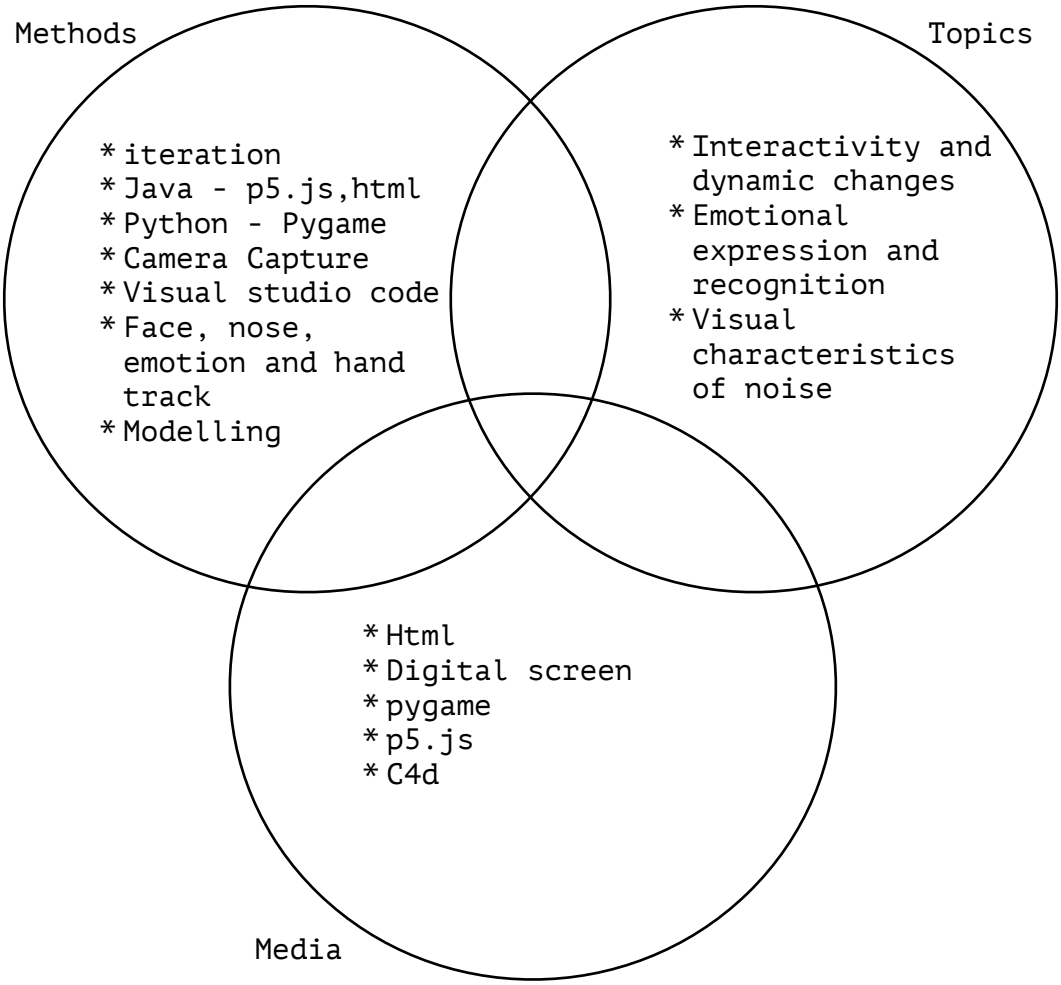
# Positions through iterating

## Venn Diagram (*always updates)

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## Questions:

*Which project opened up questions that you didn't have time to explore fully?

Translation - Matt Deslauriers "Meridian" - '2d generation art—3d' (process) - problem: coding technical - java - p5.js (https://meridian.mattdesl.com/)

*At which point did you find yourself at a fork in the road in your decision making process, forced to leave a route unexplored?

Digital 3d modeling and physical 3d modeling. How to interactive? - only mouse moving or can interactive with human - face ,hand ,body ,emotion

*When did the deadline for a project keep you from fully exploring something in all its depth?

Interaction , physical modeling

*Perhaps you didn't have enough time to develop a new skill or learn to use a tool which would have taken your work into new territory?

Learning coding knowledge - java ,python ,html

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# annotated bibliography:

## reading list:

### Sara Ahmed, 'Introduction' in Living a Feminist Life (2017)

Sara Ahmed in 'Introduction' in Living a Feminist Life (2017)
' explores the intersection of feminist theory and everyday life, which is illuminating for my project in terms of the ethical considerations of interaction design and AI technologies that may affect or reinforce social norms and prejudices.For example, how about a series of information exchanges in the connection between targeting and tracking specific parts of a person? The context in which this relationship is constituted? Or the information that can be exported in the context of a particular community?

This essay encourages reflection on the possible impacts of interaction design and technology applications to help design more inclusive and responsible interaction systems. How can designers set up and think about more inclusive design when outputting a design that should be specific to the specific 'publication' and responsibly designed for the ambience of the venue, the viewer's perspective and the purpose of the design?

### PAUL BENZON, 'On Publishing: Fugitive Materiality and the Future of the Anthropocene Book' in Publishing as Artistic Practice (2016)

Paul Benzon explores the materiality of publications and their future in the Anthropocene era in ''On Publishing: Fugitive Materiality and the Future of the Anthropocene Book' in Publishing as Artistic Practice'. At the centre of this article is an examination of the materiality of unpublished works and the role they may play in the future. Specifically, the paper looks at Katie Patterson's Future Libraries project, which proposes a new form of publication and preservation by planting trees and making books out of them a hundred years from now. Circulating and reverberating across time and space, Paterson's Future Library offers a speculative glimpse of the possibilities of publication in the twenty-first century,' writes Benzon. possibilities of publication in the twenty-second century.' This perspective is closely related to my project, which also involves exploring the relationship and depth of nature, living things, and people in relation to space through digital and interactive art.

Benzon's article sheds several key light on my project. Firstly, he discusses the materiality of future publications, and in particular the role of paper books in the digital age. This was important for my project to create interactive 3D spheres through p5.js and Berlin noise, as it prompted me to think about how the materiality of artworks can be maintained and displayed in a digital environment. Secondly, Benzon explored how the life cycle of a book can be extended into geological time through extended storage, which fits with my project's theme of exploring spatial properties and graphic variation. Finally, his reference to the cultural dialogue about the future of digitisation and materiality that can be triggered through publishing art projects provides a theoretical basis and practical guide to the digital interactions and future physical transformations of my project (bringing the interaction of a model formed by an electronic code into the real world and exploring its functionality).

### ANDREW BLAUVELT, 'Conditional Design Workbook' (2013)

Andrew Blauvelt explores the concept of conditional design and its practice in ‘Conditional Design Workbook’. At the heart of the book is the creation of art and design through predefined conditions and rules, with an emphasis on process over product. Blauvelt writes, ‘The process is the product.’ This idea is closely related to my project, which also involves generative art through p5.js and Berlin noise in a way that emphasises interaction and dynamic change.

Blauvelt's article sheds several key light on my project. Firstly, he discusses how the design process can be guided by conditions and rules, which fits well with the way I create interactive 3D spheres through programming. Second, he mentions logic as a tool for designing conditions and avoiding arbitrariness, which helped me to use algorithms and programming to create complex and meaningful deformations and interactive effects in my project. Finally, he emphasises that inputs should come from complex external environments such as nature, society and their human interactions, which echoes the experiments I will be using to recognise facial and gestural interactions using cameras, further enriching my project.

## own research:

### Justin D. Weisz, Michael Muller, Jessica He, Stephanie Houde, 'Toward General Design Principles for Generative AI Applications' (2023)

In Toward General Design Principles for Generative AI Applications, Justin D. Weisz et al. explore design principles for generative AI applications and propose seven core design principles. These principles are intended to guide designers on how to build generative AI systems for efficient and secure use, especially when designing in generative variability environments. The paper states, ‘Generative applications enable users to explore or populate a “space” of possible outcomes to their query. sometimes, this exploration is explicit, as in the case of systems that enable latent space manipulations of an artifact.’

This is closely related to my project, as my project enables interaction design through a combination of p5.js and Berlin noise, combined with subsequent camera recognition of faces, hands and emotions. The discussion of generative variability in the text emphasises the fact that generative AI systems can produce multiple different outputs based on user input, a characteristic that is at the heart of the dynamic interaction and diverse outputs in my project. By understanding and applying these design principles, I was able to better design and optimise my interactive 3D spheres (text, patterns and visualisations) to ensure that users were able to explore and interact with diverse outputs.

This article had several key takeaways for my project. Firstly, it emphasises the design principle of ‘multiple outcomes & imperfection’, which is in line with my project's goal of using Berlin noise to generate multiple deformation effects. Secondly, the article explores the user's need for control and exploration when interacting with the AI-generating system, which provided valuable guidance for me when designing the user interface. Finally, the authors recommend guarding against potential hazards through design to ensure the safety and reliability of generative AI systems in applications, which is particularly relevant to me when working with real-time camera data and face (emotion) recognition, as well as the community environments created through this interactive information.

### Cooner, C. (2021). Art in the 21st century: Interactive Installations. Rethinking The Future.

In his article ‘Art in the 21st century: Interactive Installations.’, Korner explores the development of interactive art as a significant phenomenon, particularly in light of computer technology and the Internet. The article notes that the combination of digital media and sensors with digital or audio interfaces creates a unique experience for artworks. Korner writes, ‘Interactive installations offer memorable experiences to participants through their experiential nature. With the rise of social media platforms like Facebook and Instagram, interactive and immersive art has become more accessible to the world.’

This idea is closely related to my project as it was designed through p5.js and Berlin noise and incorporates mouse movements and clicks for interaction as well as going for camera recognition of faces, hands and emotions for interaction. The text emphasises that interactive installation art creates a memorable experience for participants through sensory stimulation and multi-dimensional interaction, a characteristic that is at the heart of the dynamic interaction and diverse output of my project. By understanding and applying these design principles, I was able to better design and optimise my interactive 3D spheres or fonts, moving images and visualisations to ensure that users were able to explore and interact with a diverse range of outputs.

This article had several key takeaways for my project. Firstly, Korner points out that the experiential and immersive nature of interactive installation art can appeal to a wider audience base, especially as the popularity of social media has made interactive and immersive art more popular and accessible. Secondly, the article explores the possibilities of enhancing artist expression and bringing about different modes of interaction through new digital technologies such as projection mapping, virtual reality and artificial intelligence, which has inspired me to use real-time data and interactive design in my projects.

## practice:

### Universal Everything, “Future You” (2019)

Universal Everything's project ‘Future You’ explores the possibilities of future human interaction with graphical interfaces, especially in terms of real-time response and dynamic change. The project utilises real-time data and advanced graphical techniques to create an unprecedented interactive experience. By translating real-time data into dynamic visuals, the project demonstrates the deep connection between technology and the human experience.

‘The Future You’ project creates a futuristic interactive experience by capturing the viewer's movements in real time and generating corresponding graphical changes. This real-time responsiveness allows the audience to see the immediate impact of their actions on the artwork, enhancing the immersion and engagement of the interaction. The project utilises advanced graphic generation techniques to achieve high precision and smooth interactive effects, providing an important technical reference for my project.

Real-time response: the project enables viewers' movements to instantly affect the artwork by capturing and generating graphical changes in real-time. This fits with the need for real-time interaction in my project using cameras to recognise faces and gestures. Understanding how to achieve an efficient real-time response was crucial to the design of my project.
Futuristic: The project demonstrates the future possibilities of human interaction with technology, creating a sense of the future through visual and technological means. This inspired me to consider how to create an engaging futuristic experience through visuals and interactive technology in my project design.
High-precision interaction: The project utilised advanced graphic technologies to achieve high-precision and smooth interactive effects, which provided me with technical references for my project when realising complex shape-shifting and interactive effects. Understanding how to achieve precise and smooth interactions through technical means was the key to the success of my project.

### Universal Everything, “Into the Sun” (2022)

Universal Everything's project ‘Into the Sun’ demonstrates the vast potential of interactive design in digital art. This interactive installation brings a digital nature landscape to life by capturing the viewer's movements. The viewer's movement activates the plants in the installation, causing them to sprout, grow and bend towards the viewer, shielding them from the warmth of the digital sun. The process is not only a visual treat, but also an experience of interacting with digital nature.

The project description states, ‘Into the Sun is an interactive installation, a natural landscape that will only come to life when the viewer interacts and moves in front of it.’ This fits well with my project's goal of generating dynamic art through p5.js and Berlin noise, combined with camera recognition of faces and gestures to enable interaction. The project emphasises the triggering of visual changes through the user's movements, and this type of interaction has provided significant inspiration for my project design.

Dynamic Interaction: the project utilises the viewer's movements to activate and control changes in the digital landscape, which is in line with the core concept of my project of capturing user movements through cameras and enabling real-time shape shifting. Understanding how dynamic change can be achieved through user interaction was crucial to the design of my project.
Nature Simulation: The growth and movement of the plants in the project mimic the behaviour of nature, which inspired me on how to simulate and present the dynamic changes of the graphics in my project through algorithms and generative techniques (to get a closer sense of ambience to the natural environment).
Multi-User Experience: The project allows up to four people to interact simultaneously, creating a collective experience. This provided a valuable reference for me to design multi-user interaction scenarios in my project, making the interactions more social and engaging.

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## Line of Enquiry Statement

My research project explores the application of interaction design in human behaviour (emotion, face and gesture) recognition and dynamic visual presentation, in particular through real-time camera capture of face and gesture interactions yielding different visual information exchanges (processual - exploratory). My question focussed on, ‘How can the dynamic environments built through digital technology and interaction design be related to the process of information exchange between humans?’ (Spur: Exploring digital models in three dimensions - physicalisation, Exploring the functionality of physicalised real-time interactive installations - ‘publishing’) This research aims to create an

interactive and immersive digital art experience through a combination of programming, real-time data capture and emotional algorithms.

Specific methods include:

Code technology: python - pygame for 2D base architecture, html, java for 3D architecture.

3D modelling: c4d - building interactive objects with specific details.

Interaction design: real-time human behaviour (emotion, face and gesture) recognition by combining camera technology, where the user's actions directly affect the dynamics of the artwork.

This research not only explores the frontiers of interaction design in terms of technology, but also provides theoretical insights into how these technologies can enhance the user's environmental (emotional) experience and interactivity. This research framework will provide a solid foundation for my project and push the boundaries of digital art in the field of interaction design.

# Positions through contextualising

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## annotated bibliography:

### reading list:

Hito Steyerl, 'In Defence of the Poor Image' in The Wretched of the Screen (2012)

In 'In Defence of the Poor Image', Hito Steyerl delves into the value and significance of low-resolution images in the digital age. She suggests that the poor image is a 'copy in motion', its quality is bad, its resolution is low, and yet it occupies a unique place in digital culture due to its widespread distribution and reproduction. copy in motion. Its quality is bad, its resolution substandard. As it accelerates, it deteriorates. It is a ghost of an image, a preview, a thumbnail, an errant idea, an itinerant image distributed for free.'

This description is closely related to my project, which also involves a window that is a texture of pixel (emotiontrack - emotional computational visualisation - a window that blurs emotions) and uses camera recognition to enable real-time interaction.Steyerl emphasises that poverty images subvert the authority and value of traditional high-quality images through their wide distribution and low quality characteristics. This inspired me to utilise low-resolution images and digital elements in my project to create unique interactive experiences and visual effects, blurring and diluting the visual experience of emotions and expressions to bring about a different sense of experience, and to explore the potential of these elements in expression and communication.

Steyerl also discusses the 'visual boundaries' of poverty images, how these images can make connections in global digital networks, creating new public spheres and spaces for discussion. She notes: 'The circulation of poor images thus creates a circuit, which fulfils the original ambitions of militant and (some) essayistic and experimental cinema-to create an alternative alternative to the digital cinema. experimental cinema-to create an alternative economy of images, an imperfect cinema existing inside as well as beyond and under commercial media streams.' This perspective sheds important light on my project, particularly on how digital technology and low-resolution images can be used to build new audience groups and modes of interaction when exploring social and environmental issues through interactive art.

### David Reinfurt, ‘I-N-T-E-R-F-A-C-E’ in A New Program for Graphic Design (2019)

David Reinfurt's chapter ‘I-N-T-E-R-F-A-C-E’ in A New Program for Graphic Design delves into the theory and practice of interface design.Reinfurt emphasises that the interface is not just a window through which the user interacts with the Reinfurt emphasises that interfaces are not only the window through which users interact with computer systems, but also an important area of design that shapes and influences the user experience, Reinfurt writes: ‘Interfaces are not just technical objects; they are fundamentally cultural artifacts that shape the way we interact with technology and, consequently, with the world.’

This observation is closely related to my project, which involves the formation of a 2D design interface game via python and pygame, combined with camera recognition to enable real-time interaction.Reinfurt's thesis reminds me of the key role of interface design in creating immersive experiences and facilitating user interaction. He emphasised that designers should consider the cultural and social impact of interfaces, not just their technical functionality.

Reinfurt also discussed how complex interactions and user engagement can be achieved through interface design. He suggested that successful interface design needs to be not only intuitive and easy to use, but also flexible and adaptable in order to respond to the diverse needs and behaviours of users. This provided a valuable reference for my project, enabling me to better design and optimise the interactive system to ensure that users are able to explore and interact with a diverse range of outputs.

In addition, Reinfurt emphasised the use of interface design in digital art. He pointed out that interfaces are not only a bridge between technology and users, but also a medium for artistic creation. Through innovative interface design, artists can create unique digital art experiences that break the limits of traditional art forms. This perspective has been an important inspiration for my project, prompting me to explore the innovations and possibilities of interface design in my project design.

## own research:

### A Bibliometric Analysis of Immersive Technology in Museum Exhibitions: Exploring User Experience (2023)

This study provides a comprehensive review of immersive technology applications in museum exhibitions, focusing on augmented reality (AR), virtual reality (VR) and mixed reality (MR). It highlights the transition from early novelty applications to richer contextual experiences that increase visitor engagement and promote a deeper understanding of cultural heritage. The use of advanced technologies such as artificial intelligence chatbots, digital twins and personalised visitor data in modern museum exhibits highlights the potential of immersive technologies to create meaningful and interactive learning environments.

The insights from this research are particularly relevant to my project as it demonstrates how immersive technologies can transform user interaction and increase engagement. Integrating AI and real-time data to personalise the experience is similar to my other goal of using camera-based interactions and real-time user feedback to drive dynamic changes to my physical art installations. However in response to the real-time feedback from the camera, there are options for its development in the form of AR, VR and MR in the user interface.

## practice:

### Moniker Studio, ‘Do Not Touch’ (2014)

Moniker Studio's project ‘Do Not Touch’ is an interactive, crowdsourced music video that creates a unique visual effect through the interaction of the user's mouse pointer. In this project, every click and movement of the user is recorded and overlaid with the trajectories of other users' interactions, resulting in a complex, dynamic visual piece. This project demonstrates how complex user engagement and interaction can be achieved through interface design.

The ‘Do Not Touch’ project demonstrates the potential of interface design to enable dynamic interaction and user engagement. By collecting and overlaying data on user interactions, it not only enhances user engagement, but also creates an art form of collective creation. This required me to think about the difference between the collective and the individual on the interface, the size of the electronic screen on which the publication was published and the design of the space, the choreography and design of the multi-level - multi-dimensional ‘interface’.

In addition, this project emphasises the importance of the user in interactive art, where the user is not only the viewer but also the co-creator of the artwork. Through real-time user interaction, the artwork evolves and enriches. This mode of interaction provides a valuable reference for my project, allowing me to explore similar modes of interaction and technological applications that can improve the interactivity and user experience of the project.

By analysing Moniker's ‘Do Not Touch’ project, I learnt how to use interface design and user interaction to create a unique digital art experience. This provided me with concrete practical examples and technical references to help me better achieve my project goals.

### Yehwan Song, ‘Aquarium’ (2022)

Yehwan Song is a Korean-born artist and web designer known for her anti-user friendly, unconventional and diverse web designs. Her work ‘Aquarium’ is an interactive web art installation that demonstrates interactivity and spatiality through two live-connected websites. One site shows a side view of the aquarium, while the other shows the water surface. When a user touches the surface of one of the sites, their virtual finger is displayed on the other site as if they are actually touching the water in the aquarium.

Yehwan Song's design philosophy challenges traditional user-friendliness by encouraging users to explore and learn before using the system. Her ‘Anti User-Friendly’ project emphasises the need for users to invest time and effort in understanding the system, thereby promoting personal growth and self-awareness. Her work is not just about demonstrating the complexity of the technology, but also about stimulating awareness and reflection on the content.

In the Aquarium project, Yehwan attempted to transform a flat web page into a physical three-dimensional space, breaking the traditional framework of web design. This innovative design provided a valuable reference for my project, allowing me to explore similar modes of interaction and use of technology to enhance the physical realisation of the project, especially when staging the venue, thinking in terms of the distance between the viewer and the design, and how to design the physical 3D space to match the viewer and evoke a sense of ambience.

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## Critique and Analysis

### Critical Analysis 1: Universal Everything, ‘Into the Sun’ (2022)

Project Background - Universal Everything's ‘Into the Sun’ project is an interactive installation that brings a digital natural landscape to life by capturing the viewer's movements. The viewer's movement activates the plants in the installation, causing them to sprout, grow and bend towards the viewer, shielding them from the warmth of the digital sun. This process is not only a visual treat, but also an experience of interacting with digital nature .

Form - ‘Into the Sun’ creates a dynamic and immersive experience by combining advanced generative technologies with real-time interaction. The project utilises the viewer's movements to activate and control changes in the digital landscape, making each viewer's experience unique. Visual elements such as sprouting plants and growing trees give a sense of being in nature through vivid colour and form changes. The addition of sound elements enhances this immersion, making the whole experience more complete and rich.

Matt Pyke, Creative Director of Production and Communications - Universal Everything, says the beauty of generative technology is its unpredictability and constant freshness. The technology generates unique digital characters and abstract life forms through a computational system that allows the viewer to see a different scene each time they interact. This not only adds to the viewing value of the work, but also enhances audience engagement and interaction.

Impact - The design concept and technical realisation of ‘Into the Sun’ has been an important inspiration for my project. First of all, the project emphasises the information interaction during user interaction and how to set up a virtual environment and theme in a reasonable way, which is similar to my goal of using p5.js and Berlin noise to generate dynamic 3D spheres and combining with camera recognition to achieve interaction. I am still in constant experimentation to find the right scenario, or a piece of virtual place is information processing and feedback for human behaviour. Secondly, the project demonstrates how the immersion of interactive installations can be enhanced through multi-sensory (which can involve more sensory experiences, such as hearing) experiences, which provides a valuable reference for me when designing interactive systems.

### Critical Analysis 2: Universal Everything, ‘Future Human’ (2016)

Project Background - Universal Everything's project ‘Future Human’ explores the future possibilities of human interaction with graphical interfaces, particularly in terms of real-time responsiveness and dynamic change. The project utilises real-time data and advanced graphical techniques to create an unprecedented interactive experience. By translating real-time data into dynamic visuals, the project demonstrates the deep connection between technology and the human experience.

Form - The project creates a futuristic interactive experience by capturing the viewer's movements in real time and generating corresponding graphical changes. This real-time responsiveness allows the viewer to see the immediate impact of their actions on the artwork, enhancing the immersion and engagement of the interaction. The project utilises advanced graphic generation techniques to achieve high precision and smooth interactive effects, providing an important technical reference for my project.

Production and Communication - ‘Future Human’ demonstrates the possibilities of human interaction with technology in the future, creating a sense of the future through visual and technical means. Through high-precision graphic generation and real-time response, the project not only demonstrates the potential of technology, but also emphasises the importance of interactive design in the future of art. The designs and techniques provided valuable references for my project, enabling me to have a better direction when dealing with real-time data and designing interactive effects.

Impact - By analysing Future Human, I learned how to use real-time interaction and dynamic change to enhance the user experience. The project demonstrated efficient real-time responses and highly accurate interactions, which provided me with important visual interface references when designing and implementing complex shapes and interactions (visualisation of emotional calculations and centred pixel windows). At the same time, the futuristic emphasis of the project inspired me to consider how to create an environmental property through visual effects and interactive techniques in the project design.

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