

Algorithm Pasture: Perceptual Domestication and the Illusion of Freedom in AI Art Installations

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Abstract

This paper presents Algorithm Pasture—an interactive installation using AI-generated video and facial recognition—to examine how algorithms shape human cognition and freedom in digital life. Through a matrix of screens forming an “information pasture,” viewers confront whether perceived choices are autonomous or algorithmically designed. As they watch “algorithm-domesticated humans,” facial recognition simultaneously incorporates them, reversing roles from observer to observed. The work shows how generative AI and perceptual interaction can create a critical visual language, opening new ways to reflect on digital culture.

CCS Concepts

• Applied computing → Media arts.

Keywords

Generative AI; algorithmic control; perceptual interaction; AI art installation; illusion of freedom; viewer-participant exchange

ACM Reference Format:

Siyi Lu. 2025. Algorithm Pasture: Perceptual Domestication and the Illusion of Freedom in AI Art Installations. In *Proceedings of the 18th International Symposium on Visual Information Communication and Interaction (VINCI 2025)*, December 01–03, 2025, Linz, Austria. ACM, New York, NY, USA, 2 pages. <https://doi.org/10.1145/3769534.3769622>

1 Introduction

In today’s digital age, recommendation systems are no longer simple content filters but structural forces reshaping human behavior, cognition, and decision-making[5]. While appearing to offer personalized choice, they function as feedback loops of “familiar preferences,” confining individuals to comfort zones and limiting exploration of the unknown[3]. Algorithm Pasture responds to this condition through a metaphorical interactive space that seems open yet is domesticated. Viewers appear to exercise choice, but their agency is subtly eroded by algorithmic control. Through the interplay of gaze and the images of “domesticated humans,” the work suggests that freedom lies not in escaping control but in recognizing it, cultivating conscious awareness within its constraints.

2 AI-Generated Structure

The installation integrates AI-generated video and facial recognition to simulate an algorithm-driven observer-observed dynamic:

(a) Spatial Construction: The work consists of a number of digitally arranged screens forming a matrix, surrounding the viewer

to create an immersive “information pasture.” On these screens is displayed a group of domesticated “animal-humans”(Figure 1)—creatures with animal heads and human bodies—lined up neatly with vacant stares, symbolizing “data subjects” who have lost independent consciousness within algorithmic recommendation systems.



Figure 1: depicts “Animal-Humans” domesticated by algorithmic systems, with animal heads and human bodies symbolizing the alienation of data subjects.



Figure 2: On-site Diagram of Camera and AI Recognition Technology Capturing Viewer Positions and Facial Features

(b) Real-time interaction mechanism:As viewers approach the screens, the “animal-humans” on the display slowly turn and make eye contact with them.The system uses cameras and AI recognition technology to capture the viewer’s position and perform facial recognition in real time, transforming their face into an animal head as part of a feedback mechanism(Figure 2).This exchange of gazes disrupts the one-way nature of observation, making viewers realize that they are not outside the work, but are instead part of the structure being observed themselves.



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ACM ISBN 979-8-4007-1845-8/25/12

<https://doi.org/10.1145/3769534.3769622>



Figure 3: On-site Diagram of Camera and AI Recognition Technology Capturing Viewer Positions and Facial Features

(c) The mirrored relationship between self and others: Viewers initially believe themselves to be the clear-minded subjects observing others, but when the system projects their own “animalized” image, their “self” also becomes othered. This transformation challenges their understanding of conscious freedom, revealing that in the algorithmic world, what appears to be “choice” may merely be a pre-planned path of behavior.

(d) Technical implementation and perceptual experience: The installation employs AI-generated imagery and facial recognition to enable real-time interaction, creating a highly immersive and perceptually rich exhibition. Through its surrounding screen layout, direct gazes from hybrid “animal-humans,” and fluid role-switching between viewer and subject, the work prompts deep reflection on algorithmic control in contemporary digital society (Figure 3).

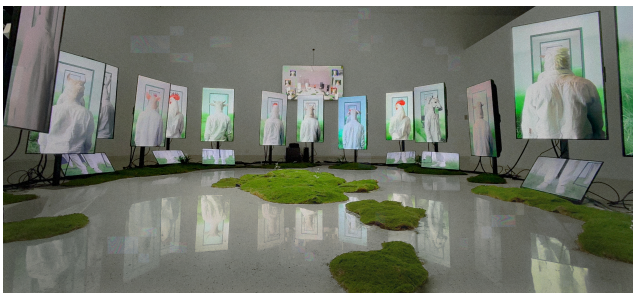


Figure 4: On-site Photo of the Exhibition

(e) Interaction technology implementation details:

1. Interactive Visual Workflow The Unity client is responsible for camera input, rendering (via OpenGL), and user interaction. Captured frames are transmitted through a local network to the back-end system, which performs the following steps: Receives image frames; Applies deep learning algorithms to detect human subjects; Uses tracking algorithms to assign a unique ID (up to 20 individuals), ensuring identity continuity even after brief departures; Calculates the face region based on body position. The results are then returned to the Unity client, which renders bounding boxes and other visual markers accordingly.
2. Latency and FPS System latency mainly arises from network transmission and backend inference. The overall speed is determined by GPU performance. Based on tests conducted on an NVIDIA GeForce RTX 4060 (3072 CUDA cores), the system achieves a frame rate of approximately 160-170 FPS, with a latency ranging from 6.2 to 8.3 milliseconds.

(f) Facial data and privacy compliance: Facial data is processed only in memory and transmitted via encrypted local networks—never

stored or shared externally. No persistence: Data is not saved or cached. Real-time deletion: All data is erased after each frame. Encrypted loop: Data stays within client-backend communication. This design aligns with the Privacy by Design principle, requiring no additional user consent.

3 Discussion

Algorithm Pasture is not just a display of the “crisis of algorithms.” Through allegorical scenes, it transforms structural issues into cognitive challenges. Viewers, via screen interaction, gradually realize the designed nature of their own behaviors and role perceptions. Audience Research and Validation, A post-experience study (50 valid participants) showed: 72.3% noticed algorithmic influence on daily choices; 63.8% felt “animalization” conveyed constrained freedom; 81.9% said it prompted reflection on algorithmic values and risks; 58.5% noted they would be more cautious of recommendation systems.

These results indicate the work not only engages the senses but also effectively provokes critical reflection on algorithmic control and freedom’s illusion [2], validating its role as critical media art [1].

In this process, the algorithm acts as both provider and orchestrator [4], catering to the desire for comfort while confining exploration. Immersion deepens domestication, eroding autonomy. The metaphor of viewers as domesticated animals exposes how the digital “illusion of freedom” becomes its most profound form of confinement.

4 Conclusion

“Algorithm Pasture” employs generative AI and perceptual interaction mechanisms to create a spatial experience that simulates the controlling logic of algorithms, achieving the following three objectives:

Revealing the domestication mechanisms of digital structures: By mirroring viewers with “animal-humans,” the work concretizes and sensorially exposes the conditioning structures behind algorithmic recommendation systems.

Breaking the one-way dynamic of observation and performance: Viewers initially believe they are rational observers, watching the “animalized” others. But when their own faces are transformed into animal forms by the system, they realize they too have been captured and absorbed by the algorithmic gaze. In that moment, the power of observation is reversed—they become another subject under control. This role inversion reveals that the boundary between self and other is not fixed, but an illusion shaped and manipulated by algorithmic structures.

Stimulating cognitive reflection through art: The work provokes reflection instead of resolution, using artistic language to interrogate the illusion of choice and freedom under algorithmic systems.

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