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Post-Humanism in Post-Modern Dance

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Abstract

Post-modern art has adapted to post-humanism, and has begun to use technological advances as an extension of the human body. This paper will address the technological transformation occurring in the post-modern post-human dance era. The primary focus will be on pixelated representations of the moving body, mechanically generated art, and extensions of the physical body through technological sensing systems. The use of technology as an extension of the physical body in post-modern dance is a model of human computer interaction in the post-human era. This model can be utilized to maintain a connection between the physical body and an environment that is shifting faster than the evolution of the biological body.

Keywords

Post-Humanism
Post-Modern Dance
Mechanically Generated Art
Sensed Body

Introduction

Post-humanism is usually associated with futuristic science fiction, where the human becomes the machine. However, in Cybernetics and Post-Humanist Theory, the human has already become post-human. [1] In her book *How We Became Post Human*, author Katherine Hayles warns of two possible routes that can be taken in a post-human era. One path is lead by Descartes ideology where the mind can exist without the body. If this path dominates the post-human evolution, human beings will be perceived as individual parts that can be recreated and replaced. [2] The second, more favorable path will be that the post-human consists of extensions that integrate with the biological body. [3]

Post-modern art and dance have adapted to post-humanism, and have begun to use technological advances as an extension of the organic body. This paper will address the technological transformation occurring in the post-modern post-human dance era. The primary focus will be on pixelated representations of the moving body, mechanically generated art, and extensions of the physical body through technological sensing systems.

The Edited Body

Representing the movement of the body in a pixelated form separates the original occurrence from time and space. In order to document movement, the original event is cataloged in encoded text, and when replicated undergoes a process of decoding. Through post-production editing and broadcasting, the original movement becomes a pixelated, post-human extension of the original event.

Philosophers such as Hayles warn against the segmentation of the human body. [4] The pixelated body dissects the body into non-organic parts, but it also enhances the body's abilities. The pixelated body breaches the limitations of time and perspective, and can defy the laws of physics. Re-coding a live event changes the way we view the human body and frees the body from its physical constraints. [5]

Movement Abstraction

Online databases of choreographic scores have re-contextualized movement. MotionBank is a video database that has created text to describe the events of the body, and digital representations of movement. [6] William Forsythe's *Synchronous Objects* was a primary leader in this type of visual adaptation. Figure 1 is an example of a still from a visual manipulation of the original film. The image shows movement patterns co-existing in a shared space. However, these events did not originally occur simultaneously. The post-production of Forsythe's work becomes an extension of the original work by manipulating time and space. [7]

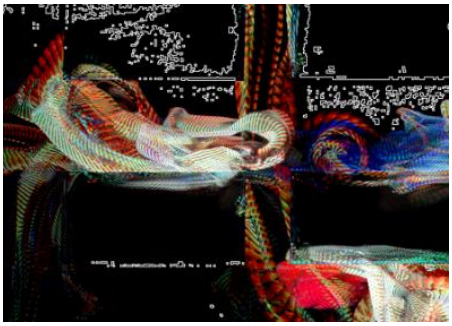

Fig. 1 Synchronous Objects: One Flat Thing

Post-Production Video Editing

Post-production editing gave choreography the ability to detach movement from time and space. In 1946, Maya Deren created *A Study for Choreography and the Camera*. [8] The film explored post-production editing tactics in dance such as tempo, space and repetition. Deren's film served as a guide to editing movement. In post-production video editing, movement can be repeated, reversed, slowed down or speed up. Editing also allows the movement to modify space by flipping the image across horizontal and vertical planes, changing the point of view of the camera, or taking the body to a new location all together.

The Camera as a Bodily Extension

In the late 1960s, the camera decreased in size and cost, and the time required for post-production editing was reduced. The camera turned into an extension of the post-human body as it became more accessible and portable. [9] Other artists began to further explore choreographic editing concepts manipulating time and space. Members of the Judson Church Project frequently used video and projection as an extension of their body's limits during live interdisciplinary events such as "9 Evenings." [10, 11] Film allowed their faces to become larger, the viewer's attention to be localized, and their bodies to simultaneously exist in more that one place at a time.

The Viewer as a Bodily Extension

With the increase in broadcasting networks and household television sets, the viewer gained the ability to become the editor. From our iPhones, we can manipulate another's body by turning a video on and off, rewinding and repeating, and observing the movement from any location at any time.

Broadcasting generated yet another way to increase the body's capabilities. A performer's body can now be viewed anywhere on film, and their physical body does not need to be present. [12]

Through broadcasting, the viewer gains the ability to experience events they cannot physically attend. The viewer also gains the ability to replay and re-experience an event. [13] Some theorists such as feminist film theorist Annek Smelik and cybernetic theorists Roy Ascott would argue that being places without your body would eliminate self-identity and control over oneself, leaving the performer at the mercy of the editor, broadcaster and viewer. [14, 15]

Post-human extensions of choreography on film raise multiple ethical questions. Once the dancer and choreography are captured and logged, who becomes the artist? Is it the dancer and choreographer, editor or viewer who ultimately chooses the location, length and frequency of an event? To what extent does a viewer have the right to manipulate an artist's work? To what extent does an editor or viewer have the right to manipulate another person's body?

The Mechanically Generated Body

In the case of post-humanism in post-modern dance, the artist is the one who generates the idea, and their post-human extension is the crafters or tools who help them manifest a final product. Artists began to use computers as a tool to manifest their ideas or to provide them with ideas. This is visible in work by visual artist, Vera Molnar, who developed a computer program that evolved shapes into a visual work (fig 2). Once she approved of the machines adaptation of the original image, she would paint the end result by hand. [16] If the computer generated algorithms design the patterns, who is the artist, the programmer, computer algorithm or painter?

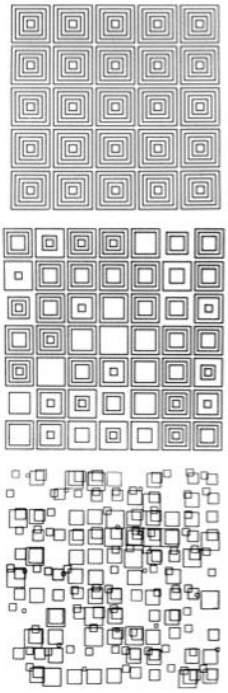

Fig. 2 Computer Drawings

Dance performances such as *Choreobot 2.0* by Julie Cruse raise similar questions of authorship between the program designer, artist and tool of expression. *Choreobot 2.0* programs chance procedure algorithms into a computer that determines the choreography of the dancer in real-time. Choreography determined by computers turns the computer into a technological post-human extension of their creator. Both in Molnar and Cruse's work, the computer assisted in the process of generating a product, and the body was used as a tool to create the program's decisions.

The Sensed Body

The next stage of post-humanism in post-modern dance involves utilizing data from the moving body and sending it to a computer to produce a final product. The final product achieves a result that the body could not create with only their body's movements, but instead require a post-human integration.

Artists began to expand the limitations of the human body through motion-tracking systems and sensors. Prior to cybernetics, computational technologies and interactions with technology had been based on the idea that the brain can exist without a body, and that the human does not need a body to use the technology. In this scenario, the human would become more like a machine.

Cybernetics shifted the way human computer interactions are designed by attempting to make the machines more human. There is continuous investigation on redesigning technological interaction based on the somatic use of the embodied mind. This occurrence is visible in the

adaptability of technology as it molds in size, shape and weight to become an extension of the physical body. Hayles points out that humans are not evolving as quickly as their environment. To compensate, humans are generating tools that can allow their bodies to execute tasks in the evolving world, be it an axe to chop wood, or a portable camera in the palm of a hand. [17]

In dance performance, the human body gains a post-human extension by sensing and tracking devices. The devices react to the movement's tempo, axis, size and frequency, and produce visuals and sounds that accentuate the physical movement. In the dance work, *Mortal Engine*, a team including computer programmer Frieder Weiss, generated a system that tracked the movements of the dancer from above, and produced visual images and audio. [18] In this instance, the human-computer integration served as an audiovisual extension that affected the space around the movement.

In addition to video tracking, data from the body's movement has also been captured through sensing devices such as muscle sensors, accelerometers, gyroscopes, and pressure sensors. In *Re-Mapping the Body* from the dance company Linga, muscle sensors on the dancers send data to computer systems, and is then utilized to produce audio. The audio is responsive to the muscular activity of the performer. The company describes the sound system as a place where "dancers explore a new relationship with their bodies, **augmented** by the possibility of making sound." [19]

In these two examples, the technology systems respond and expand the physical actions of the body, and generate a post-human bodily experience for the performers. Sensing technologies bridge the gap between the human and the computer, and allow the dancer and technology system to communicate simultaneously.

Conclusion

Post-modern dance has been evolving parallel to the path of post-humanism. The mechanically generated body and the edited body have the potential to drive post-modern dance towards a post-human body that is a combination of individual parts. When edited, the body can be separated and replicated through broadcasting, film or other pixelated representations.

The mechanically generated body drives post-modern dance towards a post-human state where the body becomes a machine, free from thought. As the machine controls the actions of the body, the mind of the dancer and/or artist is no longer necessary.

Body sensing systems require the mind-body-system to co-exist in order for the system to work. As post-modern dance continues to expand into their post-human bodies, body sensing models should be used to maintain a connection between the changing physical environment and the physical body.

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Julie Akerly is the co-director of artist residency space, *[nueBOX]*, founder of *Phoenix Dance Review*, and artistic director of *J.A.M. (Julie Akerly Movement).* She received an MFA in Dance and Interdisciplinary Multimedia and Performance from Arizona State University. Julie has had dance film screened at GLOW, Breaking Ground, Bustin' a Madcap, and (e)Motion Film Festivals. She has presented interactive dance performance pieces at EMERGE 2014, Slingshot, and Breaking Ground Festivals. She has also performed with D&Spair, an interdisciplinary improvisation group in the Phoenix area.