DYS/Utopia: Recursive Feedback as a Metaphor for Existential Collapse

Computational Art Report

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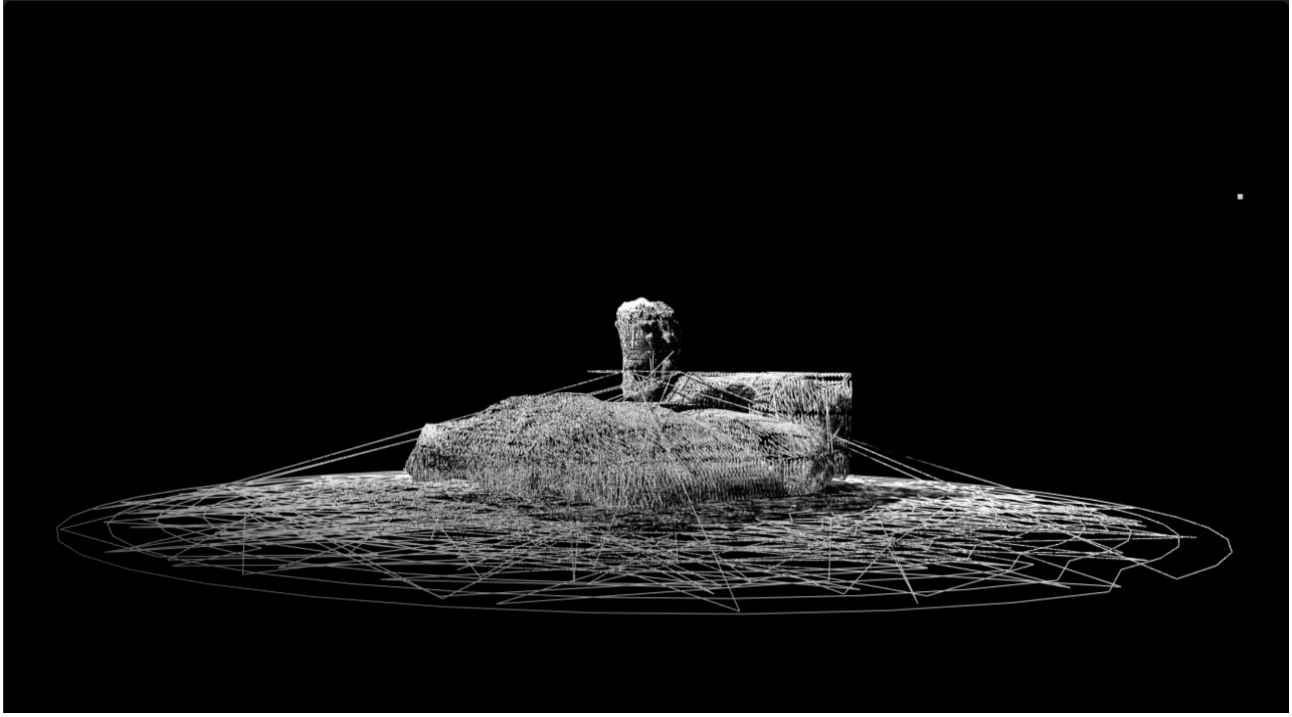
Word Count：1314

Date of Submission：29 May 2025



1. Project Overview

Project Title: *DYS/Utopia*

Medium: Interactive Installation (TouchDesigner + Kinect)

Main Interaction: Raising a hand above the head

Core Symbols: Abstract human head, bed, melting process, geometric feedback planes

DYS/Utopia is an interactive installation that investigates the psychological boundary between utopia and dystopia. The work is activated by a simple gesture: when the viewer raises a hand above their head, the system detects the motion via Kinect and triggers the slow melting of an abstract human head resting on a bed. The head symbolizes the artist's consciousness, while the bed serves as a vessel of private meditation—both a physical space (the bedroom) and a metaphysical realm of reflection and interiority.

The melting of the head signifies the breakdown of mental structures under the weight of deep existential contemplation. The gesture itself resembles both a prayer and an act of surrender; it activates a feedback loop that visualizes the paradox of spiritual inquiry, where the deeper one thinks, the more unstable and abstract the self becomes.

Beneath the bed, geometric planes continuously accumulate, representing the materialization of thought. A circular ring above the head emits net-like structures downward, simulating a symbolic mechanism of recursive meditation. The central philosophical proposition of the work is this: utopia exists in the comfort of unthinking stability, while dystopia emerges when the self gazes inward with intensity, collapsing into complexity. Through a visual sequence of action, feedback, and dissolution, *DYS/Utopia* exposes the entropic nature of the human mind when confronted with the unknown and the divine.

2. Literature Review (Revised and Integrated)

DYS/Utopia is situated within the evolving field of computational art, where symbolic abstraction and system responsiveness form the foundation of artistic inquiry. The project engages deeply with the relationship between gesture, feedback, and philosophical meaning, which is contextualized through three key theoretical lenses: performative interaction, systemic aesthetics, and generative responsiveness.

Brenda Laurel's Computers as *Theatre* (2013) provides a dramaturgical framework that casts interaction as a kind of performative experience. Laurel emphasizes that computational media should be seen not merely as tools but as stages upon which human action becomes meaning. In *DYS/Utopia*, this theory manifests in how a singular gesture—raising the hand overhead—functions like a dramatic cue, triggering symbolic transformation and initiating a feedback loop. The audience, by performing this gesture, becomes both agent and subject, engaging with a responsive system that reflects back their existential inquiry.

The aesthetic language of recursive abstraction in *DYS/Utopia* can be further contextualized through *Adamatzky and Martínez's Designing Beauty: The Art of Cellular Automata* (2016). Their study of emergent visual complexity through local rules parallels the way *DYS/Utopia* produces symbolic entropy via procedural systems. The melting head and the growing mesh beneath the bed are visual metaphors for psychological recursion, generated through TouchDesigner's layered SOP/CHOP architecture and geometrically programmed feedback. Like cellular automata, the system derives beauty not from representational accuracy but from the internal logic of recursive change.

While *DYS/Utopia* does not deploy neural networks, its responsive structure resonates strongly with the logic explored in *David Foster's Generative Deep Learning* (2023). Foster frames machine creativity as a process of responding to real-time input through adaptive generation. In a similar way, *DYS/Utopia* functions as a thinking environment—its symbolic evolution is not fixed, but contingent on the viewer's gesture. The melting effect, the recursive feedback, and the evolving UI-controlled parameters simulate a generative co-creation, where meaning is not predetermined but emerges within a live system.

Collectively, these texts help situate *DYS/Utopia* not merely as an interactive artwork but as a computational system for thought. By fusing symbolic gestural input with recursive feedback mechanisms, the work embodies philosophical uncertainty in both form and process, positioning it within the contemporary lineage of computational aesthetics.

3. Results and Discussion

The final outcome of *DYS/Utopia* was successful in delivering a coherent philosophical theme through symbolic gestures and abstract visual metaphors. The primary interaction—raising a hand

above the head—was recognized consistently by the Kinect system and successfully triggered the visual feedback of the melting head, creating a meditative, slow-evolving atmosphere that resonates with the existential questions posed by the work.

Peer feedback acknowledged the strength of the concept and its connection between theme and interaction. The gesture-based system was seen as intuitive, and the open-ended symbolic interpretation allowed viewers to project their own feelings into the space. However, several areas for improvement were highlighted. One major critique was the lack of audio. The absence of sound reduced the immersive potential and made the experience feel visually rich but acoustically silent, which limited emotional depth.

In addition, some viewers found the spatial setup and scene composition unclear. The bed and head—though deeply personal to the artist—were not universally legible to the audience, making it harder for some participants to fully grasp the symbolic context without prior explanation. Moreover, the UI was considered underdeveloped; participants lacked a sense of system feedback or cues when interacting, which weakened the responsiveness of the overall experience.

4. Future Directions

As *DYS/Utopia* evolved, a key insight emerged: the tension between personal spiritual expression and the accessibility of interaction must be consciously negotiated in future iterations. While the project successfully translated metaphysical ideas, such as entropy, revelation, and symbolic collapse, into interactive feedback, peer and viewer feedback revealed challenges in audience engagement. Some participants appreciated the conceptual depth, while others were unsure how to interact or interpret the symbols.

This led me to a crucial realization: an artwork that depends on audience participation must extend an invitation, not only a message. My early design decisions were heavily oriented toward internal meaning—toward constructing a visual system that mirrored my personal meditative process. However, without clear cues or intuitive interaction, some viewers were alienated by abstraction. This is not a failure of concept, but a challenge in delivery.

In future development, I plan to implement multi-layered entry points that balance conceptual density with intuitive design. This includes:

1. Adding generative audio that responds to gesture or proximity, creating an affective entry layer.
2. Introducing visual prompts or ambient text fragments to guide initial interpretation without being didactic.
3. Enhancing UI responsiveness with glow effects or symbolic pulses to acknowledge user interaction.

4. Exploring multi-user interaction where collective gestures activate deeper system responses, reflecting shared consciousness.

Most importantly, I've come to understand that gesture, sound, feedback, and interface are not only expressive tools—they are also invitational structures. A raised hand may symbolize invocation, surrender, or existential inquiry, but it must also function as a clear system trigger. The future of this project lies in resolving this paradox: how to build a deeply internal world, yet open it outward through touch, signal, and shared space.

5. Conclusion

DYS/Utopia is ultimately a work about thresholds—between utopia and dystopia, self and system, signal and meaning. It reimagines gesture as a spiritual interface, symbolic feedback as mental erosion, and computational logic as a space of philosophical speculation.

Through this process, I gained not only technical skills in AI modeling, TouchDesigner systems, and Kinect integration but also a deeper understanding of how interactive art can translate personal reflection into shared experience. The project challenged me to refine not just visuals, but communicative clarity, ensuring that interaction is not only functional, but empathetic.

The most enduring lesson from this project is that meaning does not exist solely within the artwork, nor solely within the artist—it emerges in the loop between the two and the audience. The future of DYS/Utopia lies in cultivating that loop: not diluting the complexity of the concept, but framing it within structures that welcome participation and enable co-creation.

Appendix A: Technical Implementation Overview

The technical pipeline of DYS/Utopia integrates AI-generated 3D models, geometric optimization, and real-time feedback rendering in TouchDesigner.

The core symbolic models—the human head and bed—were first created using an image-to-3D pipeline based on the open-source model innoai/TRELLIS, hosted on Hugging Face. This model was used to convert reference photographs into stylized 3D meshes. The raw outputs were imported into Blender for cleanup and mesh remeshing, a process essential for correcting topology issues and ensuring proper material behavior once imported into TouchDesigner. The remeshed models were exported as .obj files and brought into TD via filein SOPs, then spatially arranged using transform nodes.

Supplementary geometry—including recursive circle/tube structures representing subconscious activity—was built directly within TouchDesigner using procedural SOPs. These were merged and used to form the base of the symbolic bed environment.

The Kinect input system was constructed using a logic chain of select, math, filter, and logic CHOPs. This chain detected the gesture of "hand raised above head" by monitoring positional thresholds. When this condition was met, a trigger was sent to initiate the melting process of the head mesh.

Melting and erosion effects were achieved through a custom feedback system using feedback, over, noise, and math operators, modulating the geometry over time to create a recursive, organic breakdown. This transformation was visualized as the symbolic entropy of thought in response to divine inquiry.

User interface controls were built using slider, checkbox, and container widgets, routed to key parameters like noise amplitude and feedback speed. These controls allowed for real-time adjustment and potential audience input during the exhibition.

The rendering pipeline employed PBR shading, an environment light, and a camera system. Modular components were routed through switch, tile, and render TOPs to finalize the scene for real-time output.

References

Adamatzky, A., & Martínez, G. J. (2016). *Designing beauty: The art of cellular automata. Springer.*

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