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Comparing Cinematic Conventions through Emotional Responses in Cinematic VR and Traditional Mediums

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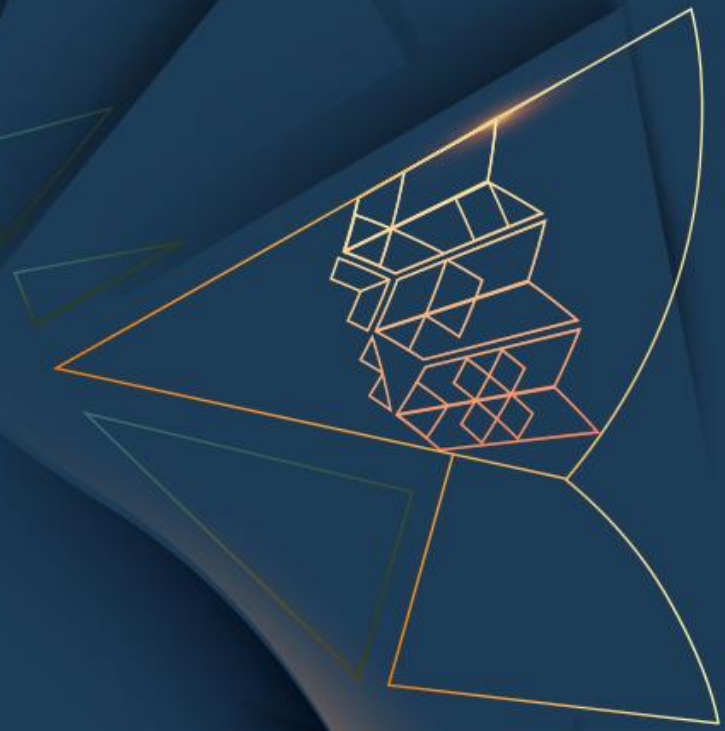

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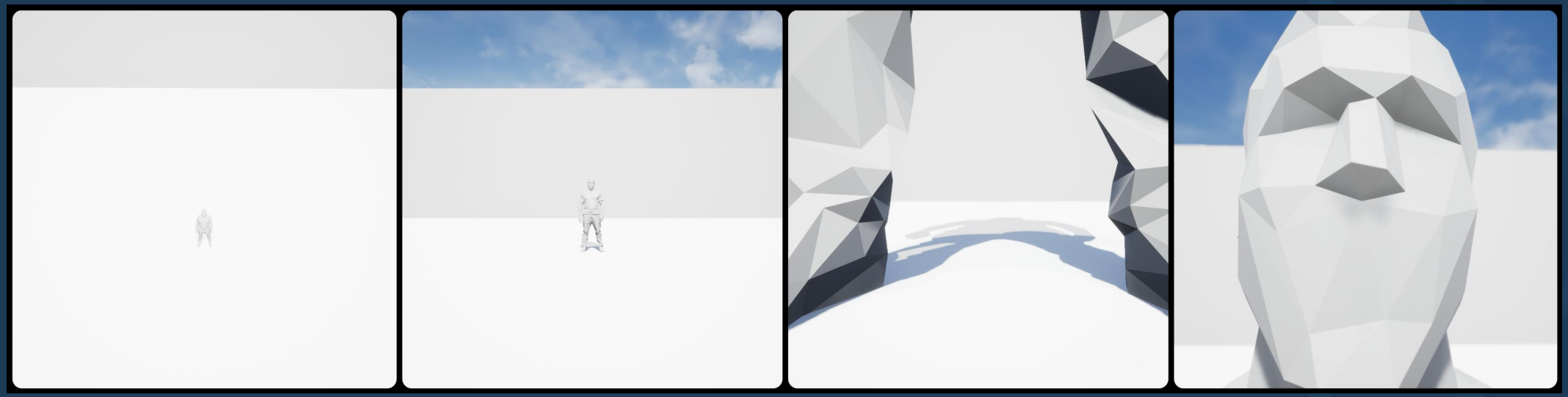
Introduction: Cinematic VR and Cinematic techniques

Immersive technologies like cinematic virtual reality (CVR) are emerging as powerful new media for visual storytelling.

In traditional cinematic practices, elemental shots are selected and sequenced to establish visual narration. These cinematic techniques are arguably aimed at invoking audience emotions to facilitate storytelling [Arijon, 2013].



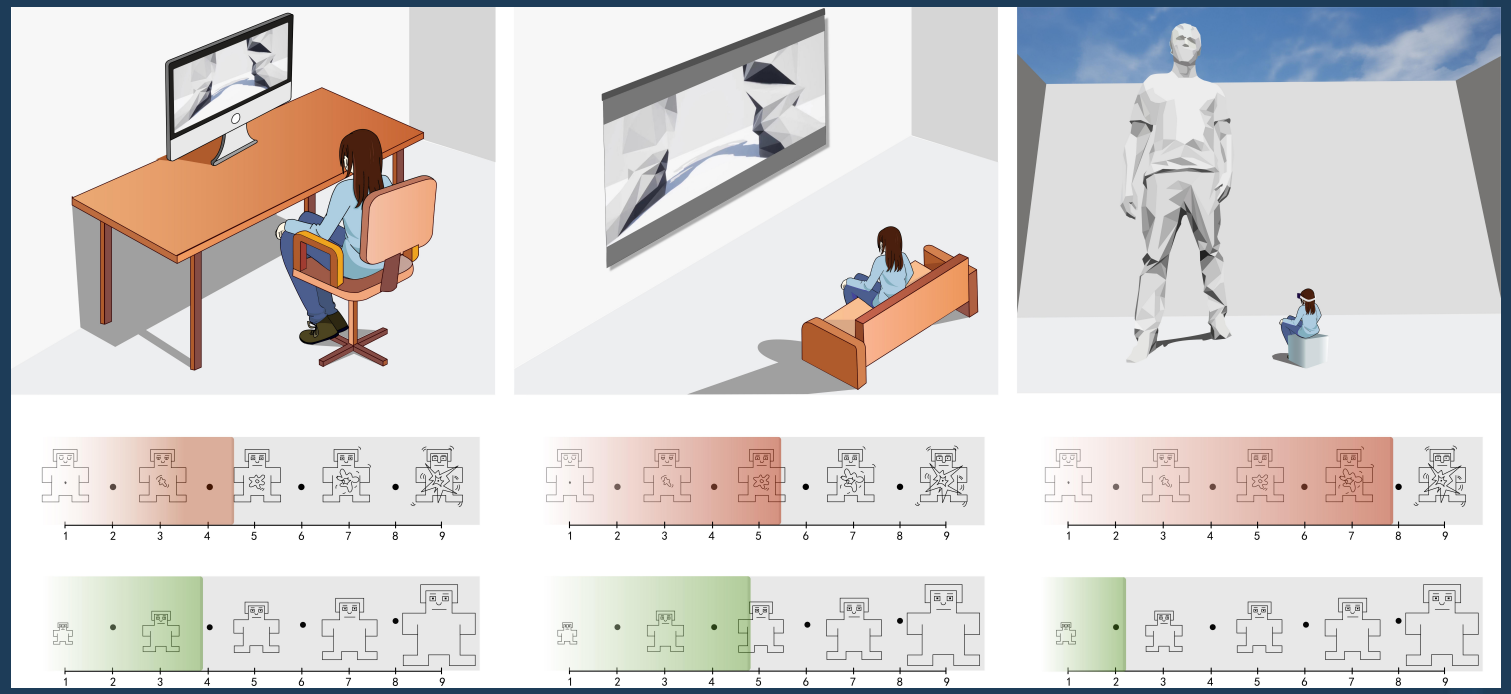
Introduction: Researc Background

However, the unique qualities of CVR, including embodied viewing and interactivity, substantiate a re-examination of cinematic techniques' impact on viewer engagement [Dooley, 2020].

This raises important questions around how traditional visual language translates to VR, and whether new technical principles are needed to leverage CVR's immersive strengths [Mateer, 2017].

Introduction: Research gap

To address this gap, we conducted a comparative study on emotional responses to fundamental cinematic shot sizes and angles in CVR versus traditional medium.



Methods

Our experiment aims to find unique narrative guidelines suitable for CVR by comparing changes in viewer experiences across different mediums.

We conducted a between-subjects experiment to evaluate viewer experiences across 10 cinematic shot types displayed through three viewing mediums: computer screen, cinema projector, and VR headset (N=15 per condition).

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Methods

Materials and Apparatus

10 representative Cinematic Shots Types

Unreal Engine 5, Computer Screen,

Cinema Projector, VR Headset

Participants

A total of 45 participants

Randomly assigned to three groups of 15

College students in their early twenties

Experimental Design and Procedure

Traditional Viewing and VR Environment

Randomized Sequence of Video Clips

Emotional Rating for Each Clips

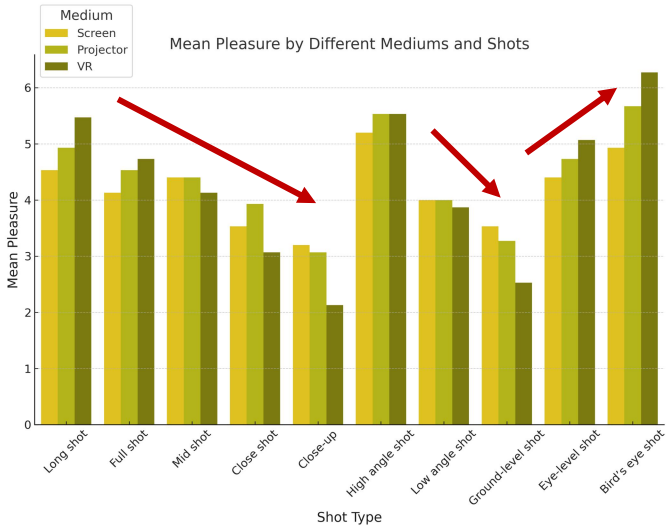
Measures and Data Analysis

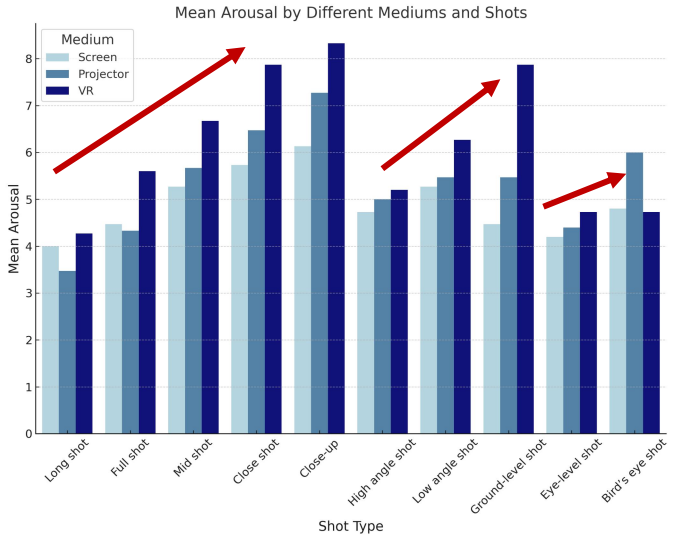
SAM: Pleasure, Arousal, Dominance

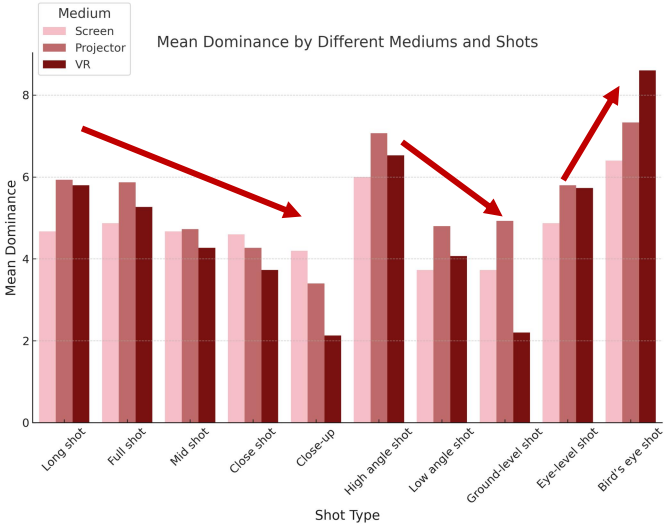
ANOVA Analysis

Post-hoc

Result: Mean of emotional responses in different viewing medium







To verify the statistical significance of the different medium impact on emotional response and which groups have significant difference between, we applied the ANOVA.

Result: The results of a two-way ANOVA

DV	IV	df	F	Sig.	Par. η^2
Pleasure	Medium	2	0.688	.503	.003
	Shot	9	15.202	.000	.246
	Medium*Shot	18	1.008	.449	.041
Arousal	Medium	2	24.647	.000	.105
	Shot	9	19.159	.000	.291
	Medium*Shot	18	2.427	.001	.094
Dominance	Medium	2	5.534	.004	.026
	Shot	9	22.636	.000	.327
	Medium*Shot	18	2.352	.001	.092

This indicate the effects of different mediums on all three emotional responses, suggesting the significance (<0.05) at *arousal and dominance*.

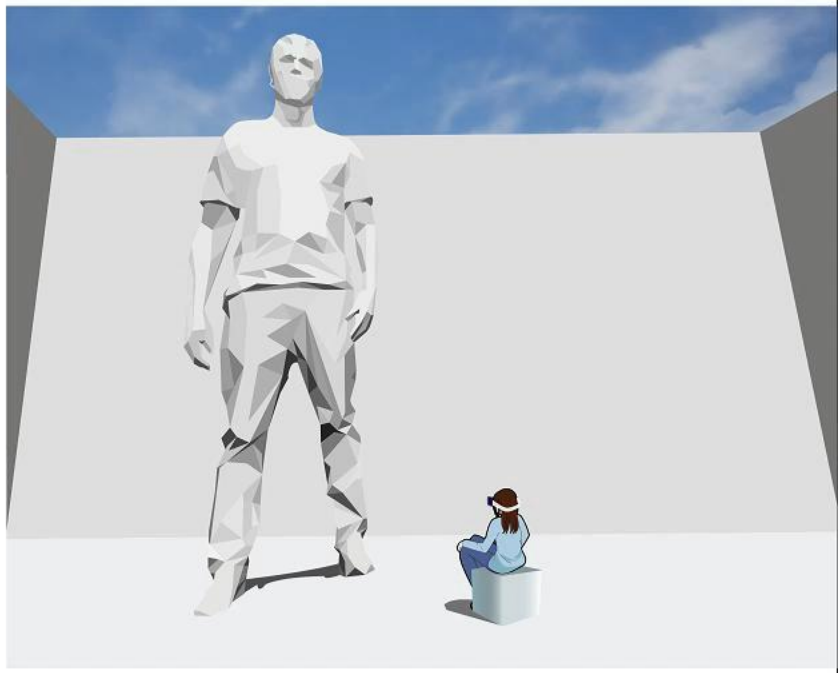
To further ascertain the pronounced influence of the VR medium among the groups, we applied a post-hoc analysis.

Result: The results of a post-hoc test

DV	Med. (I)	Med. (J)	Mean Diff. (I-J)	Std. Err.	Sig.
Pleasure	VR	Screen	0.09	.188	.620
Pleasure	VR	Projector	-0.13	.188	.502
Arousal	VR	Screen	1.25*	.180	.000
Arousal	VR	Projector	0.80*	.180	.000
Dominance	VR	Screen	0.06	.212	.778
Dominance	VR	Projector	-0.58*	.212	.007

The VR consistently elicited significantly higher arousal levels compared to both the screen and projector.

Suggesting that the medium used can influence feelings of *arousal and dominance* but has less impact on pleasure levels.



Discussion: Ground-level shot

Ground-level shot is typically used to **establish a scene or to offer a unique perspective**.

Participants often comment such as "**It feels like I'm seeing a giant, I'm being stepped on, it's very uncomfortable**."

This strong sense of oppression and dominance marks **a significant shift in the emotional response**.

- This finding, along with the heightened emotional responses elicited by close-up in CVR, suggests that some of traditional cinematographic techniques **need to be used thoughtfully**.

Conclusion

- This comparative study reveals CVR's:

1. distinct characteristics as an emerging storytelling medium, relative to traditional viewing formats
2. demonstrate that identical techniques can elicit significantly different responses across mediums
3. suggest CVR's embodied, interactive qualities altered the impact of cinematic techniques
4. contribute insights on adapting storytelling strategies for the VR cinematographic experience

Future research

- Future research directions include exploring :

1. additional cinematic elements (camera movement)
2. individual differences
3. content variety
4. CVR narrative structures

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Thanks

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