

# ANOTHER YOU – VIRTUAL EMBODIMENT CREATIVE PRACTICE

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**Abstract:** This paper delves into the intricate creative process behind the “In Search of the Lost Body” virtual embodiment installation, part of Adina Pintilie’s multi-platform project “You Are Another Me—A Cathedral of the Body,” exhibited at the 59th International Art Exhibition—La Biennale di Venezia in 2022<sup>1</sup>. It investigates the foundation of this multi-sensory installation’s synergistic integration of art and technology through the lens of the author’s roles as immersive media artist, experiential designer, and researcher of the contemporary art project. By unravelling the project’s journey from inception to exhibition, this paper demystifies the methods and processes implemented to create a virtual immersive art installation. At the same time, it provides an in-depth viewpoint on the transformational potential of virtual embodiment in redefining audience engagement, as evidenced by enhanced emotional responses and a deeper connection captured by participant feedback and observational studies. By addressing the challenges and innovations in the field, the article reveals the installation’s pioneering contributions to emergent digital art forms. It also reveals the multimodal sensory elements that intensify audience immersion and deepen the connection to the artwork’s thematic core. This investigation not only focuses on the aesthetic and technical aspects but also critically assesses its impact on reshaping audience perceptions and emotional involvement while exploring the transformative influence of virtual embodiment and its implications for expanding our comprehension of the human experience.

**Keywords:** virtual reality, corporeality, virtual embodiment, immersive experience, Adina Pintilie, “*You Are Another Me—A Cathedral of the Body*” Program, 2022 Venice Biennale.

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## Introduction

As emerging new media technologies converge with the intricacies of the human sensorium, the notion of virtual embodiment crystallises as a seminal paradigm within the avant-garde of artistic exploration. Following the metamorphosis of concept into creation, this paper belongs to a two-part series paper called ANOTHER YOU<sup>2</sup> and embarks on a meticulous deconstruction of “In Search of the Lost Body.” The contemporary artwork becomes the focal point through which this discourse delineates the symbiotic relationship between creative vision and technological innovation.

1 The article was written following participation in the conference of the same name, organised in December 2022 by the Department of Research, Development, and Innovation within UNATC. The first part of Ciprian Făcăeru’s study can be found in a previous issue of the CONCEPT academic journal: 2(25)/2022, pp. 28-53.

2 Făcăeru, C. (2022) “Another You: Virtual Embodiment Phenomena,” *Concept* 2(25), pp. 28-53, explores the theoretical foundation of virtual embodiment that enforced the conceptual dimension of the “In Search of the Lost Body” installation.

As the lead experience designer and producer of the immersive art installation analysed in this paper, I present an intimate narrative of the interdisciplinary project that conveys a multi-sensorial approach to storytelling. The discourse navigates through the labyrinthine interplay of artistic ambition, technological enablement, and the participatory spectrum of the audience. In charting this creative journey, I assume a dualistic lens — that of the artisan and the analyst — affording a richly textured perspective that augments the ensuing evaluation.

This study is grounded in the transformative possibilities inherent within virtual realms. It critically assesses how immersive digital platforms enhance the communicative range of the visual arts and reshape the dialogic interactions between the experiential artform and its interlocutors. Interweaving reflective practice with methodical examination, it will dissect the complexities involved in architecting an experience that aims to transcend mere depiction, aspiring instead to embody the layered narratives that comprise the human condition.

### ***Structure of the Paper***

This paper is structured to reflect the multifaceted nature of “In Search of the Lost Body,” a project found at the intersection of experimental cinematography, emergent media technologies, and novel ways of audience engagement. Employing multiple perspectives, it unfolds the interdisciplinary nature of its creative practice within the realm of virtual embodiment.

Delving into the genesis as well as the evolution of the project, “Background and Context” sets the foundational section and builds up a historical and conceptual baseline following the lineage of the project from its cinematic inception in Adina Pintilie’s art. With its transformative emergence as an embodied and immersive experience, it sets the stage for understanding the artistic and philosophical roots underpinning the entire project.

Following the “Project Timeline,” we lay out in sequence the journey from its theoretical inception to practical completion. It details the mix of academic research, creative ideation, technological progress, and practical implementation in a temporal depiction of the project.

“Artform: Creative Journey” narrates a personal perspective, retracing the author’s personal and academic paths in conceiving of and realising the installation. This inward-looking portion threads together the subtle nuances of merging artistry with emergent technologies within a new and developing field to form a distinct immersive art piece.

This section details the earlier phases of the project’s development and creation. The part “Conceptual Journey: Ideation and Design” discusses creative

processes through theoretical constructs that translate abstract ideations into tangible notions of experience.

In “Technology: Implementation and Challenges,” the discussion veered towards the technology base that is required in order to actualize the project. In the process, an outline was developed not only of the various tools and methods utilised but also of the challenges and advancements made towards creating the immersive virtual reality experience.

“Mediation: Bridging Realities” depicts human intermediation on a medium wholly dominated by technology. This subsection will concentrate on setups implemented towards efforts to enhance interactivity between the artwork and the audience, with particular emphasis on the collaboration of human and technological mediation in an effort to improve the participant’s experience and its understanding of the project.

Moving to the experiential dimension, “Experience: Audience Immersion” provides an empirical narrative of participant experience moving along the installation. Evaluating the arguments and the designed intents of virtual embodiment and examining the potential transformative impact of the experience.

Synthesising the insights from the preceding discussions, the “Conclusions” section outlines the findings and speculation of wider implications to pave the way for subsequent academic discourse within the realms of virtual embodiment, artistic innovation, and confluence between art, technology, and human experience.

### ***Background and Context***

“In Search of the Lost Body” is a segment of the expansive “You Are Another Me—A Cathedral of the Body,” which was presented at the 59th International Art Exhibition — La Biennale di Venezia in 2022 and featured during the events celebrating Timișoara European Capital of Culture in 2023. Originating from the creative vision of Adina Pintilie, an acclaimed filmmaker and artist, the project is an extension of her cinematic venture “Touch Me Not,” which garnered the prestigious Golden Bear at the 68th Berlin International Film Festival in 2018. Straddling the realms of fiction and documentary, Pintilie’s film lays the groundwork with its exploration of the body’s politics and poetics, setting the stage for the multi-platform project’s further investigation into corporeality through a trio of synergistic artistic expressions: a six-channel film installation series, a cinematic sculpture, and the immersive VR installation under discussion. Each component of the multi-platform project, while contributing to a unified thematic narrative, also emerges as a standalone piece, meticulously fashioned to assert its individuality within the collective exposition. t

The emphasis of this study is focused on the third component, defined as an immersive and interactive virtual artwork. Under the direction and supervision of Adina Pintilie, supplemented by the input of producer Bianca Oana and exhibition designer Martin Backhausand, the interdisciplinary production coordinated by me as an experience designer and immersive media artist was further made possible by the contribution of Augmented Space Agency colleagues, the XR developers and designers Sabin Șerban and Dan Făcăeru. This project initiative is sustained by the collaborative spirit of Adina Pintilie's foundational film work, bringing together the voices and corporealities of the project protagonists: disability rights advocate Christian Bayerlein and Grit Uhlemann, educator and performer Laura Benson, as well as transgender activist Hanna Hofmann, along with performers Hermann Müller and Dirk Lange. The technical venture in transferring the corporeality of the protagonists was made possible by Mimic Studio from Berlin, while the curatorial direction of the multi-platform exhibition was in the capable hands of Cosmin Costinaș and Viktor Neumann. Furthermore, the participatory audience experience was carefully guided by the mediation programme consisting of students and young professionals, coordinated by Larisa Oancea and Daniel Neugebauer. The mediation programme also contributed to the gathering the audience moods, opinion, and feedback that contributed to this research. Last, but not least, an important role was played by the "I.L. Caragiale" National University of Theatre and Film in Bucharest that nurtured my scholarly and artistic research, which brought forth not only a project but an ambitious academic pursuit venturing into the new territories of real time immersive experiences.

"You Are Another Me—A Cathedral of the Body" brings together these three elements into a unified creative vision that challenges viewers' preconceptions about human connection, individuality, and the complexity of the body. In its search for novel modes of artistic expression and experiences, the initiative exemplifies the value of cross-disciplinary cooperation.

### ***Project Timeline***

The inception of "In Search of the Lost Body" was set in motion with the ambitious pursuit of Adina Pintilie and her team to represent Romania at the 59th edition of the International Art Exhibition - la Biennale di Venezia. The Ministry of Culture, the Ministry of Foreign Affairs, and the Romanian Cultural Institute launched the national competition in September 2021 and kicked off this journey. The biennale theme 'The Milk of Dreams', curatorially proposed by Cecilia Alemani, offered an international competition to design and discuss possible ways of creating art projects that would touch on multidimensional venues.

During the first series of virtual meetings, ideas for a multimedia project that would capture the many facets of the director's vision were discussed and refined. The first project proposal provided an overview of the group's overall objectives, which ranged from a logical and intricate conceptual vision to innovative creative advancements in auditory, visual, and experiential representations.

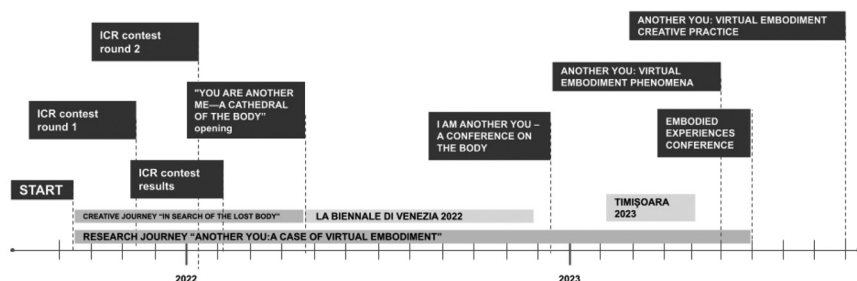


Fig. 1. Project Timeline

Our project reached a major milestone in January 2021 when the results of the first round of this national competition were announced and the proposals advanced to the second stage of the national contest, where two other candidates were selected. Our thinking, informed by case studies, scientific papers, philosophical perspectives, and technical possibilities, gravitated from a dual conceptual direction to the evoking metaphor of "You Are Another Me." First of all, virtual reality is a communication medium. To go beyond physical presence and further develop our creative process and dialogue, we held the first collaborative sessions inside the Horizon Workroom platform within a shared virtual workspace using Oculus Quest 2 headsets, thereby starting the discussion on our proposed exploration of the VR technology itself as its subject matter. This new approach to remote work helped break barriers of communication as well as operational ones, while overcoming the distance challenges posed by the global pandemic, and making it easier for simultaneous design and planning revisions regardless of the physical geographical location of our team members.

It was early January 2022 that gave it a turning point as our second-round submission. The competition crystallised the vision into a more tangible virtual experience. The end of January 2022 brought the good news that "You Are New to Me—The Cathedral of a Body" has won. Now this ambitious project had to be ready for exhibition in about three months. This time constraint led to a period of intense research and planning, which, of course, ended up being crucial in the last period of the project, as it became painfully obvious later on. Time constraints also demanded a faster and more responsive approach to product development

that could facilitate quicker prototyping and testing, as well as unconventional approaches that could hasten the concept-to-product phase. Both Dan Facaeru, Sabin Serban, and I have previous experience in the XR domain, so we began working on it immediately, developing the needed software infrastructure, virtual assets, and logistics for prototyping, as well as looking for partners with expertise in 3D scanning and other areas of virtual production. The Berlin-based Mimic Studio was responsible for facilitating the creation of the virtual avatars of our main protagonists. This was a crucial step in the process of developing an embodied experience that would form the core of the installation.

As winter gave way to spring, the first prototypes breathed virtual life into avatars. By March 2022, we had experienced the first virtual prototype. Shortly after this landmark, we were able to travel to Venice for the wrap-up of the last steps of the production. The installation was first seen by the public on April 23 and was displayed at the New Gallery of the Romanian Institute for Culture and Humanitarian Research, apart from the project's other two parts presented at the Giardini Romanian Pavilion. Time pressure was a constant presence throughout the duration of the project. There was a need for not only an active mind but of a careful formulation of the logistic and production budgets for the strategic allocation throughout the short three months of production. Our collective efforts were a case of the project's flexibility and elastic solution to providing top-notch services in this regard.

The theoretical investigation of virtual embodiment expanded beyond the theoretical concepts and virtual reality creation practice towards audience engagement aspects via the Mediation Programme and further scientific studies. Between September 2021 and April 2023, each of the three research vectors enforced one another, and this project traced out mutual influences between both fields. Moreover, in December 2022, it was part of an academic session on 'I AM ANOTHER YOU – A CONFERENCE ON THE BODY' at UNATC Bucharest and EMBODIED EXPERIENCES in May 2023 at VU Amsterdam, it invited the public to a wider scholarly dialogue on body politics and related topics. At the same time, the project contributed to the rich cultural landscape of Timișoara 2023 European Capital of Culture events held at Kunsthalle Bega, where the immersive embodiment installation was presented together with the other two components of the project: the multi-channel video installation "You Are Another Me—A Cathedral of the Body" and "The Inverted Retina" cinematic sculpture. The research journey took the form of 'ANOTHER YOU: VIRTUAL EMBODIMENT PHENOMENA' paper in June 2023, followed by the current paper in the autumn of 2023.

### ***Art Form: a Creative Journey***

The creative process looked into new experimental art forms that come from the meeting point of cinematic art and new media technologies that are making it possible for the new experiential art forms to be shown in a way that is both real-time and immersive. The transition from cinematography to immersive experience is a process of diversification instead of replacement. The modalities by which an immersive experience absorbs and challenges its audience are woven into multidimensional structures with both refined artistic traditions and experimental ventures. The conceptual beacon has long been embedded inside Adina Pintilie's cinematography and filmmaking process to be distilled and brought out to the public under the project title. Just as the ethos of interconnectedness resounds in the phrase "You Are Another Me," evoking a commonality of existence and an imperative of respect, "A Cathedral of the Body" is rather a journey into the depths of personal as well as communal spirituality meant to unthread and then reposition the delicate strings of human connection. The implicit conceptual mantra underlined in the project title directed my research to new theoretical literatures, empirical case studies, and technology surveys.

With the psychological immersion into the realms of intimacies, beauty, and the human condition that characterises Pintilie's conceptual framework as advanced in her film "Touch Me Not," her approach to introspection revolves around these themes. Interest in the human subject and her desire to rediscover and learn the intricacies of human intimacy seeped deep into production and research processes. As such, this frame permeated, helped, and enforced its immersive aesthetic, making this virtual experience more nuanced. The multi-platform project for the Venice Biennale marked a new stage in Adina Pintilie's investigation into the ways that the meeting point of reality and cinema help shape, rather than merely record, intimate experiences. Amidst the interplay of outer and inner reality, an attention to personal, intimate stories and the erosion of societal norms sought depths of experience through virtual ways of creating proprioceptive drifts. It was not an endemic nature of exploration that remained confined to the conventions of cinematic boundaries but ventured into a completely new realm of sensory and visceral immersion. Furthermore, the symbiotic collaboration with the film protagonists, whose personal narratives and insights proved immensely influential in guiding the creative direction, enriched the experiential depth of the installation. These two elements of the cinematography allowed for the building of an ongoing dialogue between the protagonists and the camera, throughout which they shared experiences with the



director and observations that went beyond the screen. In the same way that the film served as a communicative act, the installation aimed to engage the viewer in a dialogue that questioned conventional views of intimacy, beauty, and the human body by progressively adding more interactive and immersive elements. Further immersing the audience into the ‘other’s’ corporeal experiences, the phenomena moved them from a spectative stance to an active participative one, thus reaching the emergent spectrum of extended realities and evaluating the various forms of technological, aesthetic, and experiential elements located within the reality-virtuality continuum.

In a search for the appropriate experiential vehicle within various aspects of the virtual medium, from visual and spatial immersion to various forms of navigation, interaction, and engagement, the project progressed towards corporeality. The emphasis was placed on the phenomenon of virtual embodiment, with the goal of creating a fully immersive and interactive experience that evoked the “You Are Another Me” mantra and catalysed an “emotional incubation” in the audience that would force them to question their own assumptions and biases about closeness, bodies, and relationships. Conceptualization and design defined the project’s early stages. All in all, the results of the brainstorming sessions, studies on virtual embodiment, as well as explorations of immersive storytelling were employed as a solid conceptual base for the project. The parent project vision inspired a series of visual and experiential metaphors in resonance with the embodiment phenomena, a mixed scientific and philosophical translation of the conceptual dimension into an experiential language that played on the participatory audience perception. This dimension also reverberated with “The Milk of Dreams,” the theme of the 59th Venice Biennale, which outlined the role of contemporary artists to imagine posthuman challenges and views of the human being. In resonance with the thematic universe, the sense of presence and body ownership evoked through digital means of immersion further expanded the vocabulary of experiential art, adding to the growing world of artistic diversity, a diversity reflected by humanity itself.

### ***Transfer: Concept to Experience***

The evolution of the virtual embodiment installation, “In Search of the Lost Body,” epitomises the confluence of conceptual artistry and technical ingenuity, harmoniously intertwining within the broader fabric of interactive media. This journey from conceptual genesis to the tactile realm of immersive experience, as depicted in Figure 2, encapsulates a series of meticulously orchestrated stages, each indispensable in transforming the embryonic idea into a virtual experience that transcends conventional boundaries of interactive art and virtual embodiment.

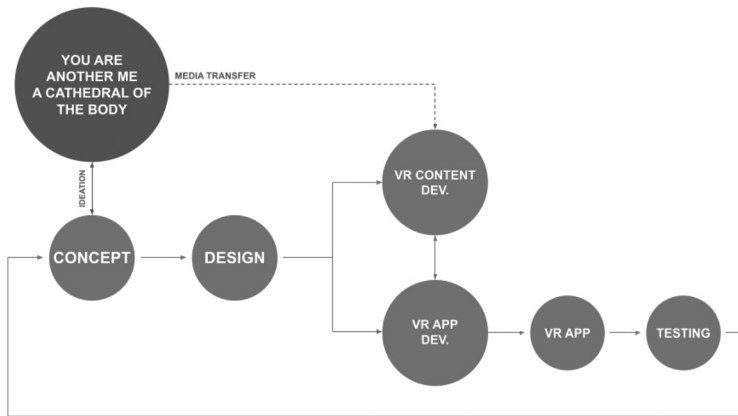


Fig. 2. Iterative creative process diagram

Ideas were not simply generated conceptually but organically germinated. At its foundation, Lux et al. (2021) only ventured into the realms of phenomenology when put forth as a seminal developmental framework alongside cognitive science and neuroscience in explicating body schema’s manifold nature in their interdisciplinary resonance. This foundational stage lies beneath the architecture of human perception and sets the stage for the ensuing alchemy of experiential art and user-centric design. This exploratory research involved a deep understanding of human behaviour and social interaction within virtual spaces. Again, this necessitated building a VR environment in which social cues, body language, and non-verbal communications could be authentically reproduced to result in the formation of an experience that bridges between traditional storytelling while providing an unmistakably interactive corpovirtual experience.

Central to this was the operationalization of agency and environmental approaches from within the VR environment, resonating with the principles

outlined by Argelaguet et al. (2016) in regard to user centric design principles. User interaction studies addressed how users interact with the narrative virtual space. This was done by studying literature and examples of human behaviour and social interactivity in a virtual space. Each and every element has been designed to serve this sole purpose: to enhance the user experience by enabling users to act, interact, and influence the virtual experience. The dynamics of interaction were therefore calibrated meticulously to ensure that each and every move and gesture of users was smoothly mirrored in the virtual space, closing the gap between physical action and virtual response. A carefully calibrated dynamic interaction guaranteed that every movement and gesture of the user was fluidly reflected in the virtual world to fill the gap between the act and the response. It is therefore evident that facing and overcoming challenges was definitely part of our design narrative, outlined in Figure 2. One particular challenge lay in the synchronisation of the non-verbal cues of virtual avatars with user actions through adaptive hand tracking technology that simulates the real-time movement of hands. “The touch” brings out the sensual part of the virtual embodiment experience, thereby emphasising some kind of physical touch between bodies. With a gentle touch that needed to be prolonged for three seconds, the user transferred into the other skin, in a process also called body swapping. This poetic transition was accompanied by visual feedback that confirmed the transfer process by visually dissolving the hand into the body. Further, the narrative context was weaved strategically into the virtual space through the environmental approach. The infinite non-space environment was not just the background but a part of the story that enabled deep sense immersion. “The mirror,” inspired by the mirror neuron effect mentioned by Adina Pintilie’s conceptual direction, reflected on the role of self-perception and identity within the virtual environment. It challenges the immersed participant to confront their own self-image by interacting with the mirror reflection carefully placed in the virtual environment: a mirror in Laura’s embodiment experience and a smartphone with a selfie camera open in Hermann’s scene.

The avatar corporealities are the most important environmental dimension of the project, the enveloping virtual epiderma that anchors the virtual experience typology. On these bases, the virtual avatar could thus hold the promise to be a “transformative vessel” through which the users would experience the new perceived body ownership transfer in its intended reality. The sense of embodiment is also reinforced by the “inner voice” that is explored through the self-reflective monologues of the protagonists. The secondary source is contained within the tryptic cinema screens that emit the spatially placed three-dimensional sound in the virtual environment. The cinema screens also equate the process of “transmedia transfer” and the place where cinematography permeates the virtual

environment, focusing the VR experience's gaze towards its origins, and linking it with the other two components of the multi-platform project. The tryptic screens are presenting to our visitors the cinematographic fragments curated by Adina Pintilie and integrated in the virtual environment in a similar manner to the multi-screen installation presented at the Giardini Romanian Pavilion. Therefore, the VR content development stood as another medium for Pintilie's cinematic vision, infused with overarching thematic and aesthetic resonances discovered or rediscovered both in the physical and virtual components of the project.

Internal testing, however is an extremely important step within the design process. Lacking in both time and human resources, it consisted only of the project's extended team and close friends. This iterative feedback loop, when not potentially biased by the small test group size or by the direct involvement of its participants in its creation, was absolutely vital to refine the virtual reality experience and allow for adjustments in real time to the virtual embodiment and the avatar's gaze mechanics, their interaction with the environment, and the overall fidelity of the much more simplified avatars. The testing phase symbolised the project's adherence to a user-centred design in that there was concrete active user involvement where proprioceptive feedback allocated from participants informed successive iterations that fine-tuned the virtual experience.

### ***Technology: implementation and challenges***

The technical journey of the virtual embodiment installation project follows a systematic process consisting of development, iteration, and integration. This process ensured the technical feasibility of the project while adhering to the artistic vision and aiming for a qualitative user experience.

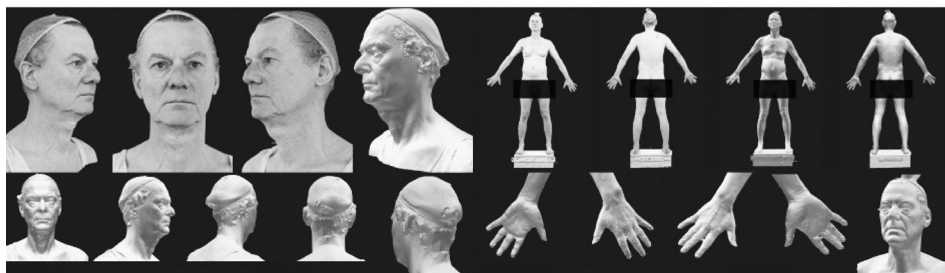


Fig. 3. 3D scan data

Photo credit: 'Adina Pintilie: You Are Another Me—A Cathedral of the Body' (2022), "In Search of the Lost Body"; digital image, Mimic Production; performer Hanna Hofmann.

*The development process consisted of two primary interlinked sub-stages:*

**VR Content Development:** The VR content development phase entailed creating the virtual environments, 3D models, and animations that constituted the installation. This activity posed one of the most pressing challenges: the avatar virtual replicas of the protagonists that required the 3D scan data acquisition. In this regard we had the help of Berlin based studio Mimic Production which provided us with the necessary rough 3D-scanned data for the full body and facial references of the protagonists.

This step was less than a quarter of the production process; additional steps were necessary to prepare the avatar bodies to address the real-time interaction, animation, and VR technical requirements. For this process, a mix of Blender, Reallusion Character Creator, iClone, and Unity components were used to optimise and produce the final avatars. The production process conducted traditional 3D production tasks like retopology of the body 3D mesh, animation rigging and skinning, and predefined animation production mixed with emerging generative practices for real-time animation and interaction development like a generative body and face animation system.

The virtual environment component required less complexity by design; relying on the concept of infinite white space and focusing on the corporeality, we decided to adopt a more minimal approach. Thus, apart from the virtual avatars, the virtual sets contained simple furniture objects inspired by cinematographic sets, and were complemented by 3 video screens inspired by the video-installation artwork of the multi-platform project. For the production of these sets, several 3D models were acquired from 3D models online stores, then optimised and edited with Blender. Several other 3D objects were created directly using the same 3D modelling software.

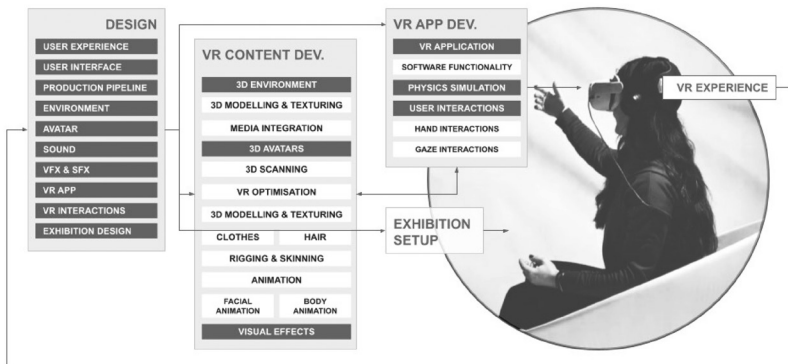


Fig. 4. Detailed design & development process diagram

**VR App Development:** The team concentrated on building the virtual environments, 3D models, and animations that constituted the installation, in addition to developing the VR application by employing the Unity engine. The entire iterative process facilitated communication and knowledge transfer between the artists and specialists involved in the project. During the VR app development stage, our project team concentrated on creating the virtual embodiment installation using the Unity engine as the main development platform, supplemented with extensive libraries that facilitated the creation of interactive and immersive experiences.

In this case too, the virtual embodiment posed the most difficult challenges. The essential components of this stage included the integration of motion tracking, which enabled accurate and real-time tracking of user movements; additionally, the design and developing interaction mechanics were necessary to ensure seamless user interactions within the virtual environment. At the same time, spatial audio was implemented to enhance immersion and realism and to optimise the virtual experience for smooth performance in order to meet the chosen VR hardware requirements. The entire process was an iterative one that involved prototyping and testing. We created multiple prototypes, tested them internally, and gathered feedback from team members and potential users. This iterative approach facilitated the identification and resolution of potential issues, such as ensuring user comfort during interactions, optimising performance for various hardware configurations, and refining the virtual environment's visual and auditory elements. By addressing these challenges, we were able to ensure a more robust and polished final experience.

The second most pressing challenge was technical in nature, as virtual embodiment relies on a complex production ecosystem and early-stage technological components. Yet the biggest obstacle the team had to overcome was the short amount of time they had for research, design, and production, which put more strain on the logistics and the budget. The technical challenges were addressed through an iterative process that, cycle by cycle, got closer and closer to breaching the fourth wall and delving into the immersive artform.

### ***Mediation: Bridging Realities***

In the context of an exhibition or art installation, the mediation journey refers to the process through which visitors interact with and experience the various elements of the exhibit. This journey is facilitated by two components: the mediation programme and the exhibition space.

The mediation programme was carefully designed under the guidance of the programme coordinators, Daniel Neugebauer and Larisa Oncea, to ensure a qualitative experience and guidance for the audience. The mediation initiative comprised an eight-month-long programme aimed at fostering mobility for young professionals, who facilitated interactions between the visiting audience and the Romanian Pavilion, as well as the Romanian Cultural Institute in Venice. This effort was later extended to the Timișoara exhibition. This effort took place throughout the duration of the exhibitions. In order to support this activity, the VR development team elaborated a technical guide to facilitate all necessary information regarding the technical setup and the user experience provided by the virtual reality installation; furthermore, the team facilitated direct remote support via a dedicated online communication group.

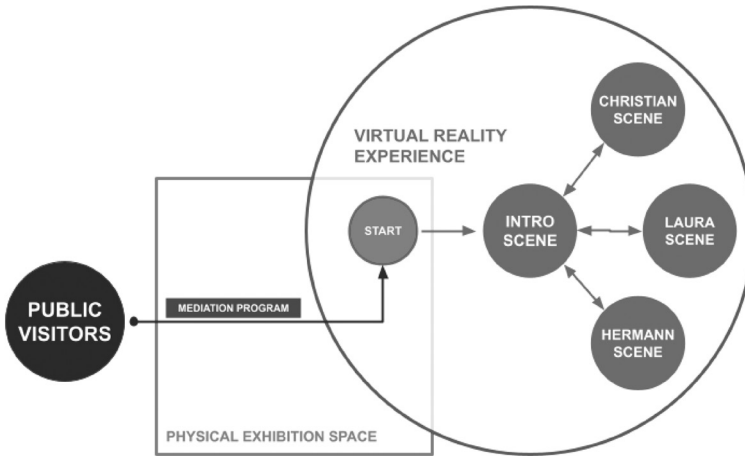


Fig. 5. Visitor journey diagram “In Search of the Lost Body” exhibition

Through interview excerpts, observational notes, and personal reflections, the mediators conducted comprehensive and nuanced research that offered a nuanced understanding of the audience’s participatory experience. The analysis of this research can be seen in the *Participatory Audience: Reception* section.

The exhibition space is an integral component of the VR installation and prepares the visitor for the virtual reality experience. The exhibition space at the New Gallery of the Romanian Institute for Culture and Humanistic Research in Venice featured non-invasive interventions, with all modifications being reversible to restore the space to its original state. With high humidity and flood risk in

mind, the design used materials and construction methods that withstood these conditions. The exhibition included three VR stations with designer chairs for aesthetic value and comfort, and Oculus Quest 2 headsets for an immersive experience. The exhibition space aimed to create a serene environment that would focus the audience's mind on the discussed topics and conceptual nuances of the project. Furthermore, the exhibition space resembled the infinite white spaces in the VR installation, addressing the continuity of the designed user experience journey. The VR exhibition was designed to function together or independently from the two other multi-platform artworks. It can be adapted to different spaces that can address the design requirements: video-wall or immersive projection surfaces, and audio system, being able to accommodate 1 to 3 VR stations.

### ***Experience: Audience Immersion***

The individual participatory journey through the virtual embodiment installation is a carefully curated experience that guides the audience through various stages, allowing them to fully immerse themselves in the project and engage with its artistic and conceptual elements. This method of experience visualisation was used throughout the iterative creative process and presents the user journey from the third person viewpoint of the artist/designer.



Fig. 6. "In Search of the Lost Body" hands without a body  
(Photo credit: 'Adina Pintilie: You Are Another Me—A Cathedral of the Body' (2022),  
"In Search of the Lost Body". VR photography, Ciprian Făcăeru.



Multiple user journey scripts were developed, and together with the prototyped experiential versions of the VR application, served as the core process and most effective communication points between the interdisciplinary team of “You Are Another Me—A Cathedral of the Body.” This final experiential user journey script represents both an example of internal communication and the result of the VR project.

Upon learning about the VR installation through various communication channels and materials or simply by passing by the exhibition, visitors arrived at the New Gallery of the Romanian Institute of Culture and Humanistic Research in Venice. Information about the project was available on the gallery frontage and inside the space. A large video projection visible from the street invited them to enter.



Fig. 7. The virtual “mirror” Hermann virtual avatar replica (Photo credit: ‘Adina Pintilie: You Are Another Me—A Cathedral of the Body’ (2022), “In Search of the Lost Body”. VR photography, Ciprian Făcăeru; performer Hermann Müller)

By entering the white, luminous exhibition space, visitors encountered videographic fragments from Adina Pintilie’s work, presented on the video wall or immersive video mapping. Custodians provided guidance regarding the VR experience and safety guidelines. The VR installation took place in a sanitised and carefully designed space with three VR stations. Assisted by custodians, visitors put on the VR headset and embarked on an approximately 15-minute virtual journey. The experience began with an introductory scene in a virtual white infinite space where visitors encountered six protagonists (Christian, Grit, Hermann, Dirk, Hanna, and Laura). In this intro scene, visitors had no body, only hands, which were used

for virtual touch interactions. A blue dot in the centre of the visual field was used for gaze navigation within the virtual environment. Visitors chose one of three places in the scene, which teleported them close to one of the three groups of protagonists. Out of the six protagonists, only three were open for embodiment. Visitors could access the protagonist via the virtual “touch” interactive metaphor by gently reaching and virtually touching the protagonist’s body.

Upon touch, the virtual hand visually dissolved into the chosen protagonist’s body, and the virtual embodiment journey began. Now embodied in the protagonist’s corporal reality, the participant experienced their thoughts, feelings, and memories via an inner voice sound source that, in the virtual space, was spatially positioned in the centre of the virtual head. Thus, participants explored the cinematographic fragments curated by Adina Pintilie that contributed to the protagonist’s story and linked the multi-platform project, gaining insights into the artistic process and the characters’ subjective experiences. The sound of the video content was also spatially placed in the 3D space, on the virtual tryptic video screens composition. The three embodiment experiences were each around 5 minutes long, yet the audience was free to experience the VR installation on their own terms. The participant was free to leave at any time from the virtual experience via an “exit” gaze activated icon, returning to the introductory space after each experience, where they could access another one of the three available protagonists.

When the participant felt that they had experienced he, her or they could remove the VR headset by themselves or with the help of the mediators. The participant journey through the virtual embodiment installation was designed to provide a meaningful and immersive experience that resonated with audiences and deepened their understanding of the project’s concepts and themes. The experience could be freely navigated and the time spent in the VR installation could vary depending on the participant’s emotional mood and/or personal beliefs or preferences.

### ***Participatory Audience: Reception***

The comprehensive data was collected from two different Mediation Programmes following the project exhibitions in Venice and Timișoara, as well as from the Embodied Experiences conference held at University VU of Amsterdam. These sources provided qualitative and quantitative data within a detailed insight into the audience engagement with the virtual embodiment installation. The qualitative insights in the Mediation Programme data acquire the qualitative insights of the mediators themselves, who had very close interactions with audiences.

Under the guidance of Daniel Neugebauer and Larisa Oancea, mediators have served as crucial links between multi-platform projects and their audiences, recording detailed accounts of visitor responses, behaviours, and interactions. Their reports include excerpts from interviews, observational notes, and personal reflections that help flesh out just the way the different audiences experienced the installation. Moreover, this information is necessary to depict the various affective and cognitive reactions triggered by the immersive art experience. In addition, during the Embodied Experiences conference, we started an ongoing research survey drawing on the opinions and data sources given by the participatory audience. The survey, designed by me and Daniel Neugebauer, included two categories: VR Experience, reflecting on the artistic and conceptual aspects of the project, and Avatar Embodiment, following scientific procedures to analyse the level of immersion and virtual embodiment. The questions were structured in a manner that helped bring forth comprehensible responses regarding the participants' perceptions and experiences of the virtual embodiment presented in the immersive installation. All the data collected aided in achieving a more structured understanding of the participatory audience's reactions. The methodological approach to analysing this data involved both qualitative and quantitative analysis.

The analysis aimed to identify recurring themes, patterns and notable variations in the participatory audience's responses, with a specific emphasis on the subtleties of visitor interactions and their emotional and cognitive impact of the installation. My study involved an analysis through my personal communication with the mediators and/or their reports.

Highlights include the subjective nature of experiencing virtual embodiment, where visitors navigate between a balance of realism set by the environment and their own set of expectations and comfort levels. Engagement levels with the VR installation also varied, with some visitors spending extensive time immersed in the virtual world while others' interactions were shorter. According to the time spent following the VR that mediated Tudor Mutrescu's exhibition in Timisoara, circa 10% of the visitors spent more than 30 minutes, 35% less than 10 minutes, and around 50% between 10 and 30 minutes (2023).



Fig. 8. “In Search of the Lost Body” participant during the UNATC exhibition  
 Photo credit: ‘Adina Pintilie: You Are Another Me—A Cathedral of the Body’ (2022),  
 “In Search of the Lost Body”. Photography, Ciprian Făcăeru.

The previous experience with VR technology was another factor that may have affected the experience; some participants were at the first contact with a VR experience. During the Embodied Experience, where we had a small pool of 9 participants that completed the questionnaire, 11.1% of participants were at their first VR experience. Similarly, Mutrescu working on his 50 subject pool study, found a similar percentage of first-time VR users, i.e., 30% of them compared to only 5% in the audience that already experienced virtual reality experiences before, and pointed out that this group was more likely to experience negative emotions (2023).

Hyper-realism in VR is not yet here. Also studies demonstrate that VR visual immersion does not necessarily need a visual realistic representation (Lugrin et al. 2015); the virtual embodiment installation resides within the uncanny valley regarding the visual representation. This may induce a more diverse range of opinions regarding the perceived reality in the virtual space. Thus, the level of virtual realism was a critical factor impacting user immersion and engagement as visitors navigated the virtual experience. Some participants reflected on how the installation blurred the lines between the physical and the virtual, while others were not satisfied with the graphic quality provided by the current VR technology. Most participants at the exhibition had positive opinions: “There is this sense

of seductiveness from the VR, as I lose the realm of real-life and am absorbed by the virtuality” or “it’s very interesting how this VR proposes new ways of experiencing art,” while others stated that the lack of realism was contrasting the cinematic aesthetic and felt alienated: “I really dislike VR; in fact, I feel it’s the less tangible experience possible, there is no touch.”

The interactivity of the medium supplemented the lack of visual realism. The virtual embodiment experience often led to a heightened sensory awareness, where participants reported being fascinated by the new perspectives and sensory experiences provided by the virtual embodiment. In several testimonies we observed a significant perceptual shift, where the virtual embodiment catalysed a unique sensorial awareness and engagement: “I was fascinated by the movements of the hands,” “I understood their words better, because I could feel it from their perspective,” or “The first time my hand melted to get into someone’s story, I actually felt my hand tingling.”

The exhibit elicited varied responses from different age groups, with two older men describing the exhibit as “weird, bizarre, creepy,” in contrast with the positive feedback from a middle-aged man who found the exhibit “something new,” as observed by Alisha Lovin in Timisoara (2023). Furthermore, a similar conclusion was drawn by Defne Ar and Juliette Schwartz in Venice (2022), with the latter noting the reaction of a 25-year-old woman: “Very cool, very strange (in a good way) to be in another body.” This highlights the impact of generational and cultural perspectives on the reception of new media art, particularly on taboo or controversial themes. “It was easier for me to understand the experiences of Laura and Hermann than that of Christian because I am an able-bodied person, [...] just like the feeling of ageing from Laura’s body. I felt empathy and was extremely connected to them somehow.” There are many reasons to like or dislike the experience; across all data sources, one of the consistent themes was the varied emotional responses and levels of social and psychological comfort elicited by the embodiment installation. Participants expressed a range of emotions, from fascination, curiosity to discomfort, from calmness to anxiety. The installation was generally viewed as an innovative educational, or even therapeutic tool, enabling viewers to “walk in someone else’s shoes.” Testimonies attest to this general awareness regarding the potential of the VR medium: “I think it can be a teaching tool for professionals,” “the project may be as another therapeutic tool.” There was a designed intent of the VR experience to facilitate reflection on the corporeality of the ‘other’ and ‘self’, influencing personal insights about the physical and psychological self. A participant beautifully described the virtual embodiment phenomenon as “porous boundaries,” where the “‘Self’ becomes a locus through which we can experience the ‘Other’”. Participants reported diverse

perceived transformative insights regarding their own bodies and identities, suggesting the potential of virtual embodiment to facilitate nuanced explorations of gender identity and self-perception.

There were testimonies that evoked reflection on the reality of the ‘other’: “the body of Christian made me aware of the lack of use of my arms and hands” or reflection of the self: “This is an ongoing theme and mental health check for me: to check if I am still okay with my female body,” or “It was a profound experience and it changed, got the better, how okay I am with my body.” Participants were asked if they saw any ethical concerns. There were some testimonies, particularly regarding the representation of the other: “To what extent is this the disability version of blackface by becoming the other?”; “I think perhaps you should let people know that they will be experiencing another gender or ability before they join the experiment,” “Maybe privacy issues for the persons that you engage with?.” Yet the entire project was made with the consent of the protagonists, and this aspect was also noted in several instances: “I feel it’s made with great care, as well as care for the protagonists.”

Some responses underscored the installation’s effectiveness in provoking deep emotional engagement and empathy, and challenging the viewers’ perceptions and societal norms, the overall feedback being mostly positive and at least approbative of the benefits of virtual reality exploration within an emergent media technology. Some negative opinions concerned technological limitations, while others were due to personal beliefs, or social taboos.

### ***Criticism: Reception***

The project was critically acclaimed for its profound portrayal and in-depth exploration of the human condition. Critics echoed this sentiment, hailing the virtual reality installation for its capacity to create a visceral, albeit uncomfortable, embodiment of another’s reality.

Thaddeus-John (2022) noted that the effectiveness of the VR installation, therefore, did not come from technological prowess but stemmed from its intimate portrayal of the human experience, offering a rather meaningful encounter with its protagonists. The installation built on Pintilie’s innovation in discussing non-verbal communication, as substantiated in her study, highlighting the cognitive and expressive potential of bodily languages, and stressing the importance of non-judgmental and caring relationality. The interactive design of the exhibition provided a very special space for the audience to engage, with the aim of nurturing a relationship between the viewer and subject translated into a direct, introspective experience. Therefore, the viewers were not just passive spectators but participants

who were placed in the narrative both spatially and emotionally, challenging the traditional dynamics of spectatorship (Gelmi, 2022). Reflecting on the intimate and, at times, uneasy nature of this installation, the participant observes up-close portrayals of human complexity and relationships that challenge the viewer's preconceived notions and their empathy. Searle demonstrates the project's capacity to evoke strong emotional reactions and reflection, proof of Pintilie's and her team's mastery in producing truly involving and powerful art in the emerging VR medium (Searle, A., 2022). Furthermore, Raluca Oancea Nestor's analysis of the Venice Biennale consists of the thematic resonance of Pintilie's work with the theme of La Biennale, "The Milk of Dreams." She observes the Venice Biennale's investigation of posthumanist themes, particularly the interplay between humans, technology, and the natural world, situating Pintilie's work within this broader dialogue. Emphasising its focus on human intimacy and connection, it can be a counterpoint to the Biennale exploration of human-machine interfaces and the societal implications of technology (Oancea Nestor, R., 2022).

### ***Conclusions***

This research provided a personal insight into the dynamic interplay of innovative interdisciplinary research, collaborative approaches, and iterative design processes, which led to the creation of an experiential art piece that transcends traditional boundaries between audience and artwork. Thus, the conclusion to which all this investigation points to encapsulates perfectly the spirit of our findings, reflects on the broader implications, and charts a path for future explorations of this emerging transdisciplinary field defined by an overarching yet shape-shifting concept.

Virtual embodiment could thus alter audience engagement within the immersive embrace of art. The installation was an instance of the synergy of creative vision and technological innovation, which not only illuminated the nuanced ways through which virtual reality can be seen, bringing out enhanced emotional responses that fostered a deeper connection with art, but also gave an idea of the potential viability of such technologies in different application domains. This merging of the virtual embodiment methods has opened up new horizons in discerning audience interactivity and audience participation in contemporary art forms.

The journey was challenging, and overcoming these hurdles led to innovative approaches on how to implement virtual reality, especially on how to ensure that its implementation and artistic vision are framing a seamless user experience that feels as natural as possible within the limitations of current technologies. This project shows the resiliency and adaptability required to combine artistic creativity with an ever-changing landscape of media technology.



The effect of the installation was aptly shown by the numerous emotional and cognitive reactions of the audience. The difference in interpretation and reaction coming from the members of the audience showed how experiencing virtual embodiment can be very subjective, yet it underlined its effectiveness in being able to elicit empathy, change perception, and create reflection about humanity.

The results of this project extend beyond that of artistic expression, offering us invaluable inputs towards the discourse on embodied cognition and the phenomenology of perception. In a practical sense, these findings hold extremely significant implications for the use of virtual reality for a wide array of fields, all the way from brain sciences research and psychological therapy to educational tools, entertainment, and art forms, in that they seem to exhibit a broad spectrum of applications for the use of immersive technologies to expand the diversity of human experiences.

Though significant, our findings did bear some limitations. The scope of audience feedback, while perceptive and revealing of valuable experiential data, may not fully represent the nature of public reception as a whole. Moreover, though minor, technical constraints during the development of the project could have had an impact on the final experiential outcome. Furthermore, the direct involvement in the project design and its drafting helped gather valuable information, however, at the same time, it could have been subject to professional bias.

Referring to this formative work, further research could explore the implementation of virtual embodiment in a broader set of contexts, ranging from artistic productions to scientific and therapeutic settings or learning environments. This could lead to the diversification of the ever-growing palette of media technologies in future research endeavours so that a larger representative population from divergent demographic groups may gain a more comprehensive understanding of various topics and phenomena.

The paper and its main subject of study remain a pioneering effort within the virtual world and contemporary arts. It will advance our understanding of the potential of virtual embodiment as much as it opens a new pathway for artistic expression and audience engagement. As such, the further one delves into this intriguing meeting point between art, technology, information, and communication technologies, the potential for new finds and new practical applications seems limitless, offering a tantalising peek into a probable future, whereby such virtual embodiments may come to be an integral part of our cultural and experiential landscape.



## Appendices:

“Virtual Embodiment Creative Practice” is a follow up paper part of the “Another You” series. The first paper of the “Virtual Embodiment Phenomena” series is presenting the research revolving around cultural connections, embodied cognition, and the phenomenology of perception related to the main topic of the paper.

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