

DISPLACESTUDIO

replica





Photography by Julian Hughes





# REPLICA

## Synopsis

Replica is an emotive Mixed Reality performance which uses immersive technology to display a virtual dancer who interacts with, and occupies the same space as a live performer - allowing her to duet with a digital double.

This unique production combines live dance, XR and Volumetric Capture. The virtual dancer is viewed through a VR headset which the audience participant wears during the experience.

In this 10-minute performance audiences discover how it feels when real and virtual performers interact in real-time, and are prompted to consider key human issues around digital doubles, presence, and ownership of their body/image - exploring how we present ourselves and connect with each other in a world of growing digitisation.

Will technology allow us to transcend our bodies across space & time, or will we become disembodied?

## Playthrough

The audience member (AM) arrives at a room with a table lit from above.

A real performer (RP) is sat, slumped. The AM wears a VR headset and sits opposite.

Through the headset they see a second virtual performer (VP) who occupies real space, the RP and room (using Passthrough). Music begins to build.

The RP and the VP sit up and move their torsos and arms - merging and splitting. They perform a slow, standing duet, circling the AM. Their bodies overlap and intertwine.

The music intensifies, and they spiral the AM, chasing and competing with each other. At points the VP is frozen, creating a ring of freeze-frames around the AM.

The RP becomes frantic and exhausted - collapsing back at the table. The VP joins her and sits slumped.

The RP moves away stepping into each freeze-frame as they dissolve one by one.

She returns to the table, the VP dissolves, and she extends her hands for the AM to take.

The headset is removed and the AM leaves.

## Audience Quotes

"I wish I could have experienced it many times - I found it utterly compelling."

"Connection was very powerful and overwhelming."

"neither live nor digital, but a wonderful commingling of bodies, textures and qualities."

"made me question who was real at a perceptual level"

## Production Background

Replica began as a concept we explored during a residency at The Virtual and Immersive Production Studio at the University of Nottingham. We developed some short tech demos using the Varjo VR headset, a 10 camera Microsoft Azure Kinect rig, and Depthkit software, which captured a performer as a three dimensional object which could be seen from any angle.

After gaining £15,000 funding from The Space, by collaborating with executive producer Lee Nicholls from Nearnow, we were able to progress the project further.

Replica had inherit challenges from the beginning - involving the choreography, capture, synchronisation, and movement of a virtual dancer around a stage shared with a real dancer and an audience member.

Ben Neal developed standalone software using Unity to playback a series of Depthkit clips on a Meta Quest 3 VR headset. As well as the virtual content, the real room can be seen by using "pass through". The configuration of the space requires that a virtual table and chairs be spatially anchored to a real set. Furthermore the real furniture occludes the virtual performer - strengthening the illusion that they occupy the space on the other side of the table (as the real table appears over their legs). Although most of Replica is viewed from a center point, it is possible to examine the virtual dancer from any angle and the VR headset is untethered and lightweight.

Synchronisation between the dancers was achieved using spatial markers, sound cues and lots of rehearsals as the real dancer cannot see her virtual counterpart at any point.

Choreography by Kerry Wise and Kim Bormann developed to tell the story of a woman breaking away from or finding herself; who is competing with, and compared to her own image; with moments that are frozen, returned to, and then lost.

Visually Replica clearly compares the real and the digital - who literally stand shoulder to shoulder - both occupying the same space. The spatial recording of Kim is overlaid onto the real Kim, and their bodies occupy the same space, overlapping and intertwined often leading to audience members having slight perceptual confusion around which is real, and sometimes reaching out with their own hand to test what they can feel.

The imperfect, fragmented, and glitchy hologram maintains something of her original presence, but also conveys a sense of loss, entrapment or erosion. How do two versions of the same person compare when they co-exist? Do they co-exist? Is this an authentic experience?

As the choreography unfolds, the dancers circle the room chasing, merging, splitting and competing. Suddenly, freeze frames from the movement appear - left behind, hanging in the air like sculptures, suggesting, like a photo, a captured moment in time.

As the dance becomes more frenetic, our real performer tires, and collapses exhausted, breathing deeply and sweating - a reminder of the real exertion required. In the closing stages she reaches forward to connect directly with the audience.

Music by Dan Frazer creates a sense of emotion and a strong atmosphere. Kim's repeat performances throughout a day add layers of meaning and fatigue. The audience member's view is monitored throughout the session by casting it to a technician's laptop who ensures everything is operating correctly.

Replica premiered at an event at Lakeside Arts in the UK with further dates being arranged as a tour in the future. Audience responses have been overwhelmingly positive and the work was presented at UK House at this year's SXSW by University of Nottingham staff.