

# 360 FOR ALL

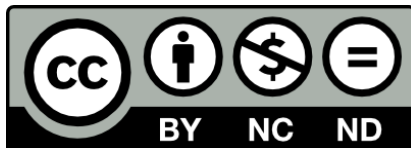
## IMMERSIVE ENVIRONMENTS AND ACCESSIBILITY

Mobile Week 2021

Barcelona

Marta Brescia Zapata – Universitat Autònoma de Barcelona

07/07/2021



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 870610



**Traction**  
Opera co-creation  
for a social  
transformation

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2	Objectives and trials
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# TRACTION



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## OBJECTIVE



To embrace new technologies in order to establish an effective participatory production workflow and to explore novel audio-visual art representation formats.

## TRIAL



The Irish National Opera (INO) will test the potential of VR technologies in creation and presentation of opera.



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# Background

## ImAc Project (Immersive Accessibility)

- ✓ How could access services be integrated within immersive environments?
- ✓ Subtitling, audiodescription, audio subtitling and sign languages.



## VR360 subtitles. New creative solutions

- ✓ Traditional subtitles VS creative subtitles
- ✓ Using eye-tracking technology for collecting data

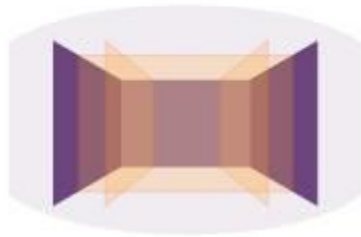




# Background

## VIRTUAL REALITY (VR)

Fully artificial environment



Full immersion in virtual environment



## AUGMENTED REALITY (AR)

Virtual objects overlaid on real-world environment



The real world enhanced with digital objects



## MIXED REALITY (MR)

Virtual environment combined with real world



Interact with both the real world and the virtual environment

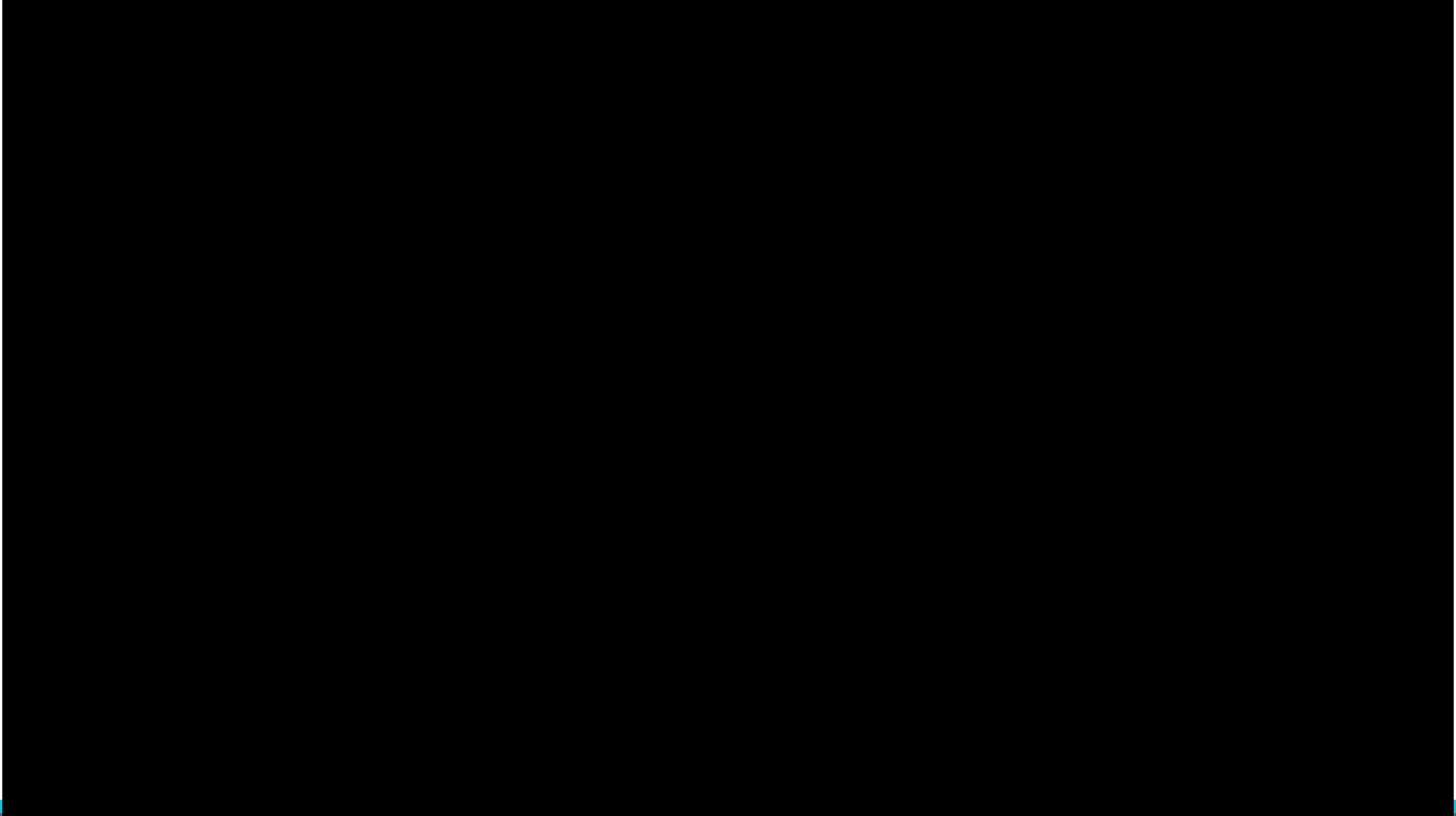


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# Traditional subtitles vs. Creative subtitles



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# VR360 subtitles and eye tracking technology

## EXPERIMENT DESIGN



Define the material



Design the questionnaires



Obtain the material  
(Record 360 video)



Elaborate subtitles (3 different visualisation modes) Chris Hughes web-based editor & player



Test the experiment set-up in Unity




# VR360 subtitles and eye tracking technology

Back to Project Area History Geezers\_EN\_ESsubs - 360 Caption Editor v0.11 (martabrescia)

Time	Subtitle	Progress
1 00:00:05,840 1.19 00:00:07,030	¡Joder!	
37 00:00:07,790 1.78 00:00:09,570	Ya están otra vez.	
2 00:00:09,860 1.07 00:00:10,930	¡Os lo dije!	
44 00:00:10,980 3.18 00:00:14,160	En esta serie están todo el día dale que te pego.	
3 00:00:15,330 2.06 00:00:17,390	No, no, me refiero a los vecinos.	
4 00:00:17,950 2.23 00:00:20,180	Bueno, yo ya me acostumbré a coger el sueño	

360 Equi Help Console



Select

All	None	First					
Last	Next	Previous					
Next		Previous					
1	2	3	4	5	6	7	8

Set Character


1	2	3	4	5	6	7	8
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Captions

Clear All	Delete	Trim
Divide	Combine	Split

Orientation

Play Scene Pause << < > >>



# VR360 subtitles and eye tracking technology

## HYPOTHESES

- ✓ Compared to viewers of conventional subtitles, the viewers of creative subtitles will be able to spend more time exploring the image instead of reading the title.
- ✓ The saccades of the viewers of creative subtitles will be shorter compared to the saccades of viewers of conventional titles.
- ✓ The viewers of creative subtitles will report a better aesthetic experience.



# VR360 subtitles and eye tracking technology

## CONCLUSIONS

Need for guiding mechanisms

In general, subtitles fixed next to the mouth of the speaking characters are the preferred option.

In general, implementing creative subtitles is a good idea to achieve a better aesthetic experience.



NEXT STEP: Contrasting the results from the focus group with the eye-tracking data





# VR360 subtitles and eye tracking technology

Playback



# Thank you for your attention

Marta Brescia Zapata, Universitat Autònoma de Barcelona



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