

**The Possible Bodies Inventory:  
dis-orientation and its aftermath**

**El inventario de Possible Bodies:  
la des-orientación y sus  
consecuencias**

**Jara Rocha  
Femke Snelting**

## **Abstract:**

Following Sara Ahmed’s invitation “to think how queer politics might involve disorientation, without legislating disorientation as a politics”, the collective enquiry Possible Bodies research team inventoried three items related to 3D artifacts, following through the implications of the contemporary renderings of “dis-orientation” they invoke. Each in their own way, the items relate to a world that is becoming oblique, where inside and outside, up and down are switching places and where new perspectives become available. They speak of the mutual constitution of technology and bodies, of matter and semiotics, of nature and culture and how orientation and the subjectivities that emerge from it are managed across the technocolonial matrix of representation in turbo-capitalism. The three items allow for a look at tools that represent, track and model “bodies” through diverse cultural means of abstraction, and eventually convoke their aftermath in a call for “disobedient action-research”.

### **Keywords:**

3D, technology, possible bodies, disorientation, inventory

## Resumen

Continuando la invitación de Sara Ahmed a “pensar cómo las políticas queer podrían implicar desorientación, sin legislar la desorientación como una política”, el equipo de la investigación colectiva Possible Bodies inventarió tres ítems relacionados con artefactos 3D, dando seguimiento a las implicaciones que las actualizaciones contemporáneas de “des-orientación” puedan invocar. Cada uno a su modo, los ítems están en relación con un mundo que está deviniendo oblicuo, donde dentro y fuera o arriba y abajo están cambiando posiciones, y donde nuevas perspectivas se hacen disponibles. Hablan de la mutua constitución de cuerpos y tecnologías, materia y semiótica, naturaleza y cultura; y de cómo la orientación y las subjetividades que de ahí emergen están gestionadas por medio de la matriz de representación tecnocolonial en el turbo-capitalismo. Los tres ítems permiten observar herramientas que representan, monitorizan y modelan “cuerpos” a través de diversos medios culturales de abstracción, y eventualmente convocan sus consecuencias en una llamada a la “investigación-acción desobediente”.

### **Palabras clave:**

tecnología, 3D, cuerpos posibles, desorientación, inventario

“We remain physically upright not through the mechanism of the skeleton or even through the nervous regulation of muscular tone, but because we are caught up in a world” (Merleau-Ponty quoted in Ahmed, 2006).

This text is based on three items selected from the Possible Bodies inventory. Possible Bodies is a collaborative project on the very concrete and at the same time complex and fictional entities that “bodies” are, asking what matter-cultural conditions of possibility render them present. These questions become especially pertinent in contact with the technologies, infrastructures and techniques of 3D tracking, modeling and scanning. Intersecting issues of race, gender, class, species, age and ability resurface through these performative as well as representational practices. The research is concerned with genealogies of how bodies and technologies have been mutually constituted. It interrogates corpo-realities and their orientation through parametric interfaces and looks at anatomies that are computationally constrained by the requirements of mesh-modeling. It invites the generation of concepts and experimental renderings, wild combinations and digital and non-digital prototypes for different embodiments.

The Possible Bodies inquiry operates through a growing inventory of software, manuals, artworks, interfaces, scripts, performances, mathematical concepts, animations and renderings. We settled for inventorying as a method, because we want to give an account of the structural formations conditioning the various cultural artifacts that co-compose 3D polygon “bodies” through scanning, tracking and modeling. With the help of the multi-scalar and collective practice of inventorying, we make an attempt to think along the agency of these

items, hopefully widening their possibilities rather than pre-designing ways of doing that could easily crystallize into ways of being. Rather than rarefying the items, as would happen through the practice of collecting, or pinning them down, as in the practice of cartography, or rigidly stabilizing them, as might be a risk through the practice of archiving, inventorying is about continuous updates, and keeping items available.

Among all of the apparatuses of the Modern Project that persistently operate on present world orderings, naming and account-giving, we chose the inventory with a critical awareness of its etymological origin. It is remarkably colonial and persistently productivist: inventory is linked to invention, and thereby to discovery and acquisition. [1] The culture of inventorying remits us to the material origins of commercial and industrial capitalism, and connects it with the contemporary database-based cosmology of techno-colonialist turbo-capitalism. But we learned about the potentials embedded in modern apparatuses of designation and occupation, and how they can be put to use once carefully unfolded to allow for active problematisation and situated understanding (Haraway, 1992). In the case of Possible Bodies, it means to keep questioning how artifacts co-habit and co-compose with techno-scientific practices, historically sustained through diverse axes of inequality. We urgently need research practices that go through axes of diversity.

The temporalities of inventorying are discontinuous, and its modes of existence are pragmatic: it is about finding ways to collectively specify and take stock, to prepare for eventual

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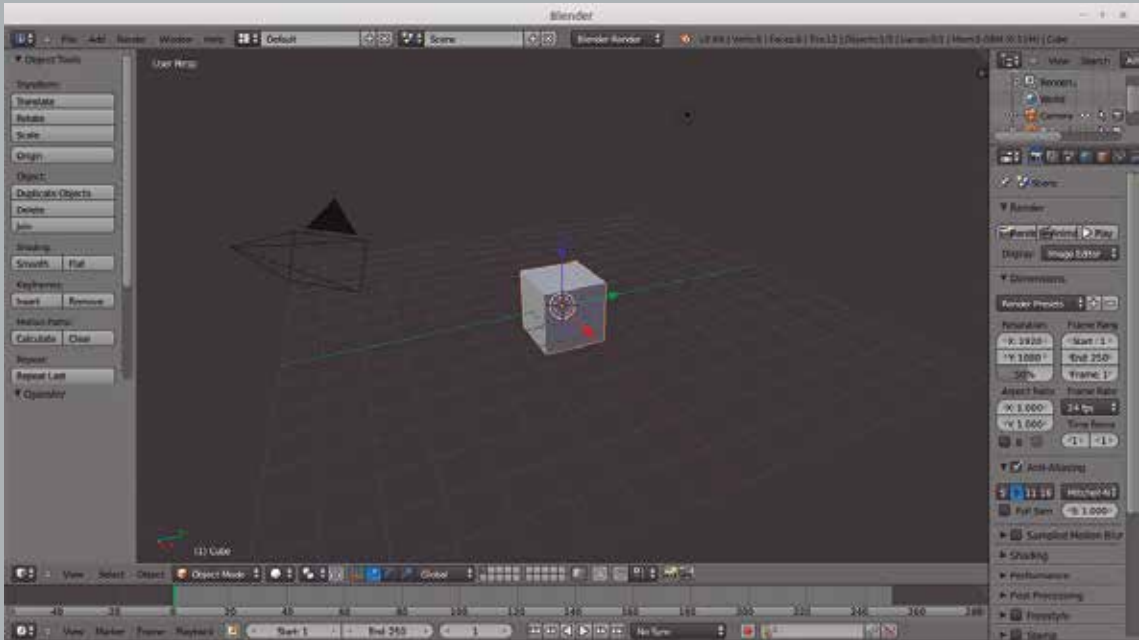
[1] <http://www.etymonline.com/index.php?term=inventory>

replacement, repair or replenishment. Inventorying is a hands-on practice of readying for further use, not one of account-giving for the sake of legitimation. As an “onto-epistemological” practice (Barad, 2012), it is as much about recognizing what is there (ontological) as it is about trying to understand (epistemological). Additionally, with its roots in the culture of manufacture, inventorying counts on cultural reflection as well as on action. This is how as a method it links to what we call “disobedient action-research”, it invokes and invites further remediations that can go from the academic paper to the bug report, from the narrative to the diagrammatic and from tool mis-use to interface re-design to the dance-floor. It provides us with inscriptions, de-descriptions and re-interpretations of a vocabulary that is developing all along.

For this text, we followed Sara Ahmed’s invitation “to think how queer politics might involve disorientation, without legislating disorientation as a politics” (Ahmed, 2006). We inventoried three items, “Worldsettings for beginners”, “No Ground” and “Loops”, each related to the politics of “dis-orientation”. In their own way, these artifacts relate to a world that is becoming oblique, where inside and outside, up and down switch places and where new perspectives become available. The items speak of the mutual constitution of technology and bodies, of matter and semiotics, of nature and culture and how orientation is managed in tools across the technological matrix of representation. The three items allow us to look at tools that represent, track and model “bodies” through diverse cultural means of abstraction, and to convoke its aftermath.

## Item 007: Worldsettings for beginners

- Year in which the item emerged culturally or was industrially produced: 1995
- Entry of the item into the inventory: March 2017
- Author(s) of the item: Blender community
- Cluster(s) the item belongs to: Dis-orientation
- URL: <http://possiblebodies.constantvzw.org/inventory/?007>



Screenshot Blender 2.69 (2017)

“If the point of origin changes, the world moves, but the body doesn’t.” [2]

In computer graphics and other geometry-related data processing, calculations are based on Cartesian coordinates, that consist of three different dimensional accesses: x y and z. In 3D-modelling, this is also referred to as ‘the world’. The point of origin literally figures as the beginning of the local or global computational context that a 3D object functions in.

[2] François Zajega, interview, 2017

Using software manuals as probes into computational realities, we traced the concept of “world” in Blender, a powerful Free, Libre and Open Source 3D creation suite. We tried to experience its process of “worlding” by staying on the cusp of “entering” into the software. Keeping a balance between comprehension and confusion, we used the sense of dis-orientation created by the shifting understandings of the word “world” to gauge what happens when such a heady term is lifted from colloquial language to be re-normalized and re-naturalized. In the nauseating semiotic context of 3D

modeling, the word “world” starts to function in another, equally real but abstract space. Through the design of interfaces, the development of software, the writing of manuals and the production of instructional videos, this space is inhabited, used, named, projected and carefully built by its day-to-day users.

In Blender, virtual space is referred to in many ways: the mesh, coordinate system, geometry and finally, the world. In each case, it denotes a constellation of x, y, z vectors that start from a mathematical point of origin, arbitrarily located in relation to a 3D object and automatically starting from  $X = 0, Y = 0, Z = 0$ . Wherever this point is placed, all other planes, vertices and faces become relative to it and organize around it; the point performs as an “origin” for subsequent transformations.

In the coordinate system of linear perspective, the vanishing point produces an illusion of horizon and horizontality, meant to be perceived by a monocular spectator that marks the centre of perception and reproduction. Points of origin do not make such claims of visual stability.

**“The origin does not have to be located in the centre of the geometry (e.g. mesh). This means that an object can have its origin located on one end of the mesh or even completely outside the mesh.” [3]**

In software like Blender, there is not just one world. On the contrary, each object has its own point of origin, defining its own local coordinates. These multiple world-declarations are a practical solution for the problem of locally transforming single objects that are placed in a global coordinate system. It allows you to ma-

nipulate rotations and translations on a local level and then outsource the positioning to the software that will calculate them in relation to the global coordinates. The multi-perspectives in Blender are possible because in computational reality “bodies” and objects exist in their own regime of truth that is formulated according to a mathematical standard. Following the same processual logic, the concept of “context” in Blender is a mathematical construct, calculated around the world’s origin. Naturalized means of orientation such as verticality and gravity are effects applied at the moment of rendering.

**“Blender is a two-handed program. You need both hands to operate it. This is most obvious when navigating in the 3D View. When you navigate, you are changing your view of the world; you are not changing the world.” (Fisher, 2014).**

The point of origin is where control is literally located. The two-handedness of the representational system indicates a possibility to shift from “navigation” (vanishing point) into “creation” (point of origin), using the same coordinate system. The double agency produced by this ability to alternate is only tempered by the fact that it is not possible to take both positions at the same time.

**“Each object has an origin point. The location of this point determines where the object is located in 3D space. When an object is selected, a small circle appears, denoting the origin point. The location of the origin point is important when translating, rotating or scaling an object. See Pivot Points for more.” [4]**

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[3] [https://docs.blender.org/manual/en/dev/editors/3dview/object/editing/transform/control/pivot\\_point/individual\\_origins.html](https://docs.blender.org/manual/en/dev/editors/3dview/object/editing/transform/control/pivot_point/individual_origins.html)

[4] <https://docs.blender.org/manual/en/dev/editors/3dview/object/origin.html>

The second form of control placed at the origin is the 3D manipulator that handles the rotation, translation, and scaling of the object. In this way, the points of origin function as pivots that the worlds are moved around.

An altogether different cluster of world metaphors is at work in the “world tab”. Firmly re-orienting the virtual back in the direction of the physical, these settings influence how an object is rendered and made to look “natural”.

**“The world environment can emit light, ranging from a single solid colour, physical sky model, to arbitrary textures.” [5]**

The tab contains settings for adding effects such as mist, stars, and shadows but also “ambient occlusion”. The Blender manual explains this as a “trick that is not physically accurate”, suggesting that the other settings are. The “world tab” leaves behind all potential of multiplicity that became available through the computational understanding of “world”. The world of worlds becomes, therefore, impossible.

Why not the world? On the one hand, the transposition of the word “world” into Blender functions as a way to imagine a radical interconnected multiplicity, and opens up the possibility of political fictions derived from practices such as scaling, displacing, de-centering and/or alternating. On the other hand, through its linkage to (a vocabulary of) control, its world-view stays close to that of actual world domination. Blender operates with two modes of “world”: one that is accepting the otherness of the computational object, somehow awkwardly interfacing with it, and another that is about restoring order back to “real”. The first mode opens up to a widening of the possible, while the second prefers to stick to the plausible.

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[5] <https://docs.blender.org/manual/en/dev/render/cycles/world.html>



## Item 012: No Ground

- Entry of the item into the inventory: 5 March 2017
- Year in which the item emerged culturally or was industrially produced: 2008, 2012
- Author(s) of the item: **mojoDallas, Hito Steyerl**
- Cluster(s) the item belongs to: **Dis-orientation**



Animation: **mojoDallas** (2008) <https://www.youtube.com/watch?v=ZakpoLqXhyI>

“A fall toward objects without reservation, embracing a world of forces and matter, which lacks any original stability and sparks the sudden shock of the open: a freedom that is terrifying, utterly deterritorializing, and always already unknown. Falling means ruin and demise as well as love and abandon, passion and surrender, decline and catastrophe. Falling is corruption as well as liberation, a condition that turns people into things and vice versa. It takes place in an opening we could endure or enjoy, embrace or suffer, or simply accept as reality” (Steyerl, 2011).

This item follows Hito Steyerl in her reflection on disorientation and the condition of falling, and drags it all the way to the analysis of an

animation generated from a motion capture file. The motion capture of a person jumping is included in the Carnegie-Mellon University Graphics Lab Human Motion Library. [6] Motion capture systems, including the one at Carnegie Mellon, typically do not record information about context, and the orientation of the movement is made relative to an arbitrary point of origin. (See item 007: World.)

In the animated example, the position of the figure in relation to the floor is “wrong”, as the body seems to float a few centimeters above

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[6] <http://mocap.cs.cmu.edu/>

ground. The software relies on perceptual automatism and plots a naturalistic shadow, taking the un-grounded position of the figure automatically into account: if there is a body, a shadow must be computed for. Automatic naturalisation: technology operating with material diligence. What emerges is not the image of the body, but the body of the image: “The image itself has a body, both expressed by its construction and material composition, and (...) this body may be inanimate, and material” (Steyerl, 2011).

“No ground” is an attempt to think through issues with situatedness that appear when encountering computed and computational bodies. Does location work at all, if there is no ground? Is displacement a movement, if there is no place? How do surfaces behave around this no-land’s man, and what forces affect them?

The found-on-the-go ethics and “path dependence” that condition computational materialities of bodies worry us. It all appears too imposing, too normative in the humanist sense, too essentialistic even. What body compositions share a horizontal base, what entities have the gift of behaving vertically? How do other trajectorialities affect our semiotic-material conditions of possibility, and hence the very politics that bodies happen to co-compose? How can these perceptual automatism be de-clutched from a long history of domination, of the terrestrial and extraterrestrial wild (Haraway, 1992) now sneaking into virtual spheres?

We suspect a twist in the hierarchy between gravitational forces. It does not lead to collapse, but results in a hallucinatory construction of reality, filled with floating bodies. If we want to continue using the notions of “context” and “situation” for cultural analysis of the bodies that populate the pharmacopornographic, military

and gamer industries and their imaginations, to attend to their immediate political implications, we need to reshape our understanding of them. It might be necessary to let go of the need for “ground” as a defining element for the body’s very existence, though this makes us wonder about the agencies at work in this un-grounded embodiments. If the land is for those who work it, then who is working the ground? [7]

“Disorientation involves failed orientations: bodies inhabit spaces that do not extend their shape, or use objects that do not extend their reach” (Ahmed, 2006, p.160).

The co-constitution of bodies and technologies shatters all dreams of stability, the co-composition of foreground and background crashes all dreams of perspective. When standing just does not happen due to a lack of context or a lack of ground, even a virtual one, the notion of standpoint does not work. Situation, though, deserves a second thought.

The political landscape of turning people into things and vice versa recalls the rupture of “knowing subjects” and “known objects” that Haraway called for after reading the epistemic use of “standpoint” in Harding (1986), which asked for a recognition of the “view from below” of the subjugated: “to see from below is neither easily learned nor unproblematic, even if ‘we’ ‘naturally’ inhabit the great underground terrain of subjugated knowledges” (Haraway, 1998, p. 584). The emancipatory romanticism of Harding does not work in these virtual renderings either. The semiotic-material conditions of possibility that unfold from Steyerl’s description above are conditions without point, standing or below.

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[7] <https://vimeo.com/45615376>

What implications would it have to displace our operations, based on unconsolidated matter that in its looseness asks for eventual anchors of interdependence? How could we transmute the notion of situatedness, to understand the semiotic-material conditionings of 3D rendered bodies that affect us socially and culturally through multiple managerial worldlings?

The body in this item is neither static nor falling: it is floating. Here we find a thing on the “situatedness” of Haraway that does not match when we try to manage the potential vocabularies for the complex forms of worldmaking and its embodiments in the virtual. What can we learn from the conditions of floating brought to us by the virtual transduction of modern perspective, in order to draft an account-giving apparatus of present presences? How can that account-giving be intersectional with regards to the agencies implied, respectful of the dimensionality of time and ageing, and responsible with a political history of groundness?

Floating is the endurance of falling. It seems that in a computed environment falling is always in some way a floating. There is no ground to fall towards that limits the time of falling, nor is the trajectory of the fall directed by gravity. The trajectory of a floating or persistently falling body is always already unknown.

In the dynamic imagination of the animation, the ground does not exist before the movement is generated; it only appears as an afterthought. Everything seems upside down: the foundation of the figure is deduced from, not pre-existing its movement. Does this mean that there is actually no foundation, or just that it appears in every other loop of movement? Without the ground, the represented body could be understood as becoming smaller, and that would open the

question of dimensionality and scalability. But being surface-dependent, it is received as moving backwards and forwards: the modern eye reads one shape that changes places on a territory. Closer, further, higher, lower: the body arranges itself in perspective, but we must attend the differences inherent in that active positioning. The fact that we are dealing with an animation of a moving body implies that the dimension of time is brought into the conversation. Displacement is temporary, with a huge variation in the gradient of time from momentary to persistent.

In most cases of virtual embodiment, the absolute tyranny of the conditions of gravity does not operate. In a physical situation (a situation organized around atoms), falling on verticality is a key trajectory of displacement; falling cannot happen horizontally upon or over stable surfaces. For the fleshy experienced, falling counts on gravity as a force. Falling seems to relate to liquidity or weightlessness, and grounding to solidity and settlement of matters. Heaviness, having weight, is a characteristic of being-in-the-world, or, more precisely, of being-on-earth, magnetically enforced. Falling depends on gravity, but it is also - as Steyerl explains - a state of being *un-fixed*, ungrounded, not as a result of groundbreakingness, but as an ontological lack of soil, of base. Un-fixed from the ground, or from its representation (Steyerl, 2012).

Nevertheless, when gravity is computed, it becomes a visual-representational problem, not an absolute one. In the animation, the figure is fixed and sustained by mathematical points of origin, but to the spectator from earth the body seems unfixed from its “natural soil”. Hence, in a computational space, other “forced” directions become possible, thanks to a flipped order of orientation: the upside-down regime is expanded by others like left-right, North-South, and

all the diagonal and multivortex combinations of them. This difference in space-time opens up the potential of denaturalized movements.

Does falling change when the conditions of verticality, movement and gravity change? Does it depend on a specific axis? Is it a motion-based phenomenon, or rather a static one? Is it a rebellion against the force of gravity, since falling here functions under a mathematical rather than under a magnetic paradigm? And if so, “who” is the agent of that rebellion?

At minute 01:05, we find a moment where two realities are juxtaposed. For a second, the toe of the figure trespasses the border of its assigned surface, glitching a way out of its position in the world, and bringing with it an idea of a pierceable surface to exist on... opening up for an eventual common world.

In the example, the “feet” of the figure do not touch the “ground”. It reminds us that the position of this figure is the result of computation. It hints at how rebellious computational semiotic-material conditions of possibility are at work. We call them semiotic because they are written, codified, inscribed and formulated (alphanumerically, to begin with). We call them material, since they imply an ordering, a composition of the world, a structuring of its shapes and behaviors. Both conditions affect the formulation of a “body” by considering weight, height and distance. They also affect the physicality of computing: processes that generate their pulses in electromagnetic circuits, power network use, server load, etc.

When the computational grid is placed under the feet of the jumping figure, materialities have to be computed, generated and located “back” and “down” into a “world”. Only in

relation to a fixed point of origin and after having declared its world to make it exist, the surrounding surfaces can be settled. Accuracy would depend on how those elements are placed in relation to the positioned body. Accuracy is a relational practice: body and ground are computed separately, each within their own regime of precision. When the rendering of the movement makes them dependent on the placement of the ground, their related accuracy will appear as strong or weak, and this intensity will define the kind of presence emerging.

Thinking present presences can not rely on the lie of laying. A thought on agency can neither rely on the ground to fall towards nor on the roots of grass to emerge from. How can we then invoke a politics of floating not on the surface but within, not cornered but around and not over but beyond, in a collective but not a grass-roots movement? Constitutive conditioning of objects and subjects is absolutely relational, and hence we must think of and operate with their consistencies in a radically relational way as well: not as autonomous entities but as interdependent worldlings. Ground and feet, land and movement, verticality and time, situatedness and axes: the more of them we take into consideration when giving account of the spheres we share, the more degrees of freedom we are going to endow our deterritorialized and reterritorialized lives with.

The body is a political fiction, one that is alive (Preciado, 2008); but a fiction is not a lie. And so are up, down, outside, base, East and South (Rocha, 2016), and presence. Nevertheless, we must unfold the insights from knowing how those fictions are built to better understand their radical affection on the composition of what we understand as “living”, whether that daily experience is mediated fleshly or virtually.

## Item 022: Loops

Entry of the item into the inventory: **November 2016**

Year in which the item emerged culturally or was industrially produced: **2009, 2008, 1971, 1946**

Author(s) of the item: **Golan Levin, Merce Cunningham, OpenEnded group, Buckminster Fuller**

Cluster(s) the item belongs to: **Dis-orientation**

URL: <http://possiblebodies.constantvzw.org/inventory/?022>

“Loops” entered the inventory for the first time through an experiment by Golan Levin (2009). Using an imaging technique called Isosurfacing, common in medical data-visualisation and in cartography, Levin rendered a motion recording of Merce Cunningham’s performance “Loops”. The source code of the project is published on his website as `golan_loops.zip`. The archive contains amongst c-code and several Open Framework libraries two motion capture files formatted in the popular Biovision Hierarchy file format: `rwrist.bvh.txt` and `lwrist.bvh.txt`. There is no license included in the archives. [8]

Following the standard lay-out of `.bvh`, each file starts with a detailed skeleton hierarchy, where, in this case, `WRIST` is declared as `ROOT`. Cascading down into `carpals` and `phalanges`, `Rindex` is followed by `Rmiddle`, `Rpinky`, `RRing` and finally `Rthumb`. After the hierarchy section, there is a `MOTION` section that includes a long row of numbers.

Just before he died in 2009, Cunningham released the choreography for “Loops” under a Creative Commons Attribution-Noncommercial-Share Alike 3.0 license. No dance-notations were published, nor has The Merce

Cunningham Trust included the piece in the 68 Dance Capsules providing “an array of assets essential to the study and reconstruction of this iconic artist’s choreographic work.” [9]

From the late nineties, the digital art collective OpenEnded group worked closely with Merce Cunningham. In 2001, they recorded four takes of Cunningham performing “Loops”, translating the movement of his hands and fingers into a set of datapoints. The idea was to “Open up Cunningham’s choreography of Loops completely” as a way to test the idea that the preservation of a performance could count as a form of distribution. [10]

The release of the recorded data consists of four compressed folders. Each folder contains a `.fbx` (Filmbox) file, a proprietary file format for motion recording owned by the software company Autodesk, and two Hierarchical Translation-Rotation files, a less common motion capture storage format. The export file in the first take is called `Loops1_export.fbx` and the two motion capture files are `loops1_all_right.htr` and `loops1_all_left.htr`. Each take is documented on video: one with a hand-held camera and one on a tripod. There is no license included in the archives.

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[8] [http://www.flong.com/storage/code/golan\\_loops.zip](http://www.flong.com/storage/code/golan_loops.zip)

[9] The phrase is from the introduction on the Merce Cunningham Dance Capsules, published at <http://dancecapsules.merce.broadleafclients.com/?8080ed>

[10] This is precisely how the Merce Cunningham Dance Capsules website introduces itself: <http://dancecapsules.merce.broadleafclients.com/index.cfm>

In 2008, the OpenEnded group wrote custom software to create a screen-based work called “Loops”. “Loops” runs in real time, continually drawing from the recorded data. “Unique? — No and yes: no, the underlying code may be duplicated exactly at any time (and not just in theory but in practice, since we’ve released it as open source); yes, in that no playback of the code is ever the same, so that what you glimpse on the screen now you will never see again.” [11] The digital artwork is released under a GPL v.3 license.

After seeing interpretations of “Loops” by other digital artists, such as Golan Levin, the OpenEnded group declared that they did not have any further interest in anyone else interpreting the recordings: “I found the whole thing insulting, if not to us, certainly to Merce”. [12]

Cunningham developed “Loops” as a performance to be exclusively executed by himself. He continued to dance the piece throughout his life in various forms, until arthritis forced him to limit its execution to just his hands and fingers. [13]

In earlier iterations, Cunningham moved through different body parts and their variations one at a time and in any order: feet, head, trunk, legs, shoulders, fingers. The idea was to explore the maximum number of movement possibilities within the anatomical restrictions of each joint rotation. Stamatia Portanova writes: “Despite the attempt at performing as many simultaneous movements as possible (for example, of hands and feet together), the performance is conceived as a step-by-step actualization of the

concept of a binary choice” (Portanova, 2013). A recording of “Loops” performed in 1975 is included in the New York Public Library Digital Collections, but can only be viewed on site. [14]

Cunningham danced “Loops” for the first time in the Museum of Modern Art in 1971. He situated the performance in front of “Map (Based on Buckminster Fuller’s Dymaxion Airocean World)”, a painting by Jasper Johns. Roger Copeland describes “Loops” as follows: “In much the same way that Fuller and Johns flatten out the earth with scrupulous objectivity, Cunningham danced in a rootless way that demonstrated no special preference for any one spot”. And later on, in the same book: “Consistent with his determination to decentralize the space of performance, Cunningham’s twitching fingers never seemed to point in any one direction or favor any particular part of the world represented by Johns’s map painting immediately behind him” (Copeland, 2004).

In one of the rare images that circulates of the 1971 performance, we see Cunningham with composer Gordon Mumma in the background. From the photograph it is not possible to detect if Cunningham is facing the painting while dancing “Loops”, and whether the audience was seeing the painting behind or in front of him.

Cunningham met Buckminster Fuller in 1948 at Blackmountain College. In an interview with Jeffrey Schnapp, he describes listening to one of Fuller’s lectures: “At the beginning you

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[11] Website Openended group: <http://openendedgroup.com/>

[12] <http://openendedgroup.com/writings/drawingTrue.html>

[13] Paul Kaiser (OpenEnded Group) quoted in ScienceLine <http://scienceline.org/2012/07/dancing-in-digital-immortality/>

[14] <https://digitalcollections.nypl.org/items/2103ccd0-e87e-0131-dc7f-3c075448cc4b>



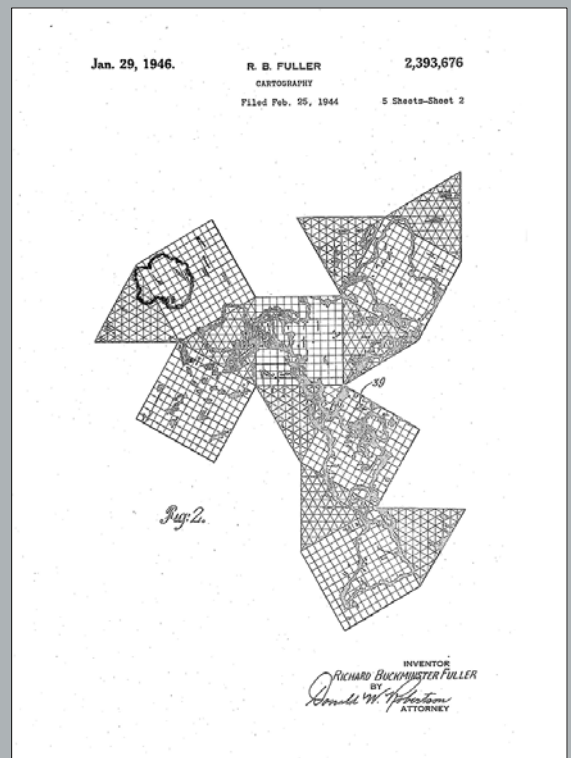
thought ‘This is absolutely wonderful, but of course it won’t work’. But then, if you listened on, you thought: ‘Well, maybe it could.’ He didn’t stop, so in the end I always felt like I had had a wonderful experience about possibilities, whether they ever came about or not.” [15]

With The Dymaxion Airocean World Map, Buckminster Fuller wanted to visualize planet earth with greater accuracy. In this way, “humans will be better equipped to address challenges as we face our common future aboard Spaceship Earth”. The description of the map on the Buckminster Fuller Institute website is followed by a statement that “the word Dymaxion, Spaceship Earth and the Fuller Projection Map are trademarks of the Buckminster Fuller Institute. All rights reserved.” [16]

The Dymaxion Airocean Projection divides the surface of the earth into 20 equilateral spherical triangles in order to produce a two-dimensional projection of the globe. Fuller patented the Dymaxion map at the US Patent office in 1946. [17]



Merce Cunningham and OpenEnded group, Loops: Take 1 (hand-held) (2001)



Buckminster Fuller, US Patent 2393676, Dymaxion Airocean Projection (1946)

[15] Merce Cunningham: An Interview on R. Buckminster Fuller and Black Mountain College: <https://jeffreyschnapp.com/2016/08/31/merce-cunningham-an-interview-on-r-buckminster-fuller-and-black-mountain-college/>  
[16] <https://www.bfi.org/about-fuller/big-ideas/dymaxion-world/dymaxion-map>  
[17] <https://www.google.com/patents/US2393676>

## 1 Aftermath

The inventorying of three items has allowed us to think through cultural artifacts with very different scales, densities, media and duration. The items were selected because they align with a fundamental inquiry into 3D-infused imaginations of the “body” and their consequences, emerging through a set of questions related to orientation and dis-orientation. Additionally, the items represent the trans-disciplinarity of the issues with 3D scanning, modeling and tracking, that touch upon performance analysis, math, cartography, law and software studies.

In item 007: Worldsettings for beginners, we explored the singular way in which the Cartesian coordinate system inhabits the digital by producing worlds in 3D modeling software, including the world of the body itself. In item 012: No Ground, we asked how situatedness can be meaningful when there is no ground to stand on. We wondered which tools we might need to develop in order to organize forms, shapes and ultimately a living, if floating on virtual disorientation. Finally, in item 022: Loops, we followed the embodiment of a choreographic practice, captured in files and legal documents, all the way up and back, to face the earth.

The text evidences some of the ways in which inventorying could work as a research method, specifically when interrogating digital apparatuses and the ethico-political implications that are nested in the most legitimated and capitalized industries of the technocolonial totalizing innovation, defining the limits of the fictional construction of fleshy matters: what computes as a body.

The main engine of Possible Bodies as a collective research is to problematise the hegemonic pulsations in those technologies that deal with “bodies” in their volumetric dimension. We understand the research as an intersectional practice with a trans-feminist sensibility along the aesthetics and ethics to understand the (somato)political conditioning of our everyday.

Evidently, the questions both sharpened and overflowed while studying the items and testing their limits, fueling Possible Bodies as a project. Inventorying opens up possibilities for an urgent mutation of that complex matrix by diffracting from probabilistic normativity.



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### **Jara Rocha**

(Bau Design College of Barcelona)  
Contact info.: [jara.rocha@baued.es](mailto:jara.rocha@baued.es)

Jara Rocha is a cultural mediator, developing educational and research programs at Bau Design college in Barcelona, Spain. She works with the materialities of infrastructures and transfeminist practices, linking both formal and non-formal ways of attending to interfaced cultures.

### **Femke Snelting**

(Constant Association for Art and Media)  
Contact info: [snelting@collectifs.net](mailto:snelting@collectifs.net)

Femke Snelting is an artist/designer developing projects at the intersection of design, feminism and Free Software. She is a core member of Constant, an association for art and media that is active in Brussels, Belgium since 1997. Constant generates amongst others performative publishing, curatorial processes, poetic software, experimental research and educational experiments. Jara and Femke regularly collaborate on the interfaces between gender, representation and technology.