

MICS

Made in Italy
Circolare e Sostenibile



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA



Photogrammetry and 360° Virtual Tours: Differences, Relevance, and Future Possibilities

Pasquale Cascarano (Department of the Arts, University of Bologna, Italy)
Irene Calvi (Department of the Arts, University of Bologna, Italy)
Eleonora Stacchiotti (Department of the Arts, University of Bologna, Italy)

AIVR 2024, April 14, 2024 to April 18, 2024 - Venice, Italy

Outline

- PNRR project
- Virtual showrooms review
- Our XR proposals for fashion brands
- Evaluating XR experiences
- Future developments



PNRR Project



MICS

Made in Italy
Circolare e Sostenibile

AEEFFE MOSCHINO



1



DIGITAL ARCHIVE

2



DAM/REPOSITORY

3



AF TRACEABILITY

4



AF MEETS AI

5



METaverse
MARKETPLACE

6



NEW RETAIL

7



AF MUSEUM

8



COMMUNICATION &
MARKETING

SPOKE 1- Project 1.4

Digital Services for Made in Italy: Digital-Twins for Predictive Models and to Support the Lifecycle of Fashion Products.

- Ideation and design of the garment
- Production and tracking of materials
- Tracking of sold garments and end-of-life management
- Construction, cataloging, and preservation of a digital archive
- Enhancement of corporate heritage through exhibition activities



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

Virtual Showroom review

Sample Analysed

40 virtual tours on single-brand and multi-brand e-commerce sites

Selection Criteria

- Type of product (clothing and cosmetics)
- Technology (XR, immersiveness, desktop access)
- Type of segment (luxury)

Recurring elements and focus of analysis?

Shopping experience

Storytelling integration

Gaming

Technology employed

360° Photos

Photogrammetry

CGI

User Experience

Anchors

Free movement

3D view of the object



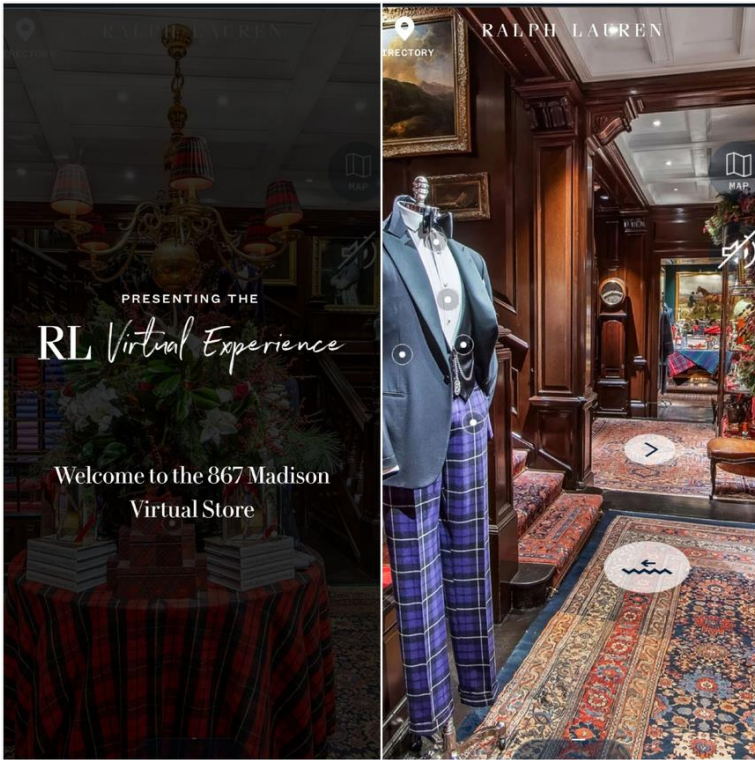
Virtual Showroom review

Brand	Link	Aim		Tech Employed			User Experience			
		Heritage	E-Commerce	360°	Photogrammetry	Computer Generated	Anchors	Free Movement	Cliking	3D objects
Alo, <i>Immersive Store</i>	link		✓			✓	✓		✓	✓ (not animated)
Armani, <i>Virtual Store</i>	link	✓			✓		✓			
Balmain, <i>Culture</i>	link	✓				✓		✓	✓	✓
Balmain, <i>City of Lights</i>	link	✓				✓		✓	✓	
Charlotte Tilbury, <i>Giftng Wonderland</i>	link		✓			✓			✓	✓
Coach, <i>Christmas Virtual Store</i>	link		✓			✓	✓		✓	
Dolce&Gabbana, <i>Relive Virtual Shop</i>	link		✓	✓			✓		✓	
Dior, <i>Virtual Store</i>	link		✓			✓		✓	✓	✓
Dior Beauty, <i>Champs Elysées</i>	link		✓	✓			✓		✓	
Emporio Armani, <i>Virtual Store</i>	link		✓	✓			✓		✓	
Fendi, <i>57th Street</i>	link	✓			✓		✓		✓	
Ferragamo, <i>Greene Street</i>	non		✓		✓		✓		✓	
Ferragamo, <i>House of Gifts</i>	non	✓		✓			✓		✓	
Gisela, <i>Nomads</i>	link		✓			✓		✓	✓	
Burberry (Harrods)	link		✓			✓		✓	✓	✓
Dior (Harrods)	link		✓			✓		✓	✓	
Hugo Boss, <i>Immersive 360 Showroom</i>	link	✓				✓		✓	✓	✓
Moncler-Mytheresa, <i>Virtual Pop-Up</i>	link		✓			✓		✓	✓	
Printemps, <i>Virtual Store</i>	link		✓			✓		✓	✓	✓
Ralph Lauren, <i>St. Germain</i>	link		✓	✓			✓		✓	
Ralph Lauren, <i>Virtual Experience</i>	link		✓		✓		✓		✓	
Tommy Hilfiger, <i>Holiday Exp</i>	link	✓				✓		✓	✓	
Tommy Hilfiger, <i>Virtual Tour</i>	link		✓	✓			✓		✓	
Tommy Hilfiger, <i>Pool Party</i>	link		✓			✓	✓		✓	
Vila, <i>Virtual World</i>	link		✓			✓	✓		✓	
Yves-Saint Laurent, <i>Virtual Store</i>	link		✓			✓	✓		✓	
Selfridges, <i>Christmas Light</i>	link		✓	✓			✓			
Prada, <i>VR Epicentre</i>	link		✓	✓						

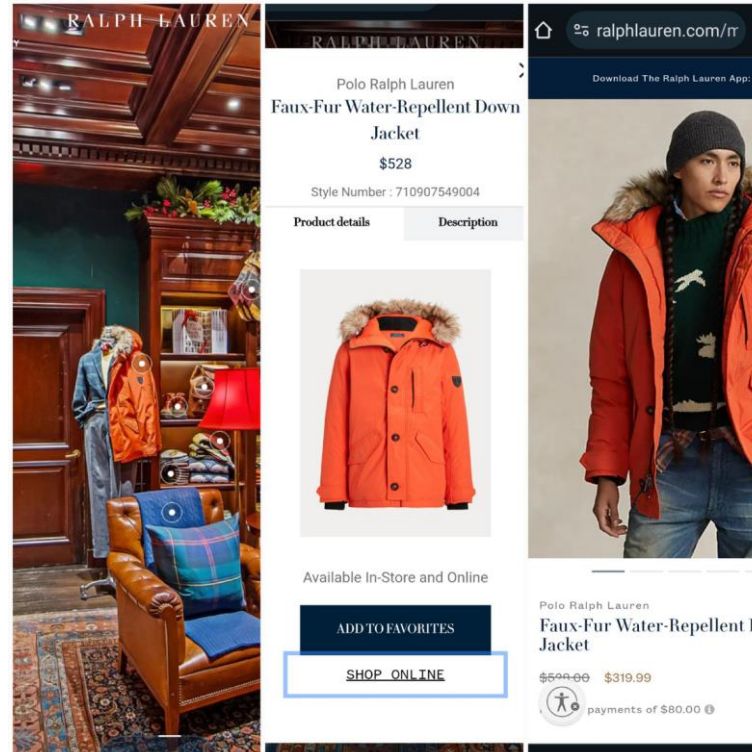
Result of the Review of 40 virtual tour from several luxury brands



Case studies: Ralph Lauren Virtual Showrooms



RL virtual experience homepage and interiors of 867 Madison store

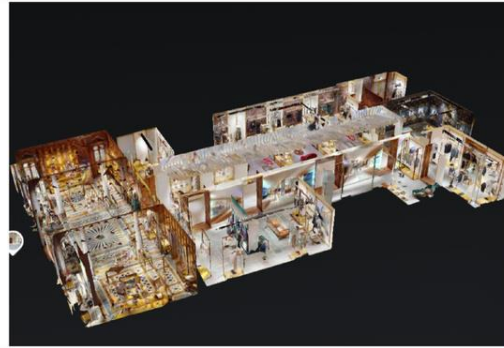


Stills of RL 867 Madison Virtual Store show a jacket on the mannequin, the information showing when clicked on it and in the e-commerce

- Dedicated webpage on distinct platforms to target different audiences (global, US, UK) with the common feature of the 888 House, an experimental CGI space.
- Seamless exploration of the space and redirection of users to the items' page of the e-commerce.



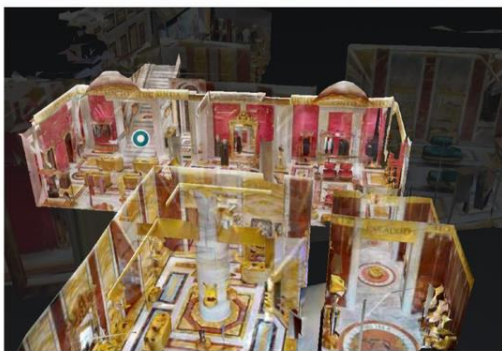
Case studies: Dolce & Gabbana Virtual Boutiques



- Designated section “Relive Virtual Boutiques” with more than 10 locations worldwide.

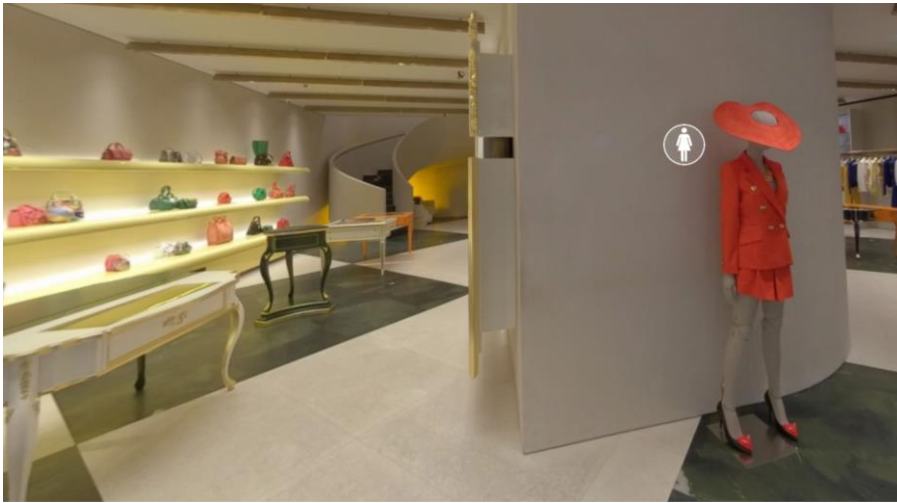


- Photogrammetry captures the spectacularity of the Boutiques' venues (the Italian ones showcasing the Italian heritage).



D&G virtual boutiques of Venice (upper half) and Rome (bottom half)

Our proposal: Moschino's virtual Showroom



Aim

Tech employed

User Experience

Heritage + E-Commerce

360° photos

Anchors

Any downsides when dealing with photogrammetry and 360°?

- Limited user's interaction
- High Development Costs



Our proposal: Moschino's virtual environments (ongoing!)

Moschino's timeline



Moschino's virtual environment



Our proposal: luxury brand's environments

Aim

Tech employed

User Experience

Heritage + E-Commerce

CGI

Anchors, 3D Objects,
Clicking, free movements

Proposed virtual environments

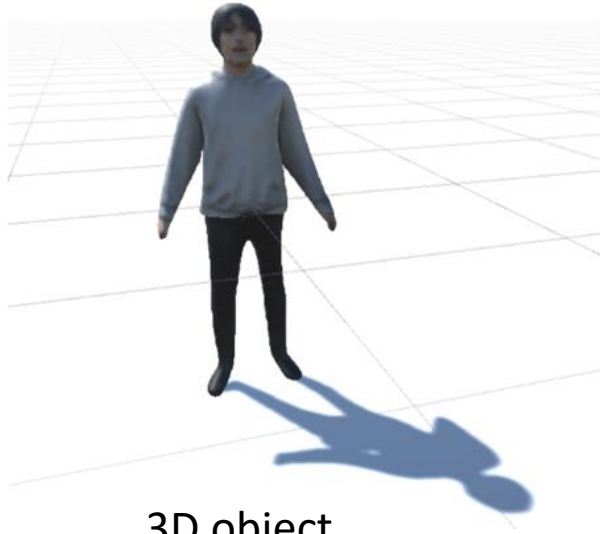


Our proposal: luxury brand's environments + AI

AI-based Avatar



2D image



3D object

AI-based 2D-to-3D

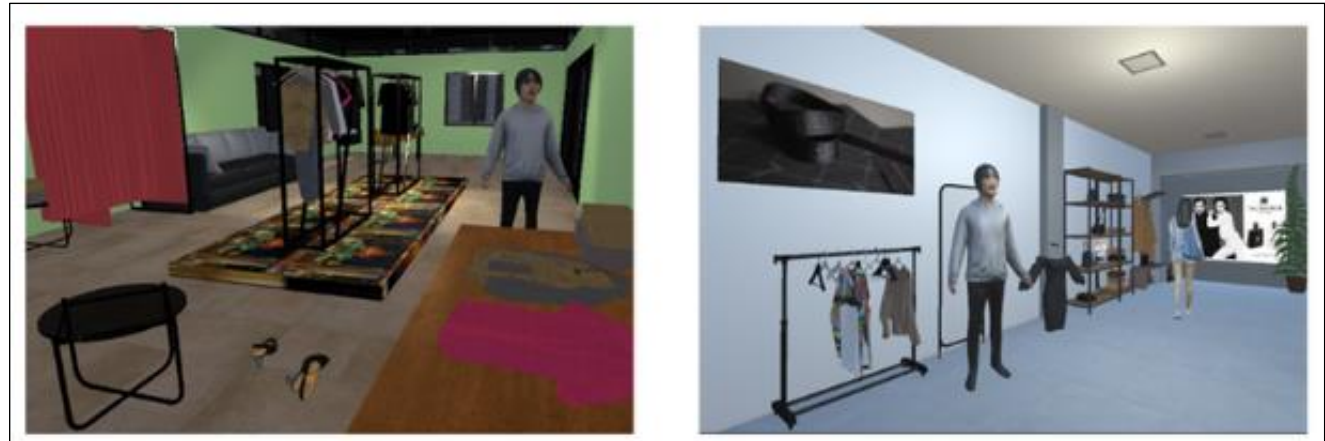


2D image



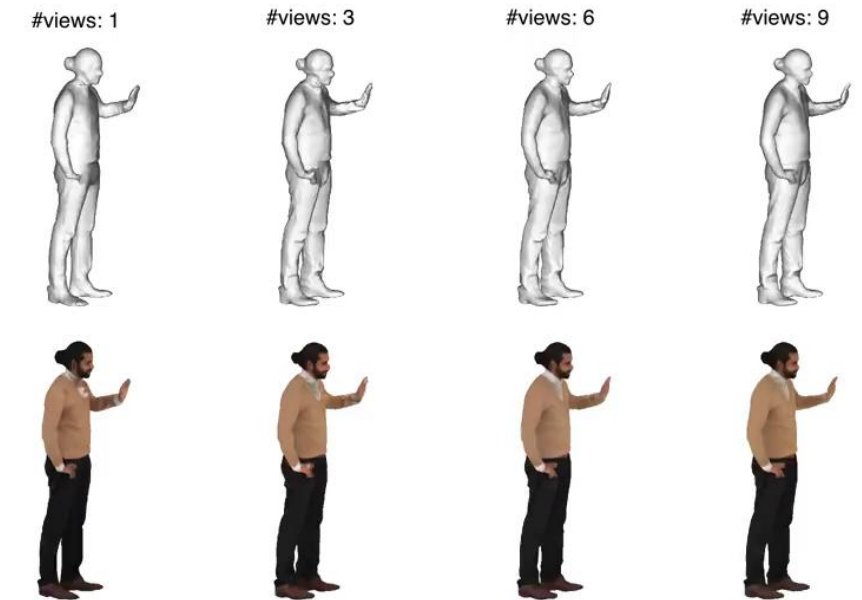
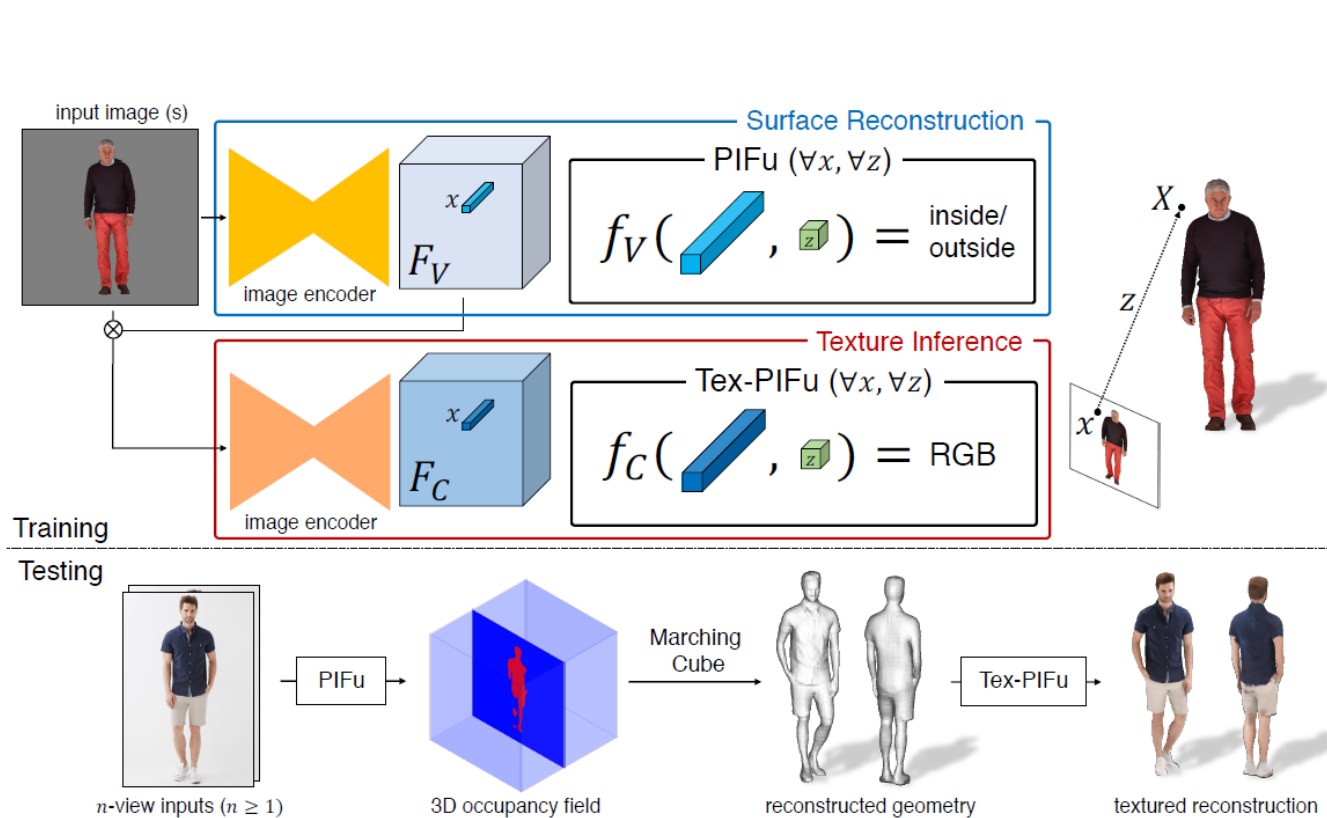
3D object

Integration in virtual environments



How to generate 3D objects from 2D-images?

Pixel Aligned Implicit Function (PIFu): represent a 3D shape as an implicit function modelled by a neural network.



Evaluating 360° experiences (ongoing)

To test the emotional impact of brand ambassadors and of “alive” garments in XR experience, a 9 minutes long 360° video has been produced. It includes:

- a performing moving around the room, wearing a precious dress;
- low interaction with the viewer, allowing a connection with the attire rather than with the human;
- an interplay between reality and virtual reality, as the video will be shown to participants in the experiment in the same space it has been filmed in.

The goal is provide insight into how the perceiver engage with virtual representations of existing spaces and objects, trying to pave the way for innovative approaches to consumer engagement in the fashion industry.



Evaluating 360° experiences (ongoing)

Aim

Measuring aesthetic emotional experiences of users in immersive 360° videos to start approaching the emotional engagement of users in XR immersive experiences.

Methodology

- Choosing a sample of mixed target users, among people of all age groups and digital literacy;
- Make the users experience the video;
- Giving the AESTHEMOS Scale questionnaire to the users, to measure empirically the following aesthetic emotions:
 - Prototypical aesthetic emotions like the feeling of beauty: Being moved; Awe; Fascination;
 - Epistemic and emotions like interest: Joy; Relaxation; Vitality; Negativity;



Future directions

- The ongoing objective is to integrate virtual tours into transmedia storytelling for enhanced visual retail communication and increased customer engagement with brand heritage.
- Further researches will be devoted on the AI integration in virtual environments.
- It is advisable to start experimenting with methodologies which - among others - evaluate emotional and affective reactions to stimuli by measuring, collecting and elaborating biometric data such as heartbeat, sweating, blood pressure or by finding ways to track the movement of the eyes all elements that need to be monitored during the experience.





ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

Pasquale Cascarano

Department of the Arts

pasquale.cascarano2@unibo.it

www.unibo.it