

# Combining Layers of Reality. Video Game Elements in Live Performance

Christophe Burgess

**Abstract** *In this text, the Swiss theatre director Christophe Burgess recounts his experience in the theatrical project that ultimately became the immersive performance entitled Brainwaves, led by the company RGB Project. It was presented for the first time on 6 November 2021 at the Théâtre les Halles in Sierre, Switzerland. Burgess discusses this interdisciplinary project, which explored artistic research and collaboration between artists and 3D designers. He deals with the question of directing, working with actresses and avatars, collaborating with multiple designers and the connection between performance and game. He also talks about the technological apparatus that enabled the nine spectators to wear VR headsets and immerse themselves in a virtual world that becomes the universe of the paraplegic protagonist, Ivy.*

Figure 1: Brainwaves (2021), direction: Christoph Burgess. Photo: Céline Ribordy



## The performance: *Brainwaves*

In 2021, I directed the immersive performance *Brainwaves* (Théâtre les Halles, Sierre, Switzerland), realized by RGB Project (the theatre company), with the collaboration of ZEROTERA (an interactive media and design Lab), Estelle Bridet (actress), Lisa Courvallet (actress), Lucy Meier (the stage designer), Ana Carina Romero (the costume designer), Djamel Cencio (the composer and sound designer), Cyprien Rausis (the stage control collaborator) and Izabella Pluta (the scientific expert).<sup>1</sup> Ivy, the only character in the performance, is suffering from *locked-in syndrome*<sup>2</sup>, and has spent most of her life unable to communicate except through her eyelids and eyes. She grew up in a body that didn't allow her to set her thoughts in motion, as if enclosed in a shell. In this performance, thanks to a neural interface that gives her access to a virtual body in a computer program, she experiments with a new way of being, beyond her bodily constraints. The spectators are invited to immerse themselves in Ivy's story and in this original artistic experience. The immersive performance combines live performance and virtual reality (VR). Seated in a circle, in the presence of actress playing the virtual character and equipped with a VR headset, the audience members have access to a previously unimagined world. In a staging that blends several layers of reality, they follow Ivy's virtually reincarnated journey through the twists and turns of her digitized life. *Brainwaves* evokes and reflects on our relationship to identity, the construction of our memories, and the spiritual symbolism that animates us.

## The origins of the project: VR, body/mind and interaction

The three of us are childhood friends who belong to a collective called the RGB Project, which is interested in creating immersive scenic realities. We are all active in different fields: I work in live performance and theatre, Michael Goodchild is more into contemporary art and the visual arts, and Emilien Rossier, whose back-

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1 The original, longer version of this text was published as: Christophe Burgess, 'Orchestrer une mise en scène d'un projet interdisciplinaire', In *Ici et ailleurs. Corps aux frontières du réel et du virtuel*, Cahier de création *Brainwaves*, edited by Izabella Pluta. Lausanne: Ed. Association Theatre in Progress, in print.

2 *Locked-in syndrome* 'consists of almost complete paralysis. Consciousness and cognitive function are not affected. People cannot express themselves with their face, cannot move, speak, or communicate on their own, but they can move their eyes up and down and blink'. <https://www.msmanuals.com/fr/accueil/troubles-du-cerveau,-de-la-moelle-%C3%A9pini%C3%A8re-et-des-nerfs/coma-et-%C3%A9tat-de-conscience-alt%C3%A9r%C3%A9e/syndrome-d-enfermement> [author's translation, accessed 29 July 2023].

ground is in music, works in the field of production. We wanted to do a project together.

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Emilien Rossier, producer:

Michael Goodchild and Christophe Burgess are very interested in video games, and this aspect has accelerated the creation of sets to support this kind of project. The trigger was a call for projects from Cinéforum, the Romandy foundation for the cinema, which supports cinema in French-speaking Switzerland. We saw this as an opportunity [...] [1]

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Our artistic common ground for this project was *immersion*. The question of how to completely immerse a spectator in a show was our first objective. Understanding what could be told by this means was our second objective. We wanted to explore the notion of immersion at every level: visual, aural, narrative, and physical. We spent two years looking for an idea we could develop together, and then we came across Gilles Jobin's performance *VR\_I*.<sup>3</sup> It is a dance performance in virtual reality where the audience wears VR headsets that locates their artificial bodies in a virtual world. That artistic work was the catalyst for us. We realised that virtual reality was the digital tool we wanted to use.

From a narrative point of view, we wanted to tell the story of what goes on in the mind of a person suffering from *locked-in syndrome*. *Brainwaves* was born of these two stimuli: the digital tool to be used and the topic to be explored. At the start of our research, the performance was about a person who was in a coma and our aim was for the audience to connect directly to this person's mind.

However, moral questions arose, such as whether you really have the right to enter someone's thoughts without their permission. In the end, we chose a person who was locked in their body for neurological reasons. Quite quickly, the notion of the relationship between body and mind came to the fore. I had read reviews of the French film *The Diving Bell and the Butterfly* (*Le scaphandre et le papillon*, Julien Schnabel, 2007), which made me want to read the book on which this film is based (Jean-Dominique Bauby, *Le scaphandre et le papillon*, 1997). In this autobiographical book, Jean-Dominique Bauby recounts his life before his stroke and his experience of *locked-in syndrome*, which confined him to a body that no longer responded to his mind.

With this performance, we really wanted to allow the audience to intervene directly in the narrative, as they do in video games. With video games, we're used to following the narrative thread while remaining active, because the story can only

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3 *VR\_I*, choreographic conception: Gilles Jobin, technological realisation: Artanim, premiered: 2017.

move forward if you activate the controller. I think it's important not to always be a passive spectator... and that goes for everyday life too.

## Ivy, the character

*Figure 2: Brainwaves (2021), direction: Christophe Burgess, Estelle Bridet as Ivy. Photo: Céline Ribordy*



Ivy, the character of the play, appears to the audience in form of an avatar in virtual space that they perceive through VR headsets. Physically, we didn't want her to look like a human, but rather to have the appearance of a humanoid. We didn't want to portray a realistic world, so we didn't want Ivy to have a realistic female appearance. This was primarily for aesthetic reasons. I find that representing existing worlds is too difficult to achieve and, as a result, it's rarely successful; virtual reality simply doesn't yet allow us to do that. So, I wanted to go for something more poetic. At the start, we imagined Ivy to be smaller because she had remained paralysed in a child's body. Over time, she obviously grew up and became a teenager, but she grew up lying in a bed or sitting, so her notion of the body was different. She doesn't necessarily have a woman's body. But in the end, Ana Carina Romero, the costume designer who drew the first avatars, imagined her directly as a woman, and that worked too.

## Working with the two actresses who played or controlled the avatar

In April 2021, I gave the first version of the script to the actress Estelle Bridet and to Michael Goodchild, who augmented it with texts from Ivy's childhood diaries, from her stays in hospital and at MOTUM, the fictional medical centre that looks after patients suffering from *locked-in syndrome*. Quite quickly, I invited Lisa Courvallet, the second actress, to take part in the project and take on the role of Ivy.<sup>4</sup> Lisa was very fond of video games but had never really studied the question of virtual reality on stage. The immersive performance was then played by either Lisa or Estelle, alternating in the role, which was also important because of the physical effort required of the actresses. We then started work on the stage, that was a playing area defined in the Lab at the Théâtre les Halles in Sierre. I started directing the actresses without a virtual reality headset, so that we could be perfectly clear with each other and then defuse any VR-related concerns that might arise.

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Estelle Bridet, actress:

Lisa and I watched videos of people who really have this illness. For example, to find out what kind of faces they have. At one point, I leave the cocoon that provides the character with the cables and other connections they need to survive, and I transform into an actress. I wear a device consisting of a bicycle helmet and an iPhone, which captures my facial movements, and I stand in the middle of the circle formed by the spectators. After that, it's my real movements that animate the avatar. [2]

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At first, the actresses had some trouble understanding what I was getting at, because they didn't have any images or visual feedback, which gradually came later. I initially had to make them imagine what the virtual setting looked like, as there was nothing to show them yet. At first, we worked on the scenes set in the rather simple places that I called 'non-places', which are fairly neutral virtual environments. This meant they could focus on their interpretation without having to also take the virtual aspects into account. This was the first step into performing in VR for them. During these rehearsals, the actresses could observe each other. Seeing the other performer using the VR headset made it much easier to understand and imagine the virtual space. The play thus took shape on the physical space, but it wasn't until the entire virtual setting was ready that the performance really took off, because the actresses could see where they were placed and understood the relations between the virtual and the physical space.

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4 We had already collaborated on my project *Homo Solaris*, a performance conceived in 2019 and presented at les Teintureries drama school in Lausanne (Switzerland).

The next step was to be able to have the actresses perform in the physical world as if they were performing within the virtual world so that there was no glitch in the audience's perception of their virtual presence. They had to share the same environment as the audience. I was lucky to have two actresses because each had a different way of interpreting the character. As each actress had their particular way of interpreting the role, I tried to work with them in a way that encouraged their intuitions. This meant there were effectively two different Ivys for the play. I directed Estelle first, then Lisa took over and brought in new elements which Estelle then took over. It was collective work of a circular nature. Knowing what acting to apply to the virtual avatar was a real challenge, because it's still a rare experience in the theatre.<sup>5</sup> Nobody talks about acting methods for a virtual character in a live performance.<sup>6</sup>

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Basil Denereaz (ZEROTERA), avatar designer:

[...] The avatar is the central element of the performance, as the spectators will see it virtually from start to finish, and it's the element to which we, the 3D designers, have paid most attention. Apart from the back-and-forth between the different members of the design team, we had to be logical about using the right connection techniques. These were necessary to avoid any of the production stages failing, since everything is interconnected by a series of closely linked software programs, the result of which is the final avatar. A lot of knowledge and techniques from cinema and video games were used to create this avatar, and a great deal of research went into bringing it to life. Our immersive performance uses a lot of live motion capture, based on sensors in the suit that the actress is wearing. [...] We, the 3D design team, were responsible for the whole complex technical set-up. The big challenge for us was to ensure that the avatar of Ivy didn't 'slide' sideways (her body isn't straight) and always remained right at the centre of the stage. [3]

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## The avatar and the technical challenges of motion capture

There are obviously some acting methods suitable for motion capture for cinema, but it's not quite the same thing for theatre. Cinema isn't live action, and the body isn't always present in its entirety. In the end, our intuition led us to look for inspiration in masks and the puppet theatre. The mask is an important reference to the *commedia dell'arte* where several characters wear this theatrical prop. It is about very physical theatre in which the main focus of expression is shifted to the actor's body. In addition, the relationship between puppet and puppeteer due to manipulation

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5 Research on this subject has been carried out by Georges Gagneré and Cédric Plessiet at the University of Paris 8 since around 2014 [editor's note].

6 A few experimental projects have been carried out: For instance, the *Masque and avatar* project (2015–2017) at the University of Paris 8, and *Actor and avatar* (2016–2020) at the Zurich University of the Arts [editors' note].

through strings is the same as between the actresses and the avatar they bring to life.

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Paul Léon (ZEROTERA), 3D designer:

These days, VR headsets, are getting cheaper and the one we chose was quite affordable. What's special about it is that it can be used as a stand-alone technology, meaning that it doesn't need to be connected to a computer on which the video game or other application is running, as did most of the old headsets, such as Oculus Rift or HTC Vive. Above all, this gave us flexibility, as we only had to plug in one cable. Most VR headsets have three or four inputs, which can be quite heavy on the head and so on. Ours was light enough for a play that lasted about thirty minutes, and that was a factor we had to consider as well, apart from the price. We thought of the video headset used in the Quest 2 video game, which requires hand tracking. It is equipped with small cameras that track space. The condition we were looking for was that the VR headset should be as autonomous as possible and as accessible as possible to the public. [4]

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At first, we separated work with the actress's face from work with her body. Spectators don't see Ivy's face in much detail – only when the avatar is very close. This is a simple matter of pixels: close up, the resolution is rather poor, and you can only make out broad details, such as whether the avatar is speaking. We therefore worked mainly on the body rather than the face. However, sometimes the body alone wasn't enough. For example, at one point, Ivy laughs at her own joke, but her giggle wasn't enough, she also had to move her head a little, and that was a problem. One could say that there's a cartoon-like relationship to the body, due to the exaggerations. The actresses had to be able to balance the exaggerations so that the viewer continues to believe in them.

Not every technology we used was originally intended for live performance purposes, especially the VR system, so we had to do a bit of DIY. The use of Oculus Rift VR headsets is more familiar now, so we integrated features from that system into the VR headset technology that we were applying. We used *rococo* motion capture suits that the actress wears, to which we added an extra sensor from Vive, another type of VR headset.

The motion capture was recorded at the Lausanne Cantonal School of Art (Ecole Cantonale d'Arts de Lausanne), and the rest of the work was done at the Théâtre Les Halles in Sierre, during the rehearsal period.

## Unifying performing arts, game culture, and digital technology

Within the *Brainwaves* team, I am the theatre director who manages the interdisciplinary high-tech project. My role goes beyond the classic skills of directing. I see myself as an orchestra conductor because I had to combine the music with the colours of the image and the acting to give the impression of unity. I'm happy to have been able to forge a link between my lifelong love of video games and the performing arts. There's a whole generation of us who have these two passions and manage to bridge the gap between the two.

However, I trained as a traditional actor at les Teintureries drama school (Ecole supérieure de théâtre – les Teintureries). The basic curriculum focused on questions like how to work with classical texts or how to pronounce Molière or Shakespeare. But as well as the more 'classical classes', there were also all sorts of other courses on offer, including improvisation and the use of video by people with an interest in film and new technologies. There are more and more artists who are attracted by this hybrid aesthetic, such as the British pioneers Blast Theory, machina eX (Germany), Extralaben (Switzerland), and Madame Lupin (France).

Working with ZEROTERA was a great experience. We gradually realised that the group of people we had brought together was very diverse and had a range of very different backgrounds: I spoke to them in my theatre language, they spoke to me in their computer language. We didn't have the same concerns. In spite of everything, we realised that there were a lot of things we could do together, and we developed a certain *modus operandi*. Overall, *Brainwaves* functioned as a kind of visit card for our company. We had little money and little time, but we still managed to achieve what we wanted.

## The use of sound in the performance

I wanted to create an entire world of sound for *Brainwaves*. I invited Djamel Cencio, who creates ambient music and whose work I've always appreciated. I'd talk to him about a scene, tell him what I wanted it to feel like and explain the broad outlines, then he'd compose something, show it to me and I would give him new directions. That's how we worked for the entire play in terms of music. As I'm not a musician, my wishes concerned colours, feelings and form. He would then write appropriate melodies and the results were always perfect. He often came up with things that I hadn't thought of, but which worked well. He really brings something extra to the performance with his music, and we realised that it did fifty per cent of the work. What's more, he created the environment for the sound effects. Sometimes they go unnoticed, but it still affects our perception.

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Djamel Cencio, composer and sound designer:

For a while, I was concentrating on the sound design and the technical problems, and even the installation of the system, which is complicated. The control room was complex, with the triggering of the sounds, because every time Ivy made a move, a technician had to press the button to generate the sounds. There were a lot of technical things to sort out. For the sound design I worked with ZEROTERA who triggered the visuals. Another technician, Cyprien [Rausis], was the sound manager. He had a screen in front of him and was able to get a visual on the actress to trigger the sounds at the right moments so that they could be sent to all the headsets. [5]

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Sounds are omnipresent, except for one moment when Ivy speaks. Sometimes the music is used to cover up the noise Ivy makes when she comes out of the cocoon, so that the audience hears nothing of it and their immersion is maintained.

Sometimes it helps to explain things. It adds an atmosphere that you don't necessarily hear, but which you sense, and which puts you in a different state. It can also be used to dress up the image and make it much more realistic.

## The role of the audience

The big surprise during the *Brainwaves* presentations was the reaction of the audience. I didn't think that both a child and an elderly person could enjoy our performance. The younger generations are used to using these digital tools and have no problem with virtual worlds, but there are people who are more resistant and who denigrate video games. I grew up with adults who thought video games were destructive. I looked at the figures in terms of revenue in billions worldwide in 2020; cinema made 12 billion, music 20 billion and video games 175 billion, which is six times more than the other two media combined. We are often told that theatre is the mirror of society. Today, society is evolving and becoming technological. That's why it's important to take these digital tools, to engage with them, and thus to take an interest in the people whose world they belong to and who aren't used to coming to the theatre. It was quite wonderful to see families coming to the show, which brings generations and interests together. I didn't think it would be so intergenerational.

Figure 3: *Brainwaves* (2021), direction: Christophe Burgess. Photo: Céline Ribordy



In the first version of *Brainwaves*, we wanted to allow the audience to see their virtual hands in the virtual world. People were supposed to physically participate at the end of the story. Unfortunately, for technical reasons, this proved impossible. It was very frustrating at the time. However, we intend to remedy this frustration regarding interaction during our next play, *Les enfants du Rhône*. We also want to move towards the use of artificial intelligence as an interactive tool. We are still working on this project, which will take place in the Théâtre Les Halles, Sierre in 2025.

## Quotations

- [1] Izabella Pluta, 'Plus loin que le rêve... Entretien avec Michael Goodchild et Emilien Rossier', In *Ici et ailleurs. Corps aux frontières du réel et du virtuel*, Cahiers de création *Brainwaves*, edited by Izabella Pluta. Lausanne: Association Theatre in Progress, in print.
- [2] Doris Naclerio et Anne-Sophie Zuber, 'Jeu d'acteur et performance du double virtuel. Découvertes et contraintes. Entretien réalisé avec Estelle Bridet et Lisa

- Courvallet', In *Ici et ailleurs. Corps aux frontières du réel et du virtuel*, Cahier de création *Brainwaves*, edited by Izabella Pluta. Lausanne : Association Theatre in Progress, in print.
- [3] Basil Denereaz (ZEROTERA), 'Avatar, enjeux de conception', In *Ici et ailleurs. Corps aux frontières du réel et du virtuel*, Cahier de création *Brainwaves*, edited by Izabella Pluta. Lausanne: Association Theatre in Progress, in print.
- [4] Léonard Guyot, Evan Kelly, Paul Léon, Kylan Luginbühl, Valerio Meschi et Yaël Sidler (ZEROTERA), 'Corps actoriel à l'épreuve du design 3D. Entretien réalisé par Izabella Pluta', In *Ici et ailleurs. Corps aux frontières du réel et du virtuel*, Cahier de création *Brainwaves*, edited by Izabella Pluta. Lausanne: Association Theatre in Progress, in print.
- [5] Djamel Cencio, 'Personnage et univers sonore : intrications', In *Ici et ailleurs. Corps aux frontières du réel et du virtuel*, Cahier de création *Brainwaves*, edited by Izabella Pluta. Lausanne: Association Theatre in Progress, in print.

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- Pluta, Izabella (ed.). 2024. *Ici et ailleurs. Corps aux frontières du réel et du virtuel*, Cahiers de Création *Brainwaves*, Lausanne: Ed. Association Theatre in Progress, in print.
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## Biography

Originally from the Valais region of Switzerland, **Christophe Burgess** graduated from les Teintureries drama school in Lausanne (Switzerland) in 2019. He is currently working on immersive theatrical forms and/or those incorporating new technologies. In 2021, he obtained Certificates of Advanced Studies in theatrical animation and mediation at La Manufacture (Switzerland). In autumn 2023, he co-organised the third edition of meetings of emerging artists from the Valais *FAIS COMME CHEZ TOI – les rencontres des artistes émergent.e.s valaisan.ne.s*, at the theatre hub SPOT in Sion (Switzerland). At the end of 2024, he will finish a Master of Arts in Public Spheres at the School of Design and College of Art (EDHEA) in Sierre.