

kin_proxy - An AR Dance Performance for Ethical Discourse

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Abstract

We introduce details of the Augmented Reality (AR) series *kin_* at presenting the AR dance piece *proxy* (2022/2023) following and building on the initial AR dance performance *kin_* (2021) to open the question on how Mixed Reality (MR) can unleash new potential for the arts and other domains and trigger new perceptual experiences using artistic research at the intersection of art, dance and technology. This is done by staging different kinds of agency and a mesh of interactions accompanied by extended research on ethical questions.

Keywords

performance art, believable avatars, augmented reality, digital art, agency, live interaction, ethics, dance

Introduction

With performance art being understood as a way to enlarge the frame of what was previously considered the work of art, it includes the active presence of the performer and spectator. [1] Catherine Wood describes most performative artworks as a marking of the relationship between the three elements of an artwork which are present in an art encounter: the artist, the audience and the artwork [2]. Wood quotes artist Cally Spooner describing performance representing “a crucible of aesthetic relations between people and things that persists in a speculative state by reconstructing and re-building the art encounter.” [2] Emerging in the second half of the twentieth century, performance in contemporary art “might essentially be said to connote a space not just for performed action, but a space of active relations: a space in which things happen.” [2]

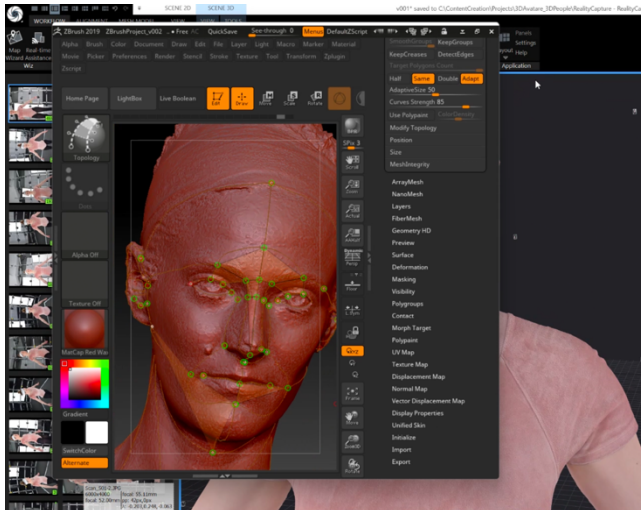


Figure 1. © (deleted for anonymous review)

Relying on the physicality of both, physical bodies and space, performance art seems to be challenged on several layers when represented with the medium of MR, which blends physical and digital worlds without being tied to a particular place nor relying on the physical presence of artist and performers.

The combination of performance art and MR extends the aforementioned speculative state not only to digital bodies and identities, but also to users becoming artistic participants in a work of art.

Resuming the discourse started with the interactive digital performance *kin_* (2021), we present in this paper the interactive dance experience *proxy* (2022), the second part of the series, created by artist X [3] and an interdisciplinary team of developers of X [4]. We argue that within the medium of AR it might be possible to attempt the idea of liveness within a digitized dance piece, without losing the artistic and bodily quality to technology. With *proxy* we build on this idea and add the aspect of bodypuppetry, staging noticeably the challenging ambiguity of identity appropriation such as addressing the tension between intimacy and voyeurism.

Concept, Experience, Installation Description

DEFINITIONS Although there are discrepancies in definitions there has been some consistency in the use of the term avatar as being human-controlled, versus the term agent as being computer-mediated. [5] In regard to the series *kin_*, technically all staged avatars are therefore agents, since the execution of the interactions is finally computer mediated. Nevertheless, and since outer appearance and mimic recordings are full reproductions of the artist herself and movement qualities full reproductions of the dance ensemble and shall therefore be understood as full extensions of themselves, it was decided to choose the artistic point of view and use the term avatar for the entire series. (Figure 1, 2)

We are differentiating between the term dancer, meaning the human performer who guides an avatar, the artist the avatar is modeled after and the avatar dancer, meaning the digital moving body which combines the two previously mentioned identities. In regards for the term user in this text we add the nomination spectator/ participant to underline the artistic focus of the work. [6]

TECHNICAL DESCRIPTION *kin_* is the title of a series of interactive dance pieces in MR with moving avatars and unpredictably moving audience. The pieces of the series – *kin_* [7] and *proxy* – are developed for AR and freely accessible to download from the AppStore to run as an app on a personal device [8]. AR registers digital content in a real life setting and is designed to be used without markers, created for spacious museum environments or private surroundings that offer enough space to the dance and the audience experience.

kin_ pieces are designed to be individual experiences and interactively reactive to the user. All reactions by the avatars to intended and unintended, firsthand and secondary interactions of the visitor manifest in a uniquely arranged, non-repeatable performance each time the piece is screened. This way, the resulting performance represents a

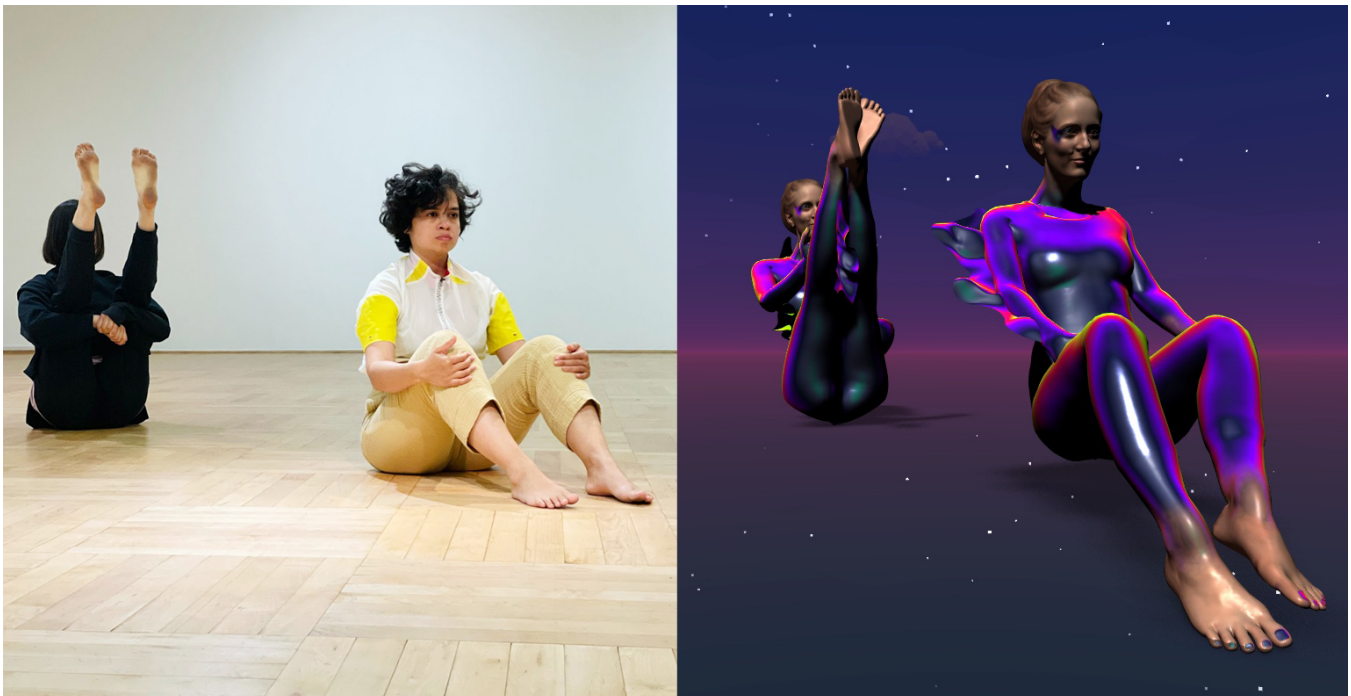


Figure 2. *What You See And What You Get*; Still from rehearsals and making-of © (deleted for anonymous review)

temporally and spatially non-repeatable version of the digital dance pieces of *kin* in the chosen exhibition space. In order to run the AR experiences at their fullest potential, bright, quiet and empty spaces are recommended such as the use of headphones to be able to listen to the multidirectional sound experience.

To start, permissions to access microphone and back cameras need to be granted and the activation of the front-camera for *proxy* is optional but recommended. If the latter is not given, or the device is not able to activate both cameras due to technical restrictions, a sequence from the intro of the piece serves to acquire a picture of the user to be used later in the piece as a work-around.

DRAMATURGICAL STRUCTURE *Proxy* is divided up into six parts, structuring dramaturgical, interactive and formal elements. Acting as a bracket for the performance of the avatars, a preceding introduction is given at starting the application to serve two purposes: Firstly introducing the topic of the piece it anchors the storytelling in the field of identity appropriation (by showing the transformation from the dancers into the avatar that does not resemble them). Secondly the introduction guides through the process of requirements and recommendation and introduces to UI Elements of the piece such as the placing of the content.

Opening and closing scenes are designed to include the visitor as much as possible. The intro scene features an interactive eye following the users mimics and responding to it, changing colors and shapes of the atmosphere. No action is required for this to happen. After the placing through the virtual eye has taken place, requirements for the piece are introduced, followed by the transformation of the dancers into the avatar-dancer. The transformation is triggered by the movement of the device by the user, the performance starts right away. The introduction is set in a semi-virtual room of uncanny nature full of swaying, translucent membranes that reflect avatars and surroundings. It is inspired by the idea of the backrooms [9] where three avatars of the actual dancers are visible and transforming into the avatar of the artist who is then about to perform.

Each part serves a different purpose in relating the user to the performance by suggesting different narration angles of the user's perspective and inviting them to move or turn into a certain direction. The first part of the piece introduces three avatars and elements of the used choreographic material. Meanwhile the first part is directed towards the user, the avatars spread out for the second part and open the space for the spectator to be explored. For the third part the avatars gather again at center stage. Part three, four and five feature a solo of each avatar thematically evolving around the topic of agreement/ outbreak of the two identity principles negotiating between the dancer and the visible outer shell of the avatar. Part four additionally stages a virtual mirror scene: so far hidden behind the user, one avatar now creates an affordance (by passing by the user very closely) to look behind the user to reveal a digital mirror setup. The mirror image shows the original dancer, while in front of the mirror the avatar continues to move. Part five directs the users gaze onto the third solo at playing with depth of field. The sixth part integrates the user by having the avatars gather and sitting around them, gazing at the spectator. The scene ends with one avatar leaning towards the user and finally blocking the view so that only their eye is visible, in which the spectator reflects themselves. The piece ends with the avatar blinking fast and closing the eye to black the screen.

The dancers' movements consist of layered movement qualities, postures and tasks as explained later in the paper. Although the piece takes place entirely in digital space, the dance material is digitally reworked only in isolated cases so as not to affect the credibility of the bodies. When it is done visibly (such as happening in the last scene when speeding up the dancers in an unrealistic manner) it is done to underline the artificiality that has been established as a new reality during the piece. Those breaks of reality happen also during the introduction, when the swaying membranes of the back rooms bend reality and physics. The established reality in AR, merging real space with digital content, also gets interrupted in part four where the digital mirrors appear, reminding the participant of the real people dancing underneath the avatar's shell.

INTERACTION Another way of commenting reality discourse is questioning liveness in performance by the interactive components of the *kin_* pieces. By granting the user varying local agency in each scene [10], it is possible to directly influence the piece, through own movement and interaction, as the avatars respond in real time to proximity and distance, velocity, direction and angle of the approach. There are three layers of interactive content: Firsthand interaction, secondary interaction, and background interaction.

Meanwhile firsthand interaction is designed to be obvious and necessary for the continuation of a scene (“Handshake-interaction”), there are subtle interactions that do not require any conscious action from the user. Secondary interaction means interaction which is responsive to behavior without being necessary for the staged piece to continue. Background interaction is not obvious interaction, such as light estimation or automatic adaption to the resources of the device or audio situation of the room in which the experience takes place.

In the *kin_* series no firsthand interaction is used, meaning that all interactions of the user with the avatars are designed to be indirect – triggered either by moving, inclining or tilting the device physically towards or away from the avatar, causing a dodging behavior, evasive behavior or aligning behavior. Direct touch is not encouraged and does not trigger any interaction with the avatar, but offers access to the menu structure of the app.

After dodging caused by the movement of the device, the avatar continues to follow the choreography at a restored, reasonable distance at the new chosen place in virtual space until the end of that part if choreographically it makes sense to continue alone. If the scene is marked as a duo the avatar waits in idle until it is allowed to enter the scene again to restore the needed constellation for the following part. To align with the musical composition and all three avatar’s constellations, the timeline is not pausing but the avatars leave and reenter the choreography paralleling the timeline.

Secondary Interaction is almost unnoticeable as it is implemented aligning certain scenes and actions to center the user or to be perceived in a certain angle without the participant taking notice of this alignment. Although there are no actions needed for the piece to continue there are affordances nudging the participant to move offering a certain narrative: The sculpted digital mirror to be detected that was hidden behind the participant and that could not be seen before – which is only led to in the fourth part by an avatar. Although designed for the user to be interactively involved, it is possible to experience *proxy* without detecting the interaction possibilities of the avatars. UI menu options are offering a guided performance through the piece for less experienced participants regarding AR and the interaction.

MUSIC For the likewise interactive soundtrack the artist collaborated with composer X [11] offering a soundscape of three layers, arranged in 360 degrees and adapting to the orientation of the user: the stereo-ambient composition, samples, bound to a certain radius of each avatar; and different sound elements for dodging movements. The composer implemented snippets of live recordings of talks revolving around the topic of identity appropriation and distorted commands of ballet classes using A.I. technologies to modulate found footage and appearing snippets.

COSTUME Although body, face and skin are constructed after the artist’s appearance, the three avatars are moved by dancers of the artist’s ensemble X. Hence the figurative appearance of all three avatars is alike, the movement quality thus shows individual dancers interpreting their scene. The three avatars are wearing interactive, responsive costumes described as futuristic, functional, non-functional haute couture, which react to the movement with secondary animations and change their behavior during each dancer’s solo. (Figure 3)

In the first and last scene the Avatars wear masks constructed from a translucent material with a special function: when coming closer, the user is able to see their own reflection in the mask’s surface. When devices are used that are not able to display the front and back camera at the same time, a sequence of the user is recorded in the intro, which simulates the mirroring later on. If the permission for the recording within the intro is not given, no mirroring takes place.

LIGHTING Lighting Estimation is included to adapt the lighting of the virtual scene to the real environment.

Artistic Background

kin_ is a series that explores human physicality by offering perspectives on possible realities. By staging agency it opens the question of liveness and explores both; dancers’ identities and avatars’ credibilities at forming hybrid creatures of several identities captured in resembling bodies.

REALITY AND CYBORGS *kin_* series is considering several philosophical and sociological discourses, among them the mesh of realities and identities, the transfer of performativity into the digital and the dichotomy of voyeurism and intimacy. Reality, digitality and artificiality can no longer be clearly distinguished. With a cyborg understood as a hybrid life form combining the organic and the technical *proxy* opens the discussion to the matter of perception from several angles – a hybrid being in the cyborg sense as a mediator between dualisms [12], but also in its function as a negotiator or prosthesis of another, non-visible identity. Following this argumentation, *proxy* can be understood as a playful statement that abandons anthropocentrism, linking also to the content level of *kin_* [see also: 7]. At the same time it can open dance and art studies to the discourse of identity studies, digital culture and internet culture in particular as the dancing agents serve as surrogates for human dancers. An association with the hybrid avatar as evolution of human identity is intended.

DIGITAL IDENTITY AND APPROPRIATION In *kin_proxy* the avatars serve as a representative for the rarely revealed identities of the dancers behind the visible shell. (And vice versa.) The questions revolving around identity discourse, its entanglements with digitality and identity and cultural appropriation are fundamental philosophical topics of the piece.

The dancer’s captured movements are still expressing their identities without themselves being visible, but on the other hand the visible identity is no generic avatar figure. Bodypuppetry is thus an important issue dealt with in this piece and the question who is manipulating whom. Important for the creation of the piece has been the development of a suitable approach regarding the relationship

between the dancer and the avatar representing the artist and the strongly related question of where the identity of a human being is located. For contemporary dancers it is a given fact that personality, culture and education merge in an bodily archive [13] which finds expression and outlet in their movement and therefore form the identity of their artistry. In the case of *proxy* all three dancers of mixed gender identify as bipoc, one dancer is eight months pregnant at the moment of recording.

Since for the visible form the – female identified, white and non pregnant – artist herself is recognizable, the fact of the gap of identities and who is interpreted by whom is coming to the fore. The avatar's visible shell becomes a symbol of the artist's being rather than an anonymous puppet.

The fact that both – dancer and scan of the avatars shell represent existing identities opens up the possibility for both being a puppet of the other – a balance between the two is intended. This shapes the relationship into a negotiable form of creating synergies between both identities within one form.

Since *kin* is underlining ethical aspects in avatar treatment and *proxy* focusing on ambivalent aspects of identity and cultural appropriation, two directions of looking at an avatar's role can be pointed out: From the perspective of the user (who does not know who or what is behind the figure), and oppositely from the perspective of the agent directly, or from the perspective of the person owning the avatar, with the avatar in function of a surrogate. As long as it is not clear whether there is a person behind the avatar, also verbs like own, lead, bear or take on imply connotations that express power relations. The metaphor of owner versus possessor from jurisprudence can be helpful, but still does not clear up all doubts about which agents can have influence where and where they are entitled to their own agency.

To talk about avatars and roles, it is needed to discuss what the avatar represents to the sender - and this in turn can vary in such a way that we always come back to the same thing: Consent and communication, but also the own definition of these.

From the user's perspective, a socially acceptable approach to the avatar is a recommended approach. The user manipulates the interaction, but is also manipulated themselves. Because a distinction must be made between whom one sees and perceives.

From the perspective of the avatar a safe bet could be the golden rule of reciprocity as long as we do not know about the agent's own wishes. [14] Returning to the argument above, the artist recommends that the term avatar should always be preferred to the term agent when there is no absolute certainty about the leading identity of the bearer.

Taking on the perspective of the person behind the avatar as a representative, the way of perceiving the own avatar can range from a physical extension of the self (the avatar is part of myself) to a symbol shielding the person behind and acting on its behalf.

The avatars staged in *proxy*, however, is not a representation of one person, but of several, and thus misleads as a hybrid because it claims to be another.

From the artist's perspective, this also means handing the avatar over to the dancers.

Semiologically an avatar can be both an index and an icon in the Peircean sense [15] - a signifier and a signified [16], a representation of the users identity to protect or symbolize their identity, or incorporating a part of themselves.

Semiotically Saussure differentiates between the form (signifier) and the concept (signified), which Pierce extends by the actual meaning that the receiving audience interprets (interpretant).

Taking Pierce's categorization into account, *proxy's* avatars can be covered by all three identified types of signs – strongly depending on the understanding of the receiving party – Avatars being an Icon, at having physical resemblance to humans and to the artist herself. Avatars being an Index at showing evidence of the body being represented, resembling in movement and form the bodies behind the production of the performance. And Avatars being a symbol at communicating identity discourse and net culture. [15 / 16]

As for Pierces Signifier as a Symbol the categorization is highly dependent on the interpretant as being an important part of the avatar as a sign.

Parallel to the interpretation of the avatar from the perspective of a user seeing an Avatar, the functionality of how a chosen avatar lead by another person is highly subjective and may change depending on the context and chosen way of perception. In any way the perceived way of the avatars function is not apparent to the other party as it depends on the own stating and perception of the avatars bearer.

Conversely that means also: With at least it being imaginable that behind a human-shaped agent might be a conscious human being (as also behind a non-human-shaped Avatar) there should be common codices regarding the treatment of avatars such as precautions to ensure a safe way of having and interacting with avatars.

This includes rules of social interaction with avatars (which also already take effect in the design process), rules about consent in dealing with each other and the possibility to communicate these rules or spaces in which compliance with these personal boundaries is possible. And protection against assault and abuse of the systems - and we should not only discuss but implement them - but above all educate and create a consent, when which actor is granted which abilities, and who may be treated when and how. As long as we do not yet have shared experiences with the company of avatars, the golden rule of reciprocity applies - consideration for each other, but it should also mean that digital spaces and spaces of exchange are not free of rights, but must offer measures that make this consent possible in the first place.

Specifically, this can be: Automated distance between avatars as a collision stop (as in X) or as turning away (as in *kin*), becoming invisible (as in X) as soon as someone comes closer than consented. Consent about acoustic contact (or non). Consent about being recorded (as in Metaverse). The possibility to leave, to report someone (with consequences).

Because with these securities, an explorative handling of avatars as an exploration of identities can be an enriching experience and tool - a possibility to try and explore other identities. Ultimately, the avatar is a way to manifest

completely new expressions of the self and to reinvent and play with identities.

An avatar is not necessarily the empty digitally constructed shell but a representation of another human being.



Figure 3. Costumes for the avatar corresponding to the dancer © (deleted for anonymous review)

CHOREOGRAPHIC MATERIAL The development of the choreographic material is affected on three levels. The first level are poses and principles to derive actions and constellations, the second level is the staging for the moving, unpredictable spectator and the third level targets the meta principle of the material exploring its relationship between the analogue and the digital, as in interaction and staging for the AR space.

POSES AND PRINCIPLES The relationship between dancer and visible shell mentioned earlier was also used to develop the movement material. The topic of the piece (identity negotiation, analogue-digital dualism, cyborgism) is staged in poses and principles for tightly choreographed, geometrical body and trio constellations with organic movement qualities which happen in front and around the spectator. Movement qualities, postures and tasks are choreographically deconstructed and placed into the room to explore the gap between what it is and what it appears to be.

The staged poses allude to armors, to protection or handouts, to small glitching, puppet-like and posing/catwalk/undressing associations. A bidirectional curve was integrated into the set of poses as a wink to Merce Cunningham whose technique communicates Spatial Awareness where any point in the space can be the dancer's front. [17] As a main principle copy and paste poses were used to show the replacing of either poses or spaces. The later mentioned "containing multitudes" - there are no single identities but an interlocking of different identities - is considered the second meta-principle of the piece and is realized by contrasting melting into each other and straightening up, and briefly breaking out and in of the perceived shell, supporting and carrying other's, and own weight. Like this, intimacy in a movement becomes a collective experience. To underline the negotiation process, the principle of agreeing and defiant attitudes such as backward and forward principles were implemented. For the dancers' solos, the used material was shaped both by the relationship of two identities in one form and by the handling of this challenge.

STAGING FOR THE UNPREDICTABLE SPECTATOR

Since the spectator is invited to move, *proxy* is staged for 360° containing parts that are strongly directed to the user's position and others loosely attached or not responding at all to the user. The user is being danced to as the piece is inevitably adjusting to where the user moves to happen around them – giving space to their own role and reflection within the piece.

Other secondary interactions that work as an affordance based guidance for the user influenced the choreographic material such as leaning or covering the lens halfway or fully and thus creating a depth of field, working with slight light changes, or grouping around the user.

STAGING FOR DIGITALITY Poses, constellations and forms refer to loops and repetition, alluding to digital reproduction, without actually being repeated. Although the visible avatar looks the same, the interpretation of the

poses by the different dancers create variances. Following concepts of contemporary dance no editing of the movement has been made, human inaccuracy is reinforced.

AGENCY AND LIVENESS Performance art is happening in the very moment of the creation by performing agents with potential to act. [8/ 10]. As explained in [7] *kin* series appeals to the shift of agency by staging interactive performances granting agency to all agents involved, including the user to be an active part of the piece. Since *kin* is experienced with a handheld device, the physicality of the device is creating an inevitable frame through which the piece is being observed. The surveillant aspects of the window for the scene puts the visitor into a surveilling position (see also: [18]), the masks reflecting the user themselves break the fourth wall, forming at the same time empowerment of the user as a revelation to being exposed inside the piece. The user can not hide behind the device anymore but is enabled to experience their own version of the performance through their own direction of the device's frame.

TROLLCULTURE AND INTERNETCULTURE With avatars being staged in social settings in virtuality the concept of identity becoming choosable and the concept of body leaving its physicality become even more abstract. "We use "body" to give material form to an idea that has no form, an assemblage that is abstract. The concept of a body houses within its social, political, and cultural discourses, which change based on where the body is situated and how it is read." [19, p.8]

With Jean-Luc Nancy stating that a body is not empty and filled with material, Walter Whitley claiming bodies containing multitudes and dance theory stating that a dancing body is a moving archive, *kin* series draws on the discourse of body and mind being impregnated with several layers of discourse.[19]

Netculture stages Avatars as being a key to empowerment, allowing to construct independently selected identities and realities. As one person may have multiple avatars and therefore multiple bodies and vice versa, the range of expression at the same time limits and expands. Internetculture, and the strongly related culture of trolling become therefore strongly related topics to *proxy* [19].

Even the audience can disturb the performance immensely by their actions and interferences, which asks for a slight responsibility of the spectator for the undisturbed execution of the performance.

The topic of cultural appropriation is put up for discussion in both: as part of the artwork itself, using artistic means, such as in mediating layers in dramaturgical texts and talks dealing with the topic.

Artistically processed at three different layers – the intro of the piece revealing the transformation of the dancers into the avatar, showing the process of hiding, the mirror scene reveals the dancer underneath the avatar’s skin in the digital mirror and finally in the movement itself, dealing with the connection of two identities within one body.

TITLE This idea of the mediator is also referred to with the title *proxy*, as a proxy is located as a link between entities and means both, a substitute authorized to act for another entity, and the power conferred on that person. Due to it’s anonymity it is not clear who gives power to whom.



Figure 4. Costumes for the avatar corresponding to the dancer © *(deleted for anonymous review)*

*kin*_series questions and brings agency to each agent at putting up for discussion who is allowed to act when and within what framework.

Proxy shows how we interact with each other through digital identities and leads us to question general interaction but also one’s own boundaries.

The performance series *kin* opens up a space to reflect about the moving body and agency in the context of digital culture, representation and performance art for both virtual and physical worlds. It fuses artistic qualities with digital possibilities and opens up virtuality for the dancing body. At the same time the artistic research grants agency to avatar-dancers and audience while participating in the discourse around ethical and contemporary, performative art formats, at bringing it not only to art but also HCI contexts.

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