

THE CADAVER, THE COMATOSE & THE CHIMERA: ALTERNATE ANATOMICAL ARCHITECTURES

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We live in the time when flesh is circulating and organs are being detached from some bodies and relocated into other bodies. My blood doesn't only flow in my body, but circulates in other bodies as well. We can freeze female eggs and we fertilize them with sperm that has been unfrozen. Partially living bodies are proliferating. We can preserve dead bodies indefinitely, whilst simultaneously sustain comatose bodies on life support systems. Cryogenically preserved bodies await reanimation at some future time. We are in the age of the cadaver, the comatose body and the chimera. Nietzsche said that the living are only a species of the dead, and a very rare species indeed.

When I talk about Fractal Flesh, I mean bodies and bits of bodies spatially separated but electronically connected, generating similar patterns of recurring activity at different scales. What I mean by Phantom Flesh is phantom, not as in phantasm, but as in phantom limb. Haptic technologies will generate tactile and force-feedback experiences, enabling us to construct more potent physical presences of remote bodies, robots and AI agents.

The suspension performances explore the psychological and physiological parameters of the body. In the ROCK SUSPENSION, the body here is counter-balanced by the ring of rocks. The performance was terminated when the telephone rang in the gallery. A suspension performance also occurred at Mexico at the Sculpture Space, a larval rock area near the National

University. This proved to be a rather painful suspension performance because I got sunburnt. The SPINNING SUSPENSION was done in a seated position. The body spun for the 20 minutes of the performance. It was hosted by Artspace in Nishinomiya. The REMOTE-CONTROLLED SUSPENSION was sponsored by MOCA in Brisbane. Here the body is vertically suspended from a gantry crane in an abandoned warehouse and controlled its movements with the hand-held control box. This performance lasted about 20 minute. Everyone thought at first that it was only going to be an up and down suspension but the body could move forwards, backwards, sideways; left and right and it could also swing when it stopped suddenly. CITY SUSPENSION, the performance in Copenhagen was a suspension 60 metres in height. It was lifted up from street level and moved above and around the Royal Theatre. A choreography of being hoisted up, extended to the end of the crane arm and rotated around 4 times before being lowered. So in this suspension performance the body physically exhausted itself and it exposed its own obsolescence. The New York STREET SUSPENSION was only four stories high but I still had a good view of the police cars that arrived after five minutes. It became difficult when soon after they pulled me back through the window the demanded to see my ID which was very difficult to produce immediately. I was arrested, not because of nudity or because it was some S&M action, but rather because I was a danger to the public. The LAST SUSPENSION performance had the THIRD HAND attached. In retrospect, these performances were a strategy to physically exhaust the body, exposing its obsolescence.

At first the THIRD HAND was a visual attachment to the body and here the mechanism is a prosthesis, not as a sign of lack, but rather as a symptom of excess. AMPLIFIED BODY, LASER EYES AND THIRD HAND was performed at the Maki Gallery in Tokyo. The sounds that you heard were amplified body signals like brain waves, heartbeat, blood flow and muscle signals. The signals were amplified with electrodes on different parts of the body. To compose the sounds, you control the physiology of the body, thus by controlling your breathing, by relaxing or tensing the muscles you can actuate and modulate the sounds you heard. The laser beams which were projected

from the eyes with optic fibre cable were modulated with with heartbeat sound. In 1993 I decided to make a sculpture for the inside of my body. The STOMACH SCULPTURE was fifty millimeters long and fifteen millimeters in diameter but fully opened it was size of a small fist. It was inserted 40 centimeters inside my stomach. It was a project that took 2 days of insertions to document about fifteen minutes of video. A medical endoscope tracked the insertion of the sculpture. You have to imagine this a machine choreography inside the body which opens and closes, extends and retracts, has a flashing light and a beeping sound. The body here is not a container where the skin is a bounding of the self and a beginning of the world, here the obsolete and empty body becomes a host- not for a self, but simply for a sculpture.

This obsolete, empty and invaded body now begins to perform involuntary. In the performance EXTENDED ARM so the left arm is computer controlled and is not under my agency. The computer generates signals to the muscle stimulation system and so for four hours this arm is moving involuntary and continuously, but the right side is controlling a mechanical arm and this arm is of primate proportions, it is a very long arm. The sounds that you hear are the sounds of the pneumatics, the compressor sound and external sensors amplifying the choreography of the limb. It wasn't a difficult leap to imagine that you could remote control the body and that's what happened with FRACTAL FLESH. By touching the muscles on this computer interface the computer model would move and one second later in Luxemburg my body would move accordingly. The muscle stimulation system has 6 channels of stimulation. People in Paris, Helsinki and Amsterdam were able to remote control my body in Luxemburg, thus this body becomes the host for the desires of remote agents. Another kind of split body experience is this construction of an upper body exoskeleton, a MOTION PROSTHESIS. There are only three simple movements for each arm- up, out and with a bend making sixty four possible combinations of choreography. In this performance it is the avatar that actuates the upper body, whilst the lower body is free to move with its own agency. SPLIT BODY: VOLTAGE-IN/ VOLTAGE OUT was performed in Ljubljana at Gallery Kapelica. I had a head-up display so it was possible to see the screen behind me and the face of the person who was

controlling me. All of these performances were done with a kind of posture of indifference, indifference as opposed to expectation, in other words you allow the performance to unfold, you allow things to happen and thus making it less predictable. There is no narrative. Only modular and rhythmic activity. In these split body performances the body becomes both a possessed and a performing body. On the left side is “voltage in”, on the right side is “voltage out”. “Voltage in” to control the body, “voltage out” to activate the mechanical hand.

As well as manipulators, I have been also interested in insect and animal locomotion systems. EXOSKELETON is a performance where the body stands on the robot and controls its movement with arm gestures and a control device. This is the first performance that was more dangerous for audience than for artist. When you are performing with this robot you not only look in the direction that you’re walking, but you also listen to the sounds that the robot is making. You compose the sounds by choreographing the movements of the machine. We also tried to construct other kinds of walking machines. With MUSCLE MACHINE, as you can see lifting one leg up would lift three robot legs up and swing them forward. The problem with this robot when we first constructed it was that it took two steps forward and fell of the sideways, twisting its chassis. We had to change our plan because the robot was too heavy and it didn’t function correctly. I decided that I would stand within the chassis of the robot and by using rubber muscles to activate the machine it resulted in a much lighter machine system. A rubber muscle can be one meter long and weigh only five hundred grams even with its aluminum connectors. It’s very light compared to a steel cylinder actuator that might weigh 10-15 kgms. This performance was in London, at Gallery 291 in London in 2003. So human bipedal gait is translated into a six-legged insect-like machine locomotion. Lifting one leg up, would lift three robot legs up and swing forward them forward. This robot is still very much a work in progress. The WALKING HEAD robot is an autonomous and interactive system. The robot sits and waits until it detects a person in front of it. It then stands up and performs a simple walking choreography, sits down and waits for the next person to come along.

For me, a zombie is a body with no mind of its own, a body that performs involuntarily. A cyborg is a human-machine system that increasingly becomes automated. We have always feared acting involuntary and we have always been anxious about being automated, but in fact we fear what we have always been and what we already became. We have always been zombie and cyborg bodies.

BLENDER was another kind of body construct, a liquid body. This project was a collaboration with another artist, Nina Sellars. We both have operations to extract 4.6 liters of biomaterial from our bodies. This material was mixed in an installation called Blender. The compressed air activated the blender blades once every five minutes to keep mixing the material from two artists' bodies. This was a kind of liquid body, the opposite of the STOMACH SCULPTURE. Instead of a machine inside the body, here a machine installation becomes the host for the liquid body. And you can see from the scale that it is anthropomorphic in size. This collaboration was a collaboration not through the addition of ideas from each artist, but rather a collaboration physically subtracting from each body.

The EXTRA EAR project was first modeled on the side of the head. It was very difficult to find surgical assistance to construct the ear on my head. Anatomically it is not a good location, because it would have interfered with facial nerves which might have resulted in partial face paralysis. Not being successful finding any surgical assistance I decided in 2003 to grow small replicas of my ear using living cells. We have grown seven or eight small ears using mouse cells, human cells and the cells of the HeLa cell-line. A cast was made of my ear, scaled down and a polymer scaffold was produced and seeded with living cells. The small ear grows in a micro gravity bioreactor. Every three or four days the ear had to be fed with nutrients to keep it growing and keep it alive. This was done with the assistance of TC&A and Symbiotica and was first shown at Gallery Kapelica in Ljubljana. The only problem was that it was a ¼ Scale ear and it would not have been visually adequate as part of my body. In 2006 with funding from a London production company we

began the surgical procedures to construct an ear on my arm in Los Angeles. The first procedure was to implant a skin expander in the forearm, injecting sterile saline solution into it, producing an area of excess skin. These photos were also taken by Nina Sellars. The video cameraman fainted during the first operation. This biomaterial, called Medpor is a substitute for cartilage. It is a very porous material. Once the Medpor scaffold is inserted under the skin, the skin is vacuum sucked over the scaffold. The suction drain was on my arm for several weeks. During this time my cells grow into the scaffold adhering the skin to the scaffold. After six months you have what is called tissue ingrowth and vascularization occurring. It is still only a relief of an ear. We still have to surgically lift the helix of the ear and grow a soft ear lobe using my own extracted adipose stem cells. It is illegal to do this in United States, but we can do it in Spain. Also during the second operation we did insert a small microphone, the idea for this extra ear on my arm is that the microphone connected to wireless transmitter and in a wi-fi hotspot would become internet enabled. If you are here in Mexico City and I am in London you will be able to hear what my ear is listening to. As you can see in the video, even with the the arm bandaged with a partial plaster cast, the surgeon is speaking to my ear and the microphone is picking up the sound and wireless transmitting it. A bodily feature is replicated, relocated and is now being rewired for additional capabilities. Although the ear is an organ on my body, the EAR ON ARM becomes a publicly accessible, mobile listening device for people in other places.

THE PROSTHETIC HEAD, was engineered 2002 by 3 programmers in San Francisco- Karen Marcelo, Sam Trychin and Barrett Fox. It was premised on two philosophical assertions. One by Nietzsche is that there is no "being" behind the "doing" (it is the action in-itself that's important) and also Wittgenstein's assertion that thinking is not located inside the head, it's located, for example on the paper on which you write or on the lips with which you speak (thinking is not simplistically located inside you). The 3D model was constructed using a 3000 polygon mesh, with the eye balls, tongue and teeth being separate moving components. The skin was done from the artist's face and this texture was wrapped around the 3D model. The talking head

has a database and a conversational strategy, so it responds to the person who interrogates it. It can respond to any question – personal or philosophical and it also has many dictionary definitions. The Head can also be creative. It can recite its own poetry and it can generate its own song-like sounds. If you ask it to sing a song, each time it will create a new one. It knows the person it is talking to. It will respond- “yes John, I remember you. We were talking about the meaning of life”. The Head has a large repertoire of jokes and stories it can be prompted to tell you.

The digital skin for the Prosthetic Head generated the PARTIAL HEAD project. We scanned the artists face and then we scanned a hominid skull. We digitally transplanted the human face over the hominid skull. So this face becomes a kind of “third face” neither fully human, nor merely hominid. A kind of alternate evolutionary construct. Using this visual data we made a 3D scaffold and we attempted to grow a layer of living skin over this scaffold. It only survived for several days.

There’s some interesting research now called “Organ Printing”. A hybridization of rapid prototyping techniques and tissue engineering. Imagine that instead of printing with colored ink, printing with globules of living cells. This can be done layer by layer on biodegradable paper, resulting perhaps in a section of artery that could be transplanted. But if we could input all the 3D anatomical data (on cell types and tissue structure) then in the future Hewlett-Packard would guarantee developing a 3D printer that could print complex parts and organs of the body. Of course the difficulty would be to animate an organ like the heart. You would have to put it into a vat of nutrients, at 37 degrees centigrade, with a blood supply and providing electrical stimulation. Hopefully you could kick-start it and have a beating heart that could be inserted into a patient. So there is a possibility now that we will have a proliferation of organs- not through harvesting them from living or dead bodies but instead from engineering and printing them. And instead of a “body without organs”, now we will have “organs without body”. Organs awaiting bodies.

Recently and with the assistance of Daniel Mournsey, I have a SECOND LIFE SITE. There are images, video and installations of my Real Life projects and performances, but also some installations only possible in Second Life. I am also interested in performing in Second Life. Here, my avatar stands in front of the Prosthetic Head speaking. Its lip movements and arm gestures are actuated by the sound of the Head speaking. The choreography is made more interesting by the robotic arm connected to the avatar which is scripted to generate simple machine-like motions. Exploring alternate scripts and structures in Second Life will result in some interesting performance possibilities.

In demonstrating the muscle stimulation system, I've positioned the electrodes on different muscles sites with the volunteers. This will result in different kind of movements and these movements will be involuntary. It is possible to generate up to sixty volts of electricity with this device, but that would be too painful. I'll first turn on the electrode stimulation gradually and then increase the voltage until their arms move. The extender muscles contract, bending the hand back and even twisting the arm a little. This is a really beautiful movement. The deltoid muscles with this other volunteer are lifting his arm, and the flexors bend the wrist and curling the fingers. And of course the biceps contracting bend the arm up. So if you can imagine, connected to a computer, all these movements can be programmed to occur with different intensities and varying speeds. And then if you imagine all of these electrodes on one arm then you can get quite complicated movements. At present there is really only one channel of stimulation for each arm. And although the sensation is initially disconcerting, soon they will begin to enjoy it.

So imagine an avatar being able to access a physical body and perform with it in the real world. The avatar would have a surrogate body that would allow an artificial entity to perform in the real world. And with the electrodes on facial muscles as well as limbs, not only would the avatar be able to move in the world but also it would be able to generate emotional expressions. It would be an inverse motion capture system. In conclusion the realm of the post-human

may no longer reside in the realm of bodies and machines but rather in the realm of autonomous, intelligent, operational entities sustained on the internet and in electronic media. Bodies and machines are ponderous, they perform with friction and weight in gravity. Avatars perform smoothly and at the speed of light. Images are eternal. Avatars have no organs.