts a personal and interactive experience.

References

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