BRIDGING THE BLUE

Lubna Gem Arielle

Introduction

Bridging the Blue is an interactive virtual reality (VR) experience utilising technology to access empathy and interrogate the effectiveness of different modes of listening when attempting to be supportive of friends, family, or colleagues with a mental health challenge and offers subjective playback and validation to those who have been unwell. The viewer is invited into Arielle's lived experience of severe clinical depression via an encounter with her, the artist, as a vologram (volumetric video captured from the real world) in a virtual world constructed from personal iconography derived from sensations, memories, and perceptions of being unwell.

Technology is intertwined with the human experience as the viewer's agency is restricted to moving between and witnessing different parts of the story without having any effect on the outcome. The virtual experience acts as a device to access and expose the mental and emotional space of lived experience of a human condition, and the work seeks to harness the 'novelty-factor' of VR in an attempt to change the quality of our attention in evaluating how we listen in conversations about mental health. Through this symbiosis, *Bridging the Blue* relates to the curatorial theme, 'The Expression of Emotion in Humans and Technology.'

The work challenges interactive storytelling norms where a viewer might influence the outcome of the narrative or progress through different levels as in a game. *Bridging the Blue* is positioned as an artistic work sharing lived experience mediated by technology to raise mental health awareness, normalise conversations about mental health, access empathy, and evaluate effective modes of listening.

The work was made in collaboration with computer science research group, V-SENSE at Trinity College Dublin, leaders in the field of visual computing including volumetric video (VV) enabling '6 degrees of freedom' (6DoF) where viewers are able to walk within the virtual environment. V-SENSE produced the VV or 'vologram' of the artist and recreated her personal iconography in the virtual world in *Bridging the Blue* using the Unity game engine and computer graphics elements within an open dialogic environment exposing technological limitations and possibilities which further informed creative choices. Through this collaboration and other 'creative experiments',

Figure 1. The Wasteland

V-SENSE evaluate and further develop their technologies in the context of a creative project.

This paper reflects the artist's enquiry and reflections on her practice. The technological journey is documented in Appendix 1.

Steering Through Stigma

The artist's journey of mental ill-health includes losing two close friends to suicide as well as her own experience of what is colloquially known as a mental breakdown. The artist did not confide in others about the challenges to her mental health at the time because of the shame in being unable to cope. Subsequently, Arielle reflected on whether speaking up would have prevented her deterioration in the first place and in the case of her friends, may have prevented their deaths. In an attempt to contribute to overcoming the endemic stigma that underpins silence, normalise conversations about mental health, and invite consideration of the value of empathy, the artist started to publicly share her lived experience within corporate mental health awareness sessions including details of what she experienced as empathy gap in misplaced albeit well-intended advice. Lived experience is seen as having value within a mental health arena (Pollard, 2018) and Mcintosh & Wright (2019) consider the value of lived experience in more depth including its relationship with phenomenological reflection albeit within the context of social policy.

A Synergy Between Technology and the Human Experience

While unwell, the artist predominately encountered 'listening to' or 'problem-solving listening' (Goulston & Ullmen, 2013), a mode of listening where the listener is quick to give unsolicited advice or offer solutions in an attempt to move forward and have a sense of accomplishment. The effects of this on the artist are addressed in *Bridging the Blue*. Mental Health First Aid, an organisation which trains individuals in first line responses to someone experiencing a mental health issues or crisis (parallel to the role of a physical first aider) emphasises the need for non-judgemental listening in assisting others. Goulston & Ullmen refer to this as 'listening into' or 'connective listening' where the aim is to understand, enabling others to feel seen and validated.

We might generalise the norm of interactive digital storytelling as being primarily focused on advancing a narrative and/or being situated within the world of gaming, where gamers 'play' and solve to advance through a game. Here, the technology has been harnessed as a device to catalyse shifts, prompting the viewer to evaluate and recalibrate modes of listening in the context of mental health. This hinges on three aspects. First, dramaturgically through contracted agency where 'press play' merely shifts the viewer between episodic encounters without any hierarchy or levels of advancement, nor any linear progression through the narrative. Second, technologically, the use of VV and 6DoF advances from VR experiences where a viewer might only move their head choosing where to look to one which is fully immersive, enabling the viewer to move inside the work. This embodiment leads to an experiential encounter with the artist and is pivotal to the transformative intentions of the work. Third, the work explores the inherent potential of the novelty-factor of pioneering technology to change the quality of attention in line with notions of defamiliarization or 'making strange' characterised by Shklovsky (1917) and discussed further below.

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Contracted Agency

Controlled choices equate to 'rules of the game' commencing on an island surrounded by artefacts which may be selected in any order to enter one of seven immersive episodes with freedom to move around, choose one's relative position to the *vologram* of the artist, where and whether to look and listen, and even walk through her. However, this active and embodied encounter is one of contracted agency where the viewer/player is unable to influence or advance the narrative as their interaction with the 'character' is limited to listening, inadvertently modelling responses more consistent with empathy, support, and validation in the context of non-professional conversations about mental health where the natural tendency is often to attempt to offer solutions or advice without having the requisite professional expertise. Listening is generally held as a best practice within conversations about mental health by organisations including Mental Health First Aid in the UK, US and Australia as well as UK-based Samaritans and MIND.

Figure 2. The Island

The viewer can exit an episode at any time to return to the island and choose another. There is no prescribed order to the episodes, any episode may be repeated and there is no progression through levels or accumulation of points as a reward for advancement. This technology-enabled non-linear narrative, fragmentation and repetition offer the viewer insight into the distortions of time and memory of Arielle's lived experience.

Embodiment

Held & Hein's experiments in the 60's demonstrate how active immersion as opposed to passive observation enables a neurological basis for changes in perception (Held & Hein, 1963) and the 6DoF experienced in *Bridging the Blue* allows for such immersion where the viewer is with the *vologram* of the artist, not merely viewing her. Goleman (2013) identifies links between proximity, for example, directly speaking with others as opposed to hearing about their experiences second-hand, and the arousal of empathy. Here, the technology allows an embodied encounter with the artist in her physical absence.

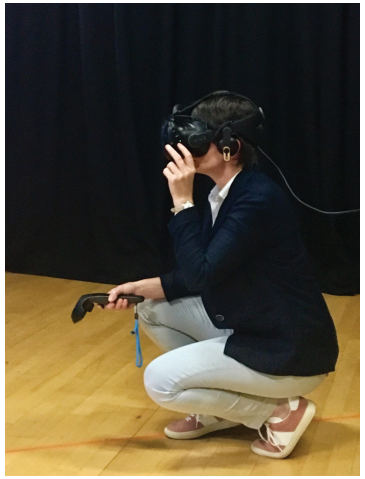
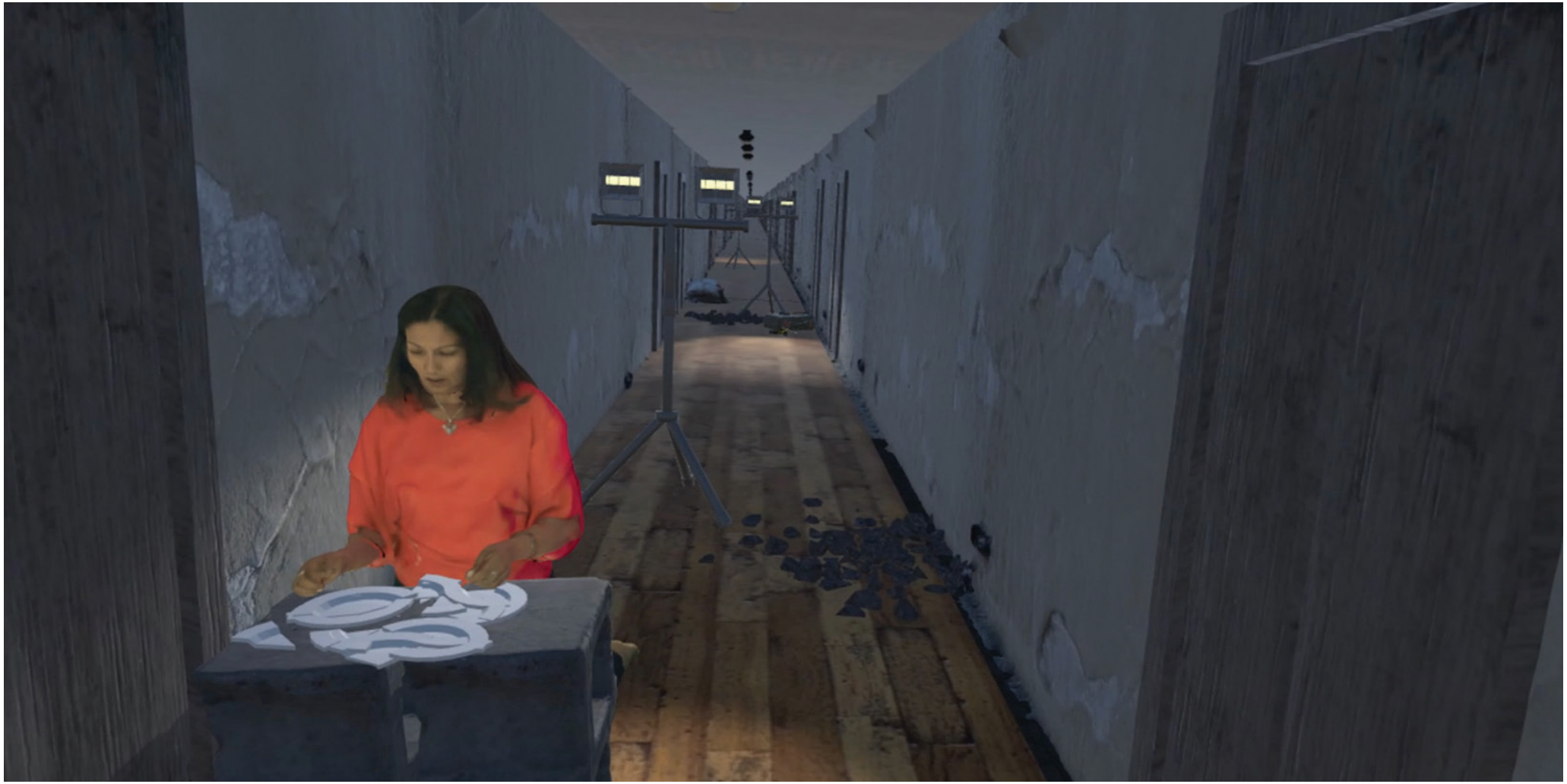


Figure 3. Untitled - (viewer kneeling)



Making Strange

Shklovsky notices how perception becomes automatic once it is habitual and considers the value of defamiliarization in promoting perception and attentiveness:

> *Art exists that one may recover the sensation of life; it exists to make one feel things, to make the stone,* ***stony.***

The pioneering technology breaks through the fifth wall to enable a perceptual journey into the artist's mind through images, music, speech, words, sound effects combined with the ability to move within the terrain, and even to walk through the artist, elements which are not available in the real world. Through this defamiliarization or 'making strange' *Bridging the Blue* attempts to jolt and enhance the quality of attention to mediate the gap in empathy experienced in default modes of listening.

Human Segues into the Technological Process

The underlying narrative of the technological process of creating a *vologram* offered a catharsis. For Arielle, the breakdown of recorded footage into streams of data, run through an algorithm to produce a mesh-only rendition to which texture was then added ran parallel to the human experience of coming apart, being reassembled by a formula of kairos/non-linear time and pharmaceuticals, and finally reactivating life (socialising, picking up interests, taking care of appearance) through a process of counselling. Each involved reconstruction albeit on different timelines and realities.

Figure 4. Mesh-Only

Iconography in a Virtual World

The physical world in which the artist spent almost a year was a small bed in the corner of a spare bedroom at her parents' house, but the real world was the inner workings of a mind that ricocheted through sensations, feelings, thoughts appearing in gridlock, emptiness, and everything in-between. In translating this mental and emotional space of lived experience into an immersive world, *Bridging the Blue* uses an iconography derived from images that were seen or perceived. This was handed over to the V-SENSE team in a storyboard with a mixture of photos, video footage, references and descriptions to build the scenography in Unity. The iconography is incorporated into three environments (The Island – *Figure 2.*, The Wasteland – *Figure 1.* and the Endless Corridor / Building Site – *Figure 6. pages 19-20*) and a number of artefacts. Through use of the VR handset these trigger the viewer's movement from the 'home' environment and into one of the other two environments in which the seven scenes take place.

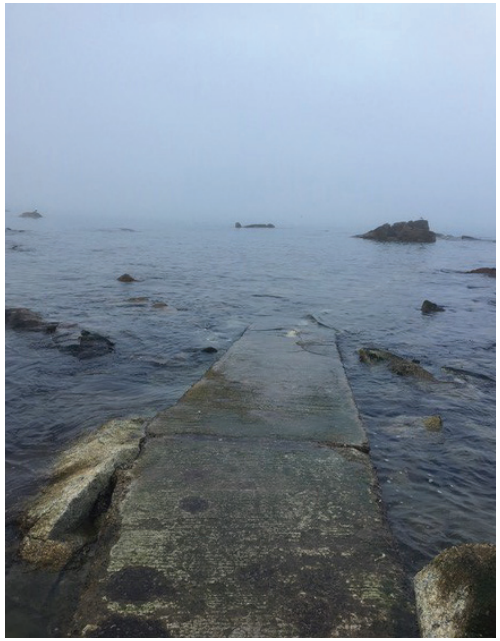


Figure 5. The Path at Sandycove

The viewer's journey begins in the opening environment, an island based on a path that leads into the sea at Sandycove, Dublin Bay, a perfect place to walk into the sea the artist came upon without a wish to do so. The island, though relatively safe, also represents the isolation of mental illness in a world where stigma and silence still prevail and the risk of breaking the silence is the further isolation of feeling invalidated or even belittled by less effective modes of listening. Arielle compares this to a snapped off promontory as in 17th century poet John Donne's *'No man is an island,'* which acknowledges the need for human connection and co-existence. *Bridging the Blue* seeks to reconnect with Donne's mainland.

The broken plate is a leitmotif as a triggering artefact on 'the island,' comprising the ground in 'the wasteland' and within three scenes of a virtual triptych in 'the endless corridor/building site' where plates are held until they fall, and an attempt is made to piece a plate together and then a piece of plate is used as a receptacle for eating macaroni cheese. 'China plate' or 'china' is cockney rhyming slang for 'mate' as in friend. Conversations about mental health and attempts to bridge the blue are generally intended to be helpful, but stock advice can hurt. At times, as they can seem so difficult, they may be avoided altogether. The plates also refer to the quality and depth of conversations over the dinner table, our presence, what we are able to notice, and at times, who is absent.

Other symbols used as triggering artefacts are macaroni cheese, a pool of blood, a tornado of building dust and anti-depressant pills, a red butterfly, a raven with a piece of toast, and a matchstick.

Each of the episodes takes place in one of two environments. Either a sparse wasteland, referencing the breakdown of self, society, and planet in Elliot's *The Waste Land* (1922), and consisting of a ground of broken china and a blue sky-like void. Four of the episodes take place here with different shades of blue representing the sky at different times of day, the passage of time, and the turning of the wheel of life even when one is at a loss. The second environment is redolent of a common

nightmare with an endless corridor and doors that can't open, said to represent the desire to escape a repetitive situation, in the artist's case an ongoing urban nightmare of problem neighbours and their building works. Three episodes are set here, a virtual triptych of breaking, trying, and accepting. Each of these environments also contain the shadow of a rose. As with Saint-Exupery's Little Prince and his longing for home and to be with his rose, this reminder of what might be real is the trigger to return to the island where the rose itself is located. The relationship between shadow and rose also resolved the quandary discussed in the collaboration of finding a human-centric and intuitive device to enable viewers to move between episodes.

vIn a sense, Arielle's rose was a barometer of the artist's mental health, an unnaturally tall rose she could see in her mother's garden from the bedroom window. The rose withstood heavy rain and strong winds while the artist was indoors without resolve. When she was finally well enough to leave, the rose had been cut back for the winter. Arielle comments that although she hadn't seen hope at the time, perhaps the rose had contained it, a variation of Dorian Gray's aging portrait.

Music

The soundscape includes commissioned music composed by Evangelia Rigaki in response to the notion of disjointed, constricted thinking space. She combines repetition with variation to evoke the sense of unease in grasping for the familiar in something that shifts.

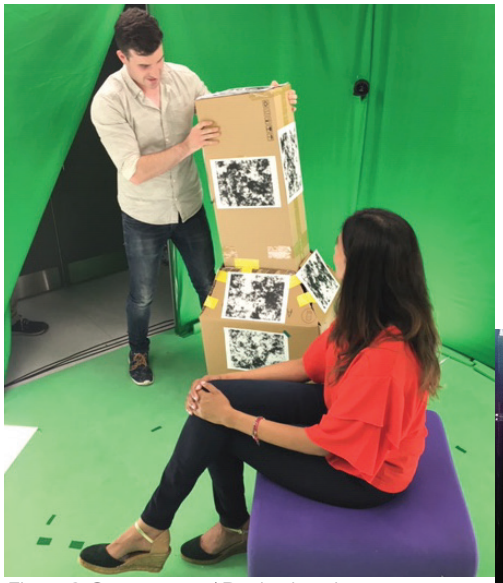


Figure 8. Greenscreen / Production shot

Responses To The Work

The work was made available to the public at Open Quarter, Folkestone, Kent, UK (June 2019) and evaluative feedback obtained from 29 individuals requesting general reflections on the work and how the work had changed the way they would interact with someone who has depression or is mentally unwell. Comments reflected connection, the evocation of empathy, and technology's role in doing so. One viewer comments on 'taking steps towards the experience' and in observing how people engaged with the work, many of them stood very close to the *vologram* or knelt down at eye level in the seated scenes. Another referred to, 'Something about really immersing yourself and being in a very unfamiliar and unique 'space' opens you up differently.'

Most viewers noted in some way that they would 'just listen' if attempting to support someone who was unwell. Those who had been ill themselves commented on the connection they felt with the experience.

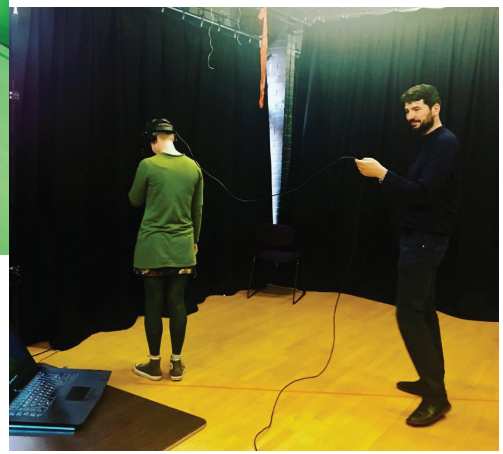


Figure 9. Folkestone

Conclusion

Bridging the Blue is an attempt to harness technology as an enabler of empathy through using its qualities and possibilities to challenge how we listen. Feedback to date suggests that Bridging the Blue offers an evaluative space for listening and the potential to consider empathic listening through an innovative and immersive experience. In particular, making use of novel technology and the attributes allowing for the viewer's experienced and embodied encounter with the work, limited agency and 'making strange' to offer effective ways of listening, and making it safer for those who are struggling to end their silence and reduce the stigma around negative mental health.

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Appendix 1
The Technological Journey

Aljosa Smolic

Volumetric video (VV) is an emergent digital media that enables novel forms of interaction and immersion within virtual worlds. VV allows 3D representation of real-world scenes and objects to be visualized from any viewpoint or viewing direction; an interaction paradigm that is commonly seen in computer games. Based on this innovative media format, it is possible to design new forms of immersive and interactive experiences that can be visualized via head-mounted displays (HMDs) in virtual reality (VR) or augmented reality (AR) i.e. a visualization including real and virtual elements. Within certain limits, users can freely and naturally move around the VV and not just look around by rotating the head from a fixed position. While the first method is more natural and often referred to as "6 degrees of freedom" (6DoF), the latter is restrictive and called "3 degrees of freedom" (3DoF). As such, VV enables novel formats of creative storytelling, which are immersive, interactive, support full 6DoF, and include real-world content, as opposed to containing only synthetic computer graphics content. *Bridging the Blue* is a pioneering example of new VV storytelling.

For the generation of a VV, live performances are captured with multiple synchronized cameras in a dome-type setting that surrounds the performer, typically in a green screen studio to allow for the separation of the performer from the background (chroma-keying). Several specific studios for VV content creation exist worldwide, many are expensive, professional setups that include a large number of cameras (64,100 or more) and other types of sensors (depth). The studio in the V-SENSE laboratory is a more affordable setup utilizing 12 synchronized cameras (4k and HD resolution) that are distributed around a space of sixteen square meters, completely enclosed by green screens (sides, floor, ceiling), including monitoring and recording equipment, LED lights, and audio recording equipment.

The capturing workflow for VV is different from classical film or TV production, due to the specific conditions of surround capture with multiple cameras. In the V-SENSE studio, V-SENSE starts by synchronizing the capture with all 12 cameras running while the performer is not yet inside the studio. Then, V-SENSE captures specific calibration patterns and color charts, which allow V-SENSE to accurately calibrate the multiview setup in post-production. The studio is then cleared and the talent enters the green screen capture space alone. In such a capture setup there is no "behind the scene" as the crew is located outside of the green screen space and can only follow the performance via monitors. Likewise, the performer does not have a line of sight on the crew or director. Shooting is systematically performed take after take without stopping the cameras and a review of takes is not possible due to the practical limitations of the capture process. In between takes, interaction is only possible with the director and crew through the green screen. Shooting continues until the storage of cameras is full (around 30 min) or the team is satisfied with the captures. However, there remains some risk that something may have gone wrong, and reshooting is sometimes necessary. Typically, VV scenes are restricted to a length of 30 seconds to 5 minutes, due to storage and processing limitations.

Postproduction starts by loading all videos to a workstation server. The best take is selected for further processing, including color correction (as multiple cameras can vary in color balance), geometric calibration, and keying (separation of the performer from the background), which are particularly interactive and time-consuming tasks. Only then can the core VV creation process start. Here V-SENSE applies patent-pending technology [Ref1], currently being commercialized by a spin-out company Volograms [Ref2]. The process is computationally expensive and currently requires a skilled operator to fine-tune parameters and correct errors. The result is a VV asset, a dynamic 3D representation of a human performance that can be visualized with 6DoF.

For visualization in VR or AR across various platforms a scene is built using the Unity game engine. The Unity scene defines the scenography of the experience and is typically composed of one or more VV assets, computer graphics elements, and static real-world objects that are often generated by photogrammetry (i.e. generation of 3D geometry from multiple 2D images as input). Different scenes can be designed and combined into a narrative. Interaction, navigation, etc. are all designed using common game engine functionalities. The same VV assets may be used in different versions of the content, such as VR and AR HMDs or a hand-held device. V-SENSE has developed several such 6DoF experiences, including a VR and an AR version of Samuel Beckett's Play, a cultural heritage experience of meeting Jonathan Swift in the Old Library of Trinity College Dublin, and others. Each creative experiment with VV was unique and experimental, allowing V-SENSE to develop pioneering technology, production workflows, storytelling, scenography, and art all at the same time.

Bridging the Blue posed specific novel challenges for implementing the ideas of the artist which had not previously been encountered. This included the usage of props, sitting positions, and furniture. Most contemporary VV creation technology is optimized for standing human performances. Therefore, the capture workflow and postprocessing had to be modified and extended accordingly. Firstly, V-SENSE adapted their VV creation algorithms to work with sitting poses. Secondly, chairs and tables were covered with green fabric to eliminate problems caused by occlusions, which were difficult to handle. This way the artist could interact with them, while V-SENSE were able to remove them in post-production and replace them with computer graphics elements. Thirdly, the use of props turned out to be difficult for our algorithms; however, one solution was to mime prop use when filming and adding computer animation in post-production (crashing plates, eating macaroni cheese, and the plate puzzle). Having completed all 7 VV assets, the experience was implemented as a Unity project via 8 scenes, with the island acting as a central portal from which the seven episodes could be visited. This was done following the direction of the artist in an iterative process that challenged both sides and needed some compromises to be made. Navigation was realized via interactive elements, such as the seven island symbols and the shadow of the rose. Environments, objects, elements, props, and animations were designed according to the creative direction. Finally, audio tracks were added including the speech performance for each episode, the music, as well as sound effects for the island.

Appendix 1 has been authored by Aljosa Smolic and emanated from research conducted with the financial support of Science Foundation Ireland (SFI) under the Grant Number 15/RP/2776.

[Ref1] Pagés, Rafael; Amplianitis, Konstantinos; Monaghan, David; Ondrej, Jan; Smolic, Aljosa, "Affordable Content Creation for Free-Viewpoint Video and VR/AR Applications", Journal of Visual Communication and Image Representation, Volume 53, pp. 192-201, 2018.

[Ref2] https://volograms.com
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Credits:

Creative Director/Artist: Lubna Gem Arielle

Written & Narrated by: Lubna Gem Arielle

Production & Design: V-SENSE team – Matthew Moynihan, Iman Zolanvari, Rogerio Da Silva, Alan Cummins

Music: Evangelia Rigaki, Usher Associate Professor, Trinity Department of
Music performed by: parabasis (Percussion: Richard O'Donnell, Cello: Martin Johnson)

Music recorded by: Conall O'Maolan

Scenography: Neill O'Dwyer, V-SENSE & Trinity Department of Drama

Producer: Aljosa Smolic, SFI Research Professor of Creative Technologies