corpus pygmalion – augmented dance

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Synopsis

Content Creation questions shaped the design and development of sensors and display interfaces for *corpus pygmalion*, an interactive dance performance and augmented reality installation, which premiered at ZKM Karlsruhe 17. December 2011. The text describes the frame of concept to develop a digital stage environment on the performer's skin level.

1   introduction

pygmalion: The myth of the artist who in the love of his self-created creature, comes from the Metamorphoses of Ovid. In 55 short verses (X 243-297) Ovid created the miniature-drama of Pygmalion and Galatea (still nameless) that has already as poem, epic, novel, drama, musical or film countless adaptations and variations, such as "Breakfast at Tiffanys" (1961).

Every choreographer and solo performer goes through a transformation of self creation, He/She goes Pygmalion's path of hybrid transgression where body and mind is in a sensual interplay. The individual enters into a relationship with something that is not itself, which changes according to culture. The body is the area of a confrontation: male / female, living / nonliving, divine / image, human / non-human, body modification / disembodiment. We are proposing in *corpus pygmalion* a female Pygmalion, searching the female point of view in this interplay.

corpus pygmalion performs in a multimodal display system with 8 iPods and a movinglight on stage. The objects on stage are subject to change, showing various perspectives on the subject. The artist on stage is struggling with this created image as self, searching which is cause and effect, what is creation or creature. In the play the dancer`s body is transformed in many instances.

Heiner Müller described "transformation" as basic elements of drama and theater. "The essence of theater is transformation. The dying. The fear of this last transformation is universal, its reliable, you can build on it!" (Lehmann 2005, p.75)

2 figurines

figurines: in *corpus pygmalion* the figure Galathea is no body, meaning "no body" is rather an opposite body, an inverse body. Pygmalion and Galathea are Subject and Object with opposite rejecting and repulsing energies. We were looking for a raw model to describe this situation. We found the term *figurine,* which represented a human figure. It can be realistic or iconic, a deity or symbol. Figurines are used as model sheets, used in costume design or character design in animation.

One can say, the most famous figurine of all times is the iconic stone figure *Venus of Willendorf* (fig. 1), more than 25000 years old, found 1908 in Austria. As a phantasy Galathea could be like Venus: fertile, with a pregnant female body, with a massive body volume, haptic, made of stone, a long lasting material. One could say, Venus is an iconic figure of convex spatial qualities. Venus is analog, where we wee rather thinking of a digital model to start with.
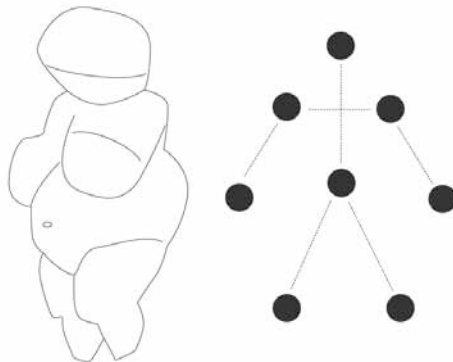

Fig.1: Venus of Willendorf / *corpus pygmalion* figurine

To build a body which is opposite to Pygmalion as an inverse body for Galathea, we built a digital model with the smallest mathematical units - with one dimensional points. A torso is established simply by putting a cross of 4 points together. Adding to the torso 4 other points makes extremities arms and legs - voilá we have a body of 8 (fig. 1). 8-bit, binary code etc. 8 is a symbol for eternity in Pleidian Physics - "Sol", the 8th Sun of the Pleidas constellation emits light as information, a message of hope to humans on mother earth Gaia.

The body of Galathea/Pygmalion in *corpus pygmalion* is inversed, replaced, invisible. The digital figurine builds up on an invisble real body, hidden in a black leotard costume. Further materials: valcro, WLAN, laptop with sound hardware MOTU MK3, MAX/MSP software with ambisonic 8 ch sound output, a custom made app "pygTool" (section 4.3) to measure sensor data and generating light flashes on the performer with 8 iPods. The material, expressing a figurine on stage in digital terms finally has ephemeral qualities, generating real traces of light flashes and sound in motion - the flesh body remains invisible. It is the creation of a concave inverse figurine, a vessel, a carrier of symbols.
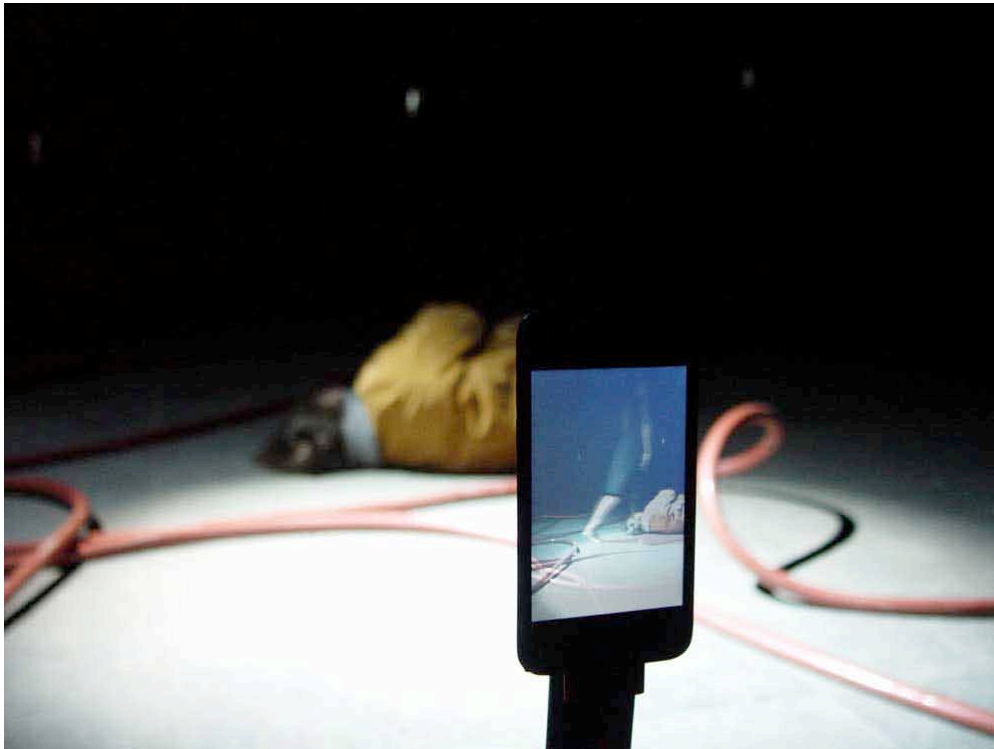

Fig. 2: corpus pygmalion - installation (audience member laying down on floor) LUMINALE Frankfurt 11.4.2012

3   synposis - installation

corpus pygmalion raises the question of where art begins and ends in the actual life of an artist. We had to make the audience first encounter their own "artistic side" or - at least - share an experience to develop empathy to the main character / dancer.

The audience enters first the stage, before going to the seating area. The installation can be put as preview or recall on Pygmalion as physical body. 8 posts are in a circle displaying a graveyard of past images of a dancer. An 8 sided view on Pygmalion (Moya Michael) can be

viewed from looking at the iPod`s displays. There is also an interactive, inner field on stage inside the installation sculpture.

The 8-channel augmented reality installation offers interaction with a dance film. The visitor is visible on the displays, entering the field inside the circle and is simultaneously captured by one stage searchlight. A duet of the viewer with the video dancer Moya Michael is mapped onto real space.

Based on Ovid's "Pygmalion" myth, c*orpus pygmalion* confronts us with the human body as it undergoes a transformation. Pygmalion falls in love with his artwork, losing himself in the arts. The installation shows the dancer Moya Michael walking between the cameras. Being a dancer, she is an artist who has shaped her own body into Galathea, the artwork.

Pygmalion is a dancer. *corpus pygmalion* - the installation - is the body of the dancer. Red tubes, the as intestines are exposed on stage connecting the images to a core, which had been the torso of Pygmalion, now showing Galathea, meandering around. The sculpture remains on stage, when the audience finally leaves the stage.

Fig. 3: Moya Michael in *corpus pygmalion* 17.12.2012 ZMK Karlsruhe

3.1 first scene - concert arias

The dance begins. The beautiful dancer Moya Michael (fig. 3) dances to also beautiful classical music of Mozart`s concert arias "Vorrei spiegarvim oh Dio!" K. 418, written for Aloysia Weber. A concert aria is a free standing aria composed for a singer and orchestra. The composer usually is bearing a particular singer's voice and skill in mind, composing the work. Mozart is celebrating the power of voice in an orchestral setting. "Performance" in English language is also "powerful action". In *corpus pygmalion* the dancer performs a powerful action - with an electric wheelchair. This breaks the impact of the beautiful body. A wheelchair is an obstacle, indicating disabilities. Suddenly she turns into super women, movement skills are increasing with a wheelchair. The chair can make her drive faster than moving by feet, sliding, not moving a single limb. Finally she is going back and forth on stage very fast, almost flying.

3.2 second scene - first transformation (analog)

Transformation from a creature: the deconstruction of a human body. The dancer`s movements are disconnected attempts to stand up, trying to assemble an upright, powerful figure. Instead, the creature is crawling back onto the wheelchair.

3.3 third scene - second transformation (digital)

An inverse transformation is performed. The wheelchair is turns around, with the dancer sitting on it. She puts on the leotard skin with the 8 iPods. The analog flesh body is hidden. An ephemeral digital body of sound and light traces emerges. At the end of this part, Galathea/Pygmalion destroys the body suit, tearing down all displays.

3.4 forth scene - collecting body parts

The displays on the floor are showing body parts of the dancer. The dancer is gone, the performer Moya Michael is returning, attaching the iPod display on metal posts, creating a meadow of body parts. There are Fragments of female voices, reciting sentences, quoting poetry of the installation scene, already heard before in the installation as a memory of past things.

3.4 fifth scene - remembering

The memory is danced on stage. There is a virtual pas-de-deux with an imagined body, standing in the center of stage. The dance is a ritual, moving with rotating movements in the spot on center stage. This is the same spot, the audience had been interacting with at the beginning of the piece. This is concluding the piece. The circle describes the continuity of things.

3.5 sixth scene - end

A stage searchlight is tracing the stage. The body is lying down, sleeping, resting/dying. The body is transformed, mediated, disrupted. Maybe we are witnessing a reborn digital body on stage?
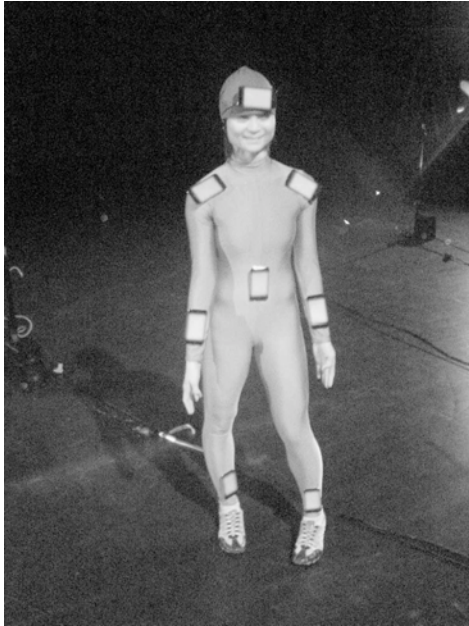

Fig. 4: Dancer Unita Gaye Galilluyo Aug. 2011 at ZKM Karlsruhe

4   electronic leotard

In the third scene we are using an electronic leotard, made of a standard black leotard suite, with velcro strips put on shoulders, arms, legs, belly and one also on a hood, which is worn on the head of the performer. The velcro's are holding 8 iPods. The software pygTools (section 4.3), running on these iPods is both a display system, which lets the display flashing on acceleration movement, but it is also a sensor based system, sending movement data to the host via OSC. The host computer is a Macintosh laptop with MAX/MSP. WLAN connects the iPods to the laptop.

4.1 movement sensors

The suit with iPods creates a full body suit, measuring the acceleration data on the joints of the performers body. We were not interested in the body positions. The Euler's angles of body parts could have been interesting for another movement idea, but in *corpus pygmalion*

we were interested to trace the movement energies rather than positions or angles of limbs in space.

4.2 motion detection

Body movement acceleration can be mapped on curves. Faster movement breaks create bigger and faster movement curves. After the movement in the curve switches from an increasing to a decreasing angle, we send a trigger to the sound buffer. Instead of mapping the impact of the curve to volume, we "fired out" a higher count of sound buffers combined with an increasing temporal variation of starting them on top of each other. With more impact of movement acceleration detected, more variations in the sound architecture occurs. Every new movement event creates another sound texture variation. The audience senses the synergies of sound, light and movement, but still there is variation for creating a life experience of a vivid, flashing body of sound and light, moving in space.

Fig. 5: MAX/MSP patch (with cue editor © by Martin Bellardi)

4.2 display algorithm

The iPods on the suit are detecting acceleration movement and sending two values to the host. The first value is a combined, "unpolished" movement detection value from the x / y / z data sensor. The last value of the acceleration data is an "afterimage" of the movement. A smoothing algorithm transforms the data into a extended curve with an algorithmic "afterglow". If using the mere motion data for the flashes, the iPods displays would not be fast enough to flash long enough to be visible to the audience.

4.3 pygTool app

The pygTool software (fig. 6) is the front end of a new digital stage environment, connecting physical motion data to light and sound. The software can be used to measure motion data, generating colors and lights, synchronize multichannel video / image / sound data and record / display life video. The digital stage is created on skin level of the performer and connects all available movement data with media events, controlled by a central host to cue the performance on stage.

Fig. 6: pygTool app by Nikolaus Völzow

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literature

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