

## SLIDE 1:

*Ben And I am Ben Turnbull ... and ....; we will ... (say about the final sharing at the end of the presentation)*

Which exists to provide funding and support to researchers working in virtual production technologies.

I am here to share our Charged Objects of Performance prototype research project with you, led by Dr Donatella Barbieri and some of the words I will say are hers, some of them are mine and some are an amalgamation of us both. I will focus on the technologies used to create an augmented reality prototype performance, but also those same technologies that were instrumental to bringing together a majority Yoruba but also pan-African community of costume makers, textile artists, creative technologists and performers. I hope I have the time to share and do justice to all aspects of the project!



**Background Context**

## Nigeria60: 60 Years of Independence

For Yoruba playwright Wole Soyinka theatre is 'a microcosm of the cosmic ontology' between past, present and future (Okafor, 1991:43).

Soyinka defines African theatre as space to understand how to be human, the interconnectedness to others, ancestors, and the environment.

'Drama and the African World-view' in *Myth, Literature and the African World-View* (Soyinka [1978] 2005)  
Okafor and Soyinka as cited in Bakare & Barbieri (2023)

**SLIDE 2:** This research is centred on the Horniman Museum in South London, which holds ethnographic collections from the times of British colonial imperialism. It is engaging in a long-term and ongoing decolonising drive, seen in multiple repatriations of collected objects,. It has recently been celebrating Nigerian Independence in the 'Nigeria at 60' exhibition.

Our research considers digital technologies and digitalised humans as ways to activate and enact the meanings of cultural objects in ethnographic collections in collaborations with artists and researchers in Nigeria

and in the UK. It is a way to breathe life into performance objects in the museum, providing a platform for performance cultures that may not be as well known as they could or should be.

As well as democratizing culture through increasing accessibility for performance making, XR technologies here make space for vital practices and practitioners that expose critical understandings of dance and of textile arts. Centred on Yoruba objects, our project frames performance as critical to social well-being.

For playwright, Wole Soyinka, performance exists between past, present and future, as a space to understand how to be human, as well as to practice our interconnectedness to others, ancestors, and the environment. We are exploring what that can mean in digital spaces.

## Project Objectives

- To engage multiple, physical, material and digital processes, exploring multi-sensorial diasporic African dance, drumming and textiles.



Screenshot: *Charged Objects of Performance*. 2024



Egungun  
Photograph by  
[Maximo Rumi](#), Benin 2019

- SLIDE 3 On the right you see a contemporary Egungun masquerade performance. On the left is a screenshot from our digital diasporic response to that
- To create a new community comprised of UAL based makers, designers, technologists and our industry partners.
- To create and share culturally specific performance and practices in a way that is communal and ethical.
- To test volumetric capture as a means of recording a durational and multi-sensorial live performance.
- To create a prototype for an experience that brings museum artefacts and collections to life in a way that is contemporary and meaningful for diasporic communities and for our cultural partner, [The Horniman Museum](#).

# Charged Objects of Performance

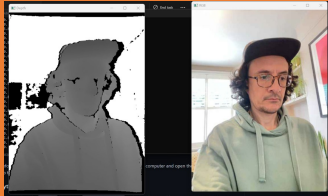
- Lead Investigator: **Dr Donatella Barbieri**, London College of Fashion
- Co-Investigator: **Ben Turnbull**, London College of Fashion
- Composition/ Performance Consultant: **Helen Epega**
- Performer: **Fumy Opeyemi**
- Live Percussion: **Richard Olatunde Baker**
- Cultural Consultant: **Dr Babatunde Bakare**
- Costume co-creators: **Maya Brown, Onari Rufus, Rosalba Mensah, Trudy Ali-Balogun**
- Volumetric Capture: **Terence Quinn, Chris Follows**
- LCF Technical Support: **Baocheng Ma**
- Textile consultant: **Alice Richardson**
- Costume Pattern support: **Laura Moran Morris**
- Work Placement: **Yufei Meng**
- Project Partners: **The Horniman Museum (as potential performance site and cultural partner)**
- **Nissen Richards Studio (as observers and industry partners)**

Image: Performance Space at the Horniman Museum. Ben Turnbull. 2024

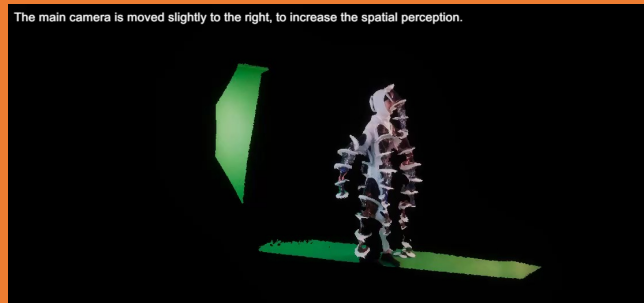


SLIDE 4: This project used volumetric capture technologies to both capture and amplify the material and movement aspects of a contemporary, Yoruba, masquerade inspired performance. This image shows the space that this prototype AR experience is designed for.

## Volumetric Capture Technologies



1. Screenshot: *Volumetric Camera Test*. Record3D app, iPhone FaceID + Unity. 2023



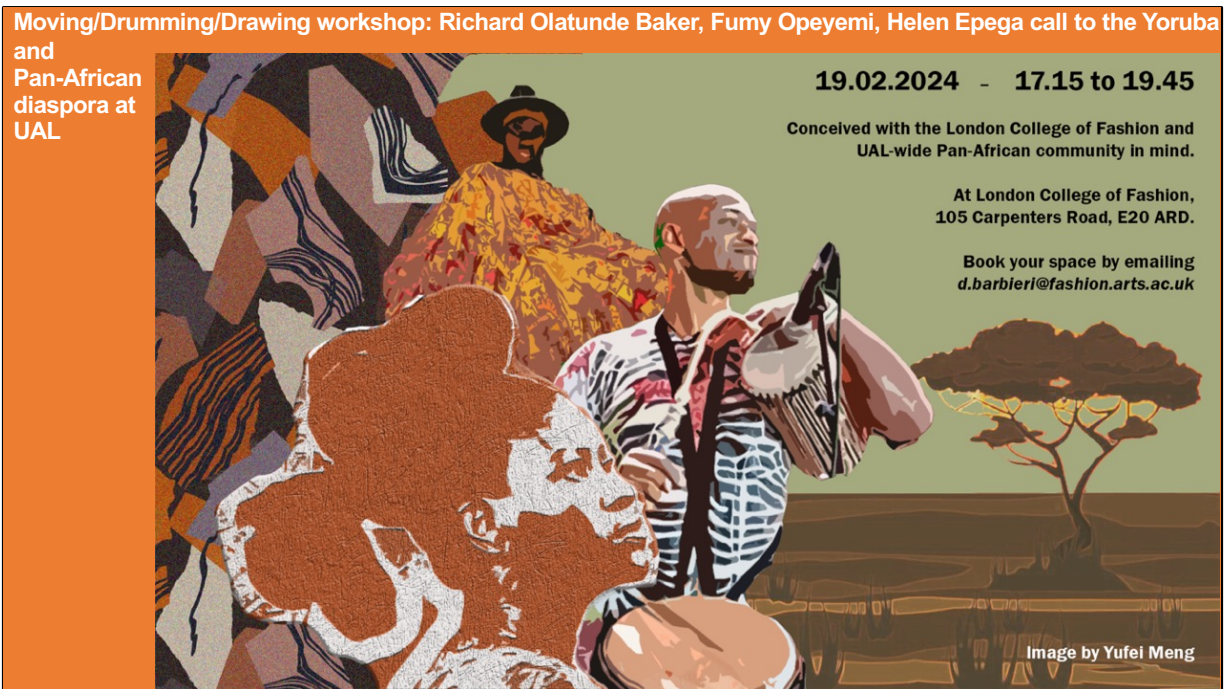
2. Screenshot: *Volumetric Camera Test*. 2 x Kinect Azure Cameras + Unity. 2023



3. Screenshot: *Volumetric Camera Test*. 2 x Kinect Azure Cameras + Unity. 2023

SLIDE 5: These are early experiments. There are high and low ways to do volumetric capture. We went for the middle way! These are early tests from using cameras and the Unity games engine. We wanted to work from a physical performance and making point, to capture textiles and dynamic movement. It was important to us to find technologies that could facilitate a diverse team of makers, performers and designers who have physical making practice. We wanted to democratize the technology and increase accessibility, bringing makers and performers to XR spaces. We wanted physical performance to be at the heart of the experience.





SLIDE 9: We invited a Yoruba and pan-African community to participate in a Moving/Drumming/Drawing workshop, run with percussionist Richard Olatunde Baker, choreographer, and dancer Fumy Opeyemi and performer and composer Helen Epega.

The description that accompanied the call for Yoruba and Pan African costume co-creators spoke of the intended creation of a XR performance prototype and, we attracted a group of great co-creators.



SLIDE 10: The workshop spoke to relational notions of distributed agencies which, similarly to how digital performance technologies entangle materiality and immateriality, informed a percussion-led dancing, generating a collective mark-making. Guided by the rhythm of Richard's traditional Yoruba drums and Fumy's movement, the three hours workshop forged a co-creative group through shared experience, that was captured in chalk marks on paper.





We learnt through this project and through prior research from Donatella and Dr Babatunde Bakare in Nigeria, that there is a shared Yoruba understanding of textiles and performance as weaving a community together, creating a shared social and creative responsibility.,

This is our community. As the textiles were developed and the costume took shape, we constantly tested with the volumetric cameras we were using. The volumetric cameras' lenses were constant considerations, as was

the movement collectively experienced in the moving workshop, thus extending these creative processes into social and technological realms. These marks represent movement and rhythm and community, but as part of the digital experience, they also complement glitch, digital artefacts and poor internet connection.



This performance was intended to be a masquerade but when Fumy Opeyemi first wore the constructed dynamic costume, made with traditional and contemporary elements she herself identified as a Yoruba Warrior Queen.

The costume it lacked the obligatory covered face of masquerade characters as the collective had deemed it too demeaning to cover Fumy's face.

So in the end, rather than being a digitally experience masquerade, it became the dynamic performance of the legendary Queen Moremi Ajasoro and the percussion performed live by performance maker and composer Helen Epega.

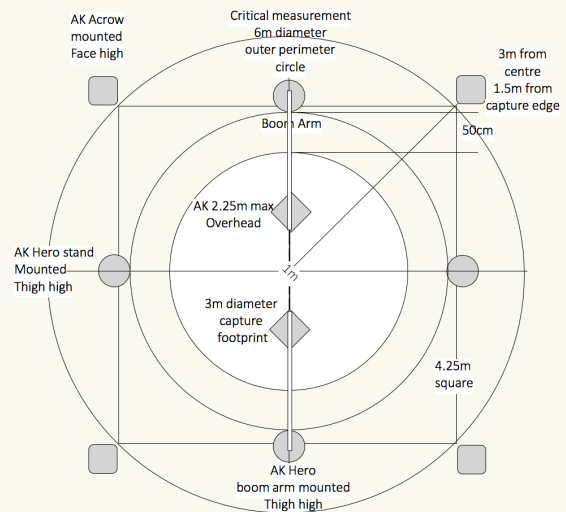
Research undertaken by Huawei by Jiang et al make reference to the creation of an a 4D authentic space time context. Here, we did not aim to pursue photorealism and lifelike holograms we designed a costume and a dynamic movement that would encompass the glitches and errors that arise engaging in this form of volumetric filming.

TALK ABOUT THE POP-UP STUDIO

## The Setup

- 8 x Kinect Azure spatial cameras (RGB video + depth sensor)
- High Performance PC + Depthkit Software to calibrate cameras and capture performance video and geometry
- Ambient lighting + stage lighting captured
- Live audio and percussion performed by Helen Epega captured and edited into the video stream.
- We use Topaz Video AI to improve visual fidelity and smooth digital artefacts.
- The end product is uploaded to AWS (Content Delivery Network) and streamed into the 8<sup>th</sup> Wall (now Niantic Studio) platform.

Millbank Tower Podium LCF Project Sensor Layout

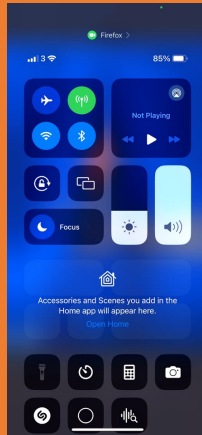


The maximum distance possible between two Acrow mounted AK (front lens) dictates the maximum diameter of the capture footprint in the available space

3m capture stage = 4.25m perimeter square



Video Texture Stream from Kinect Azures



Moremi Screen Recording



Volumetric Capture in DepthKit software





## Past, Present and Future – Horniman Museum Lates

Funmi Opeyemi as mythical character Queen Moremi Ajasoro. Volumetrically captured prototype performance for an intergenerational audience at the Horniman Museum

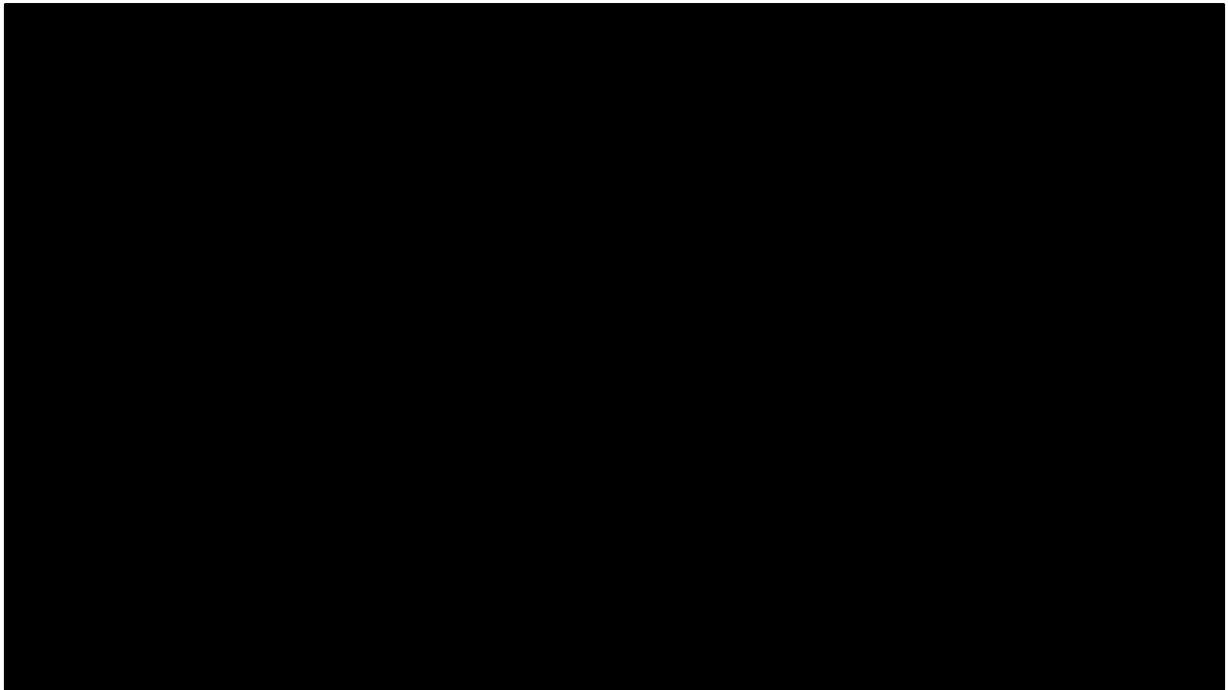
Precede/inform/ (per)form  
*Moving/ Drawing* (2008), *Wearing Space* (2015) *Material Interaction* (2019).



Amplifying Sensory Materiality Workshops at Prague Quadrennial 2023, CSM, and World Stage Design 2022



**SLIDE 16: Soyinka's quote** For Yoruba playwright Wole Soyinka theatre is 'a microcosm of the cosmic ontology' between past, present and future (Okafor, 1991:43).



Dr Donatella Barbieri

she/her

Reader in Critical Costume Practices and Cultures

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2024 Visiting Professor: Università Della Sapienza, Rome

Book: *Costume in Performance: Materiality, Culture and the Body*, Bloomsbury Academic.

Winner of Best Performance Design and Scenography Publication Award at Prague Quadrennial 2019

Co-convenor Scenography Working Group, International Federation of Theatre Research.

Co-Founder of [Studies in Costume & Performance](#)

Precede / Inform / (Per)form: <https://exhibition.costumeagency.com/project/donatella-barbieri/>

Archival research on costume *Encounters in the Archive* [www.encountersinthearchive.com](http://www.encountersinthearchive.com)

Research Profile: <https://researchers.arts.ac.uk/56-donatella-barbieri>

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Thank you!

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## Queen Moremi Ajasoro

- Use your camera app to scan this QR code.
- The password is 'Moremi'
- Enable all the permissions you are asked to enable.
- 'TAP TO PLACE HOLOGRAM' in an area of this room where you wish to experience the performance.
- Make sure the volume is turned up.
- Use one figure to move Moremi around the space. However, remember that you can walk towards her! This is not necessarily a passive seated experience.
- Pinch with two fingers to make Queen Moremi bigger or smaller (carefully).
- Be respectful.

