

**FTC** 2023

**The Emotional Impact of Camera Techniques in  
Cinematic Virtual Reality:  
Examining Frame Shots and Angles**

**Presenter: Zhiyuan Yu**

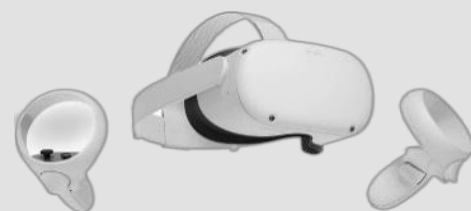
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# Background

Virtual reality (VR) technology has been increasingly integrated into the film industry, leading to the emergence of **Cinematic Virtual Reality** (CVR), which offers a uniquely immersive viewing experience that allows audiences to experience “films inside films”

However, traditional film cinematic techniques do not readily translate into CVR, and important cinematographic techniques for this new medium need to be reconsidered.



# Aims and Solution

This study aims to investigate and prove the **embodiment** effect in CVR, a phenomenon that significantly alters the audience's **emotional responses** compared to traditional films.



We focus on **frame shots and camera angles** in both mediums.



A **within-subjects experimental design** is employed to compare emotional responses across traditional film and CVR experiences.



A total of **40 participants** were recruited for the experiment.

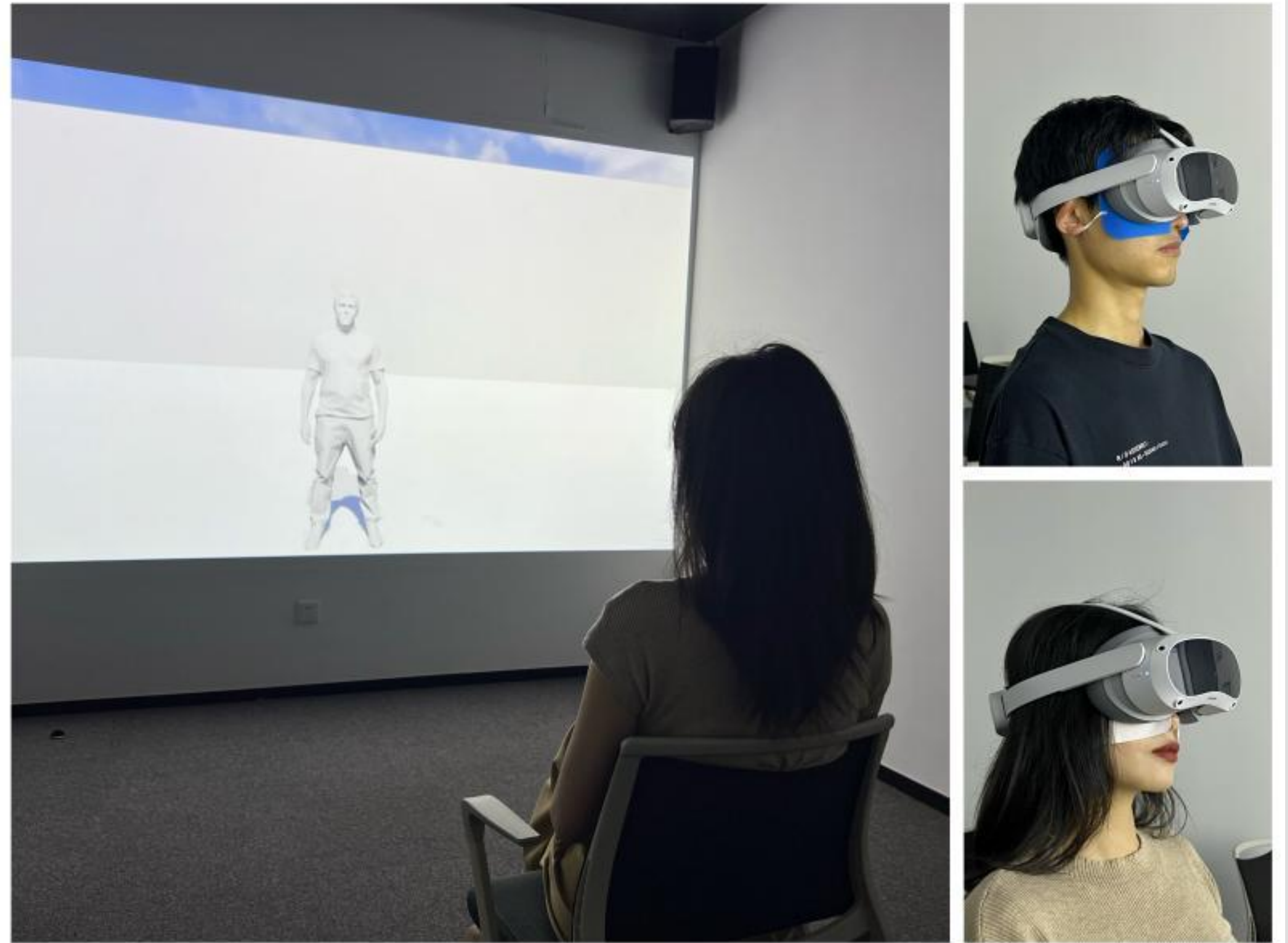
# Experimental design and Measures

- Using a high-quality **VR headset** for the immersive condition and a **2D screen** for the traditional film condition
- the participants were shown identical frame shots and camera angles of a hypothetical scene generated with **Unreal Engine 5**.
- Their emotional responses were then measured with the **Self-Assessment Manikin (SAM)** methods

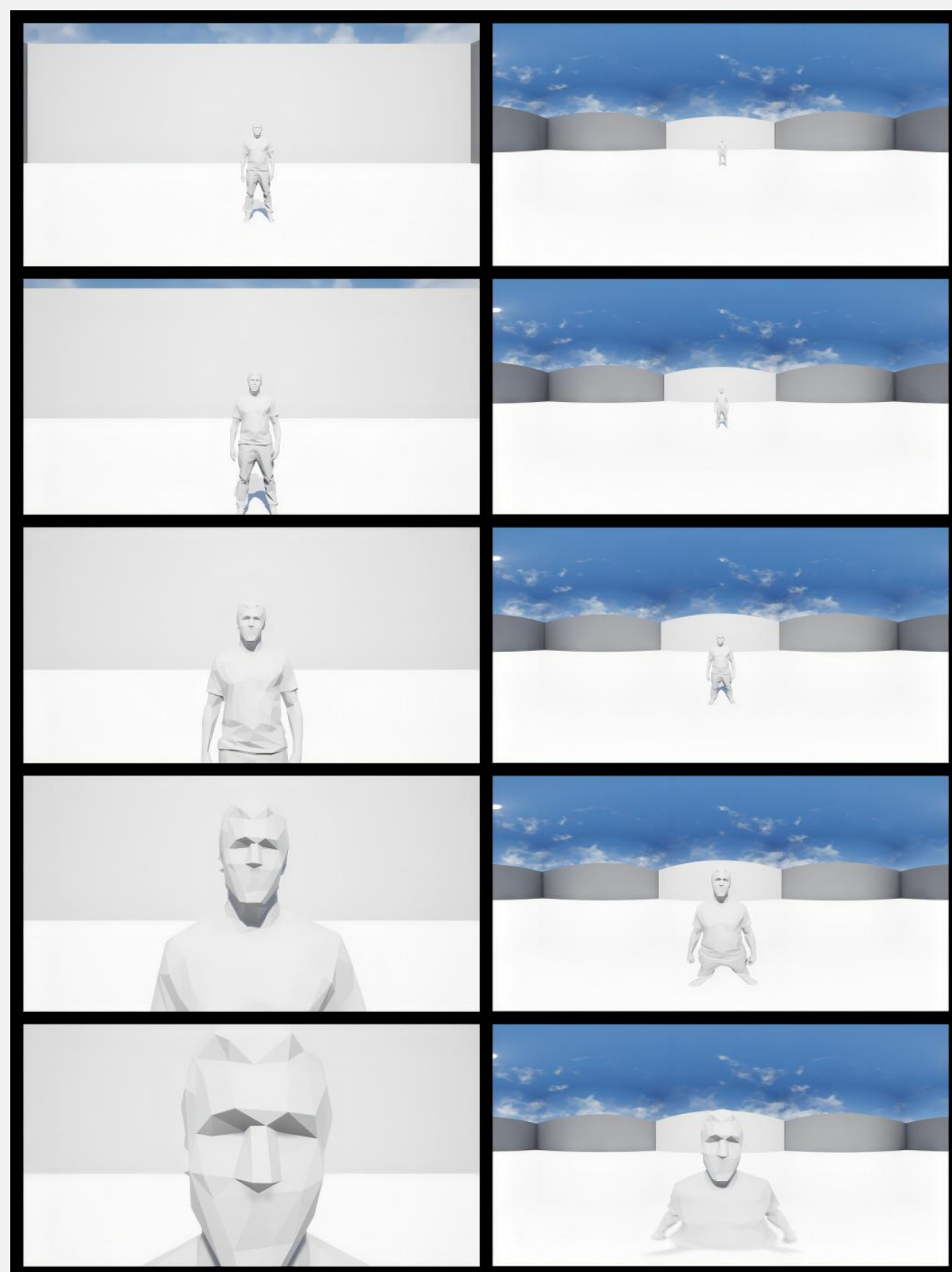
# Procedure

After obtaining the informed consents, the participants viewed the series of video clips under both conditions.

During watching each clip, the participants **rated their emotional reactions** to the experienced content.



# Experimental material



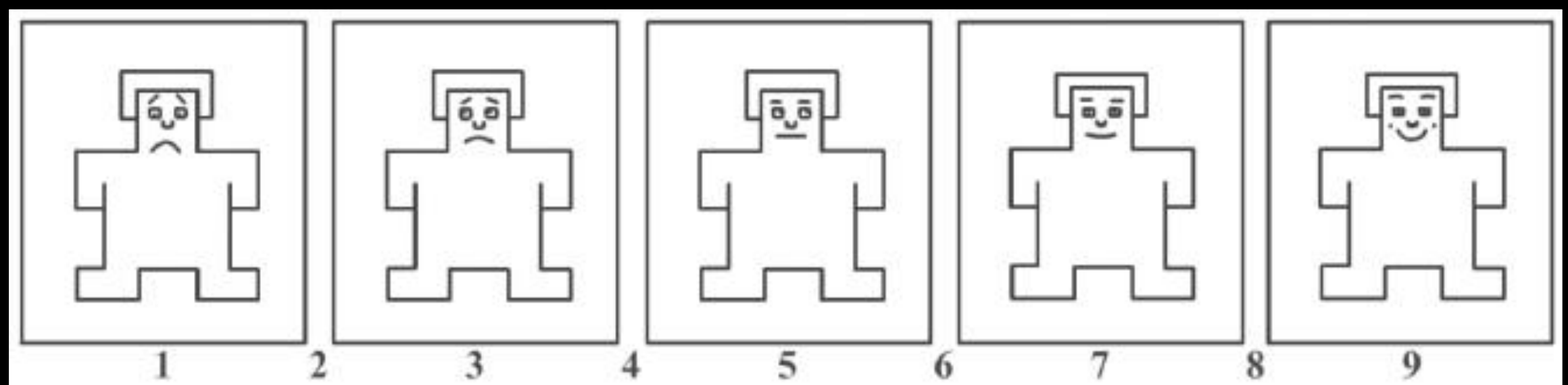
**Shots size in 2D and CVR**



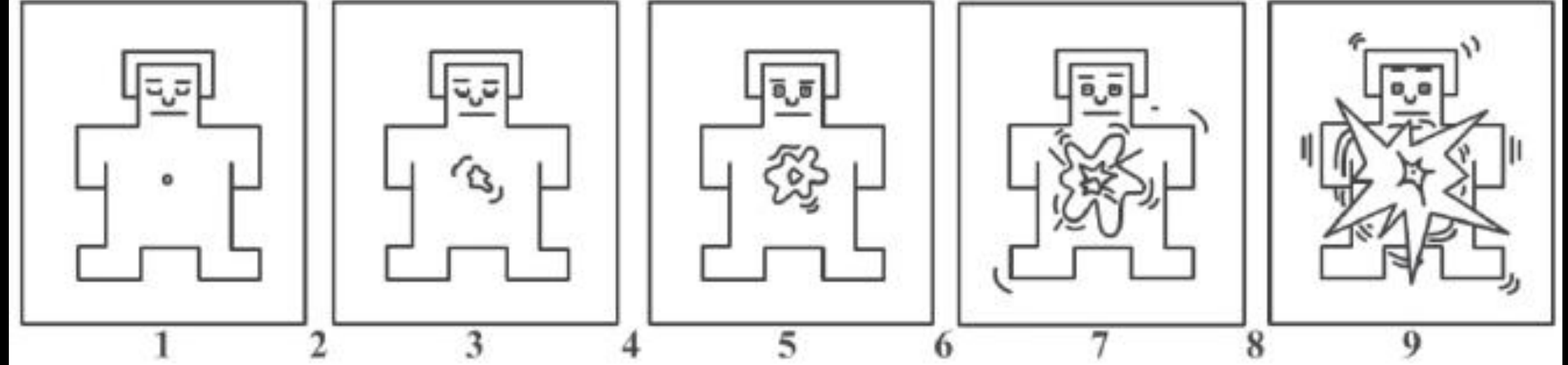
**Camera angle in 2D and CVR**

# Data Analysis

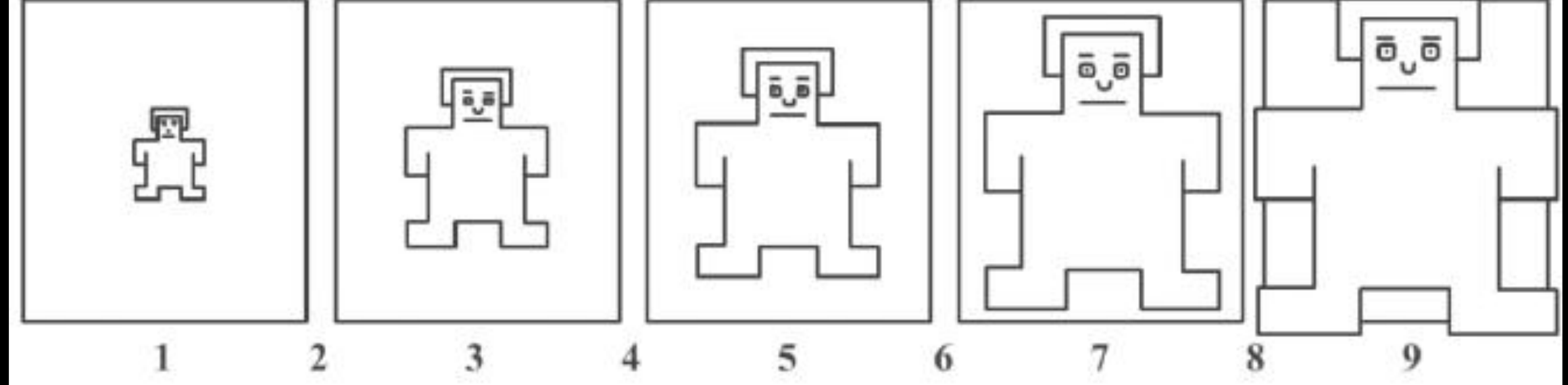
**pleasure**



**arousal**



**dominance**

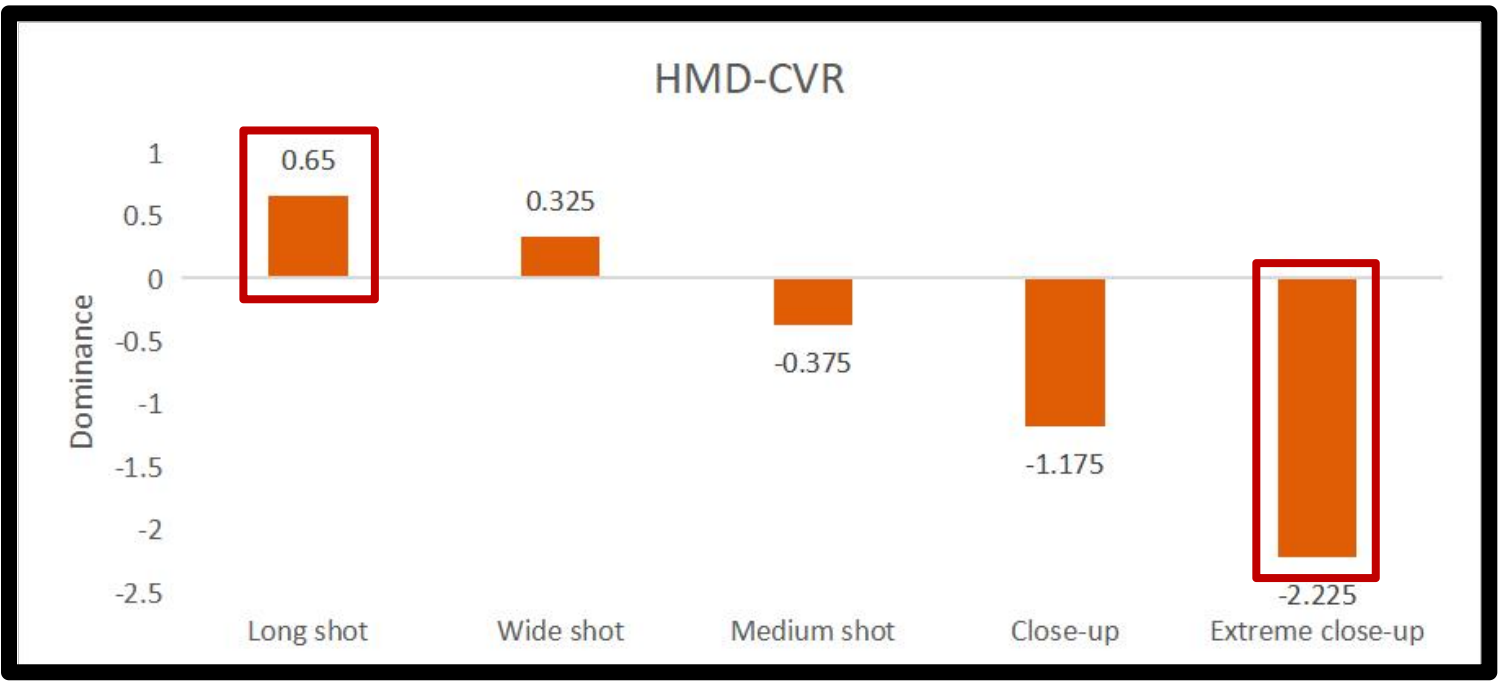
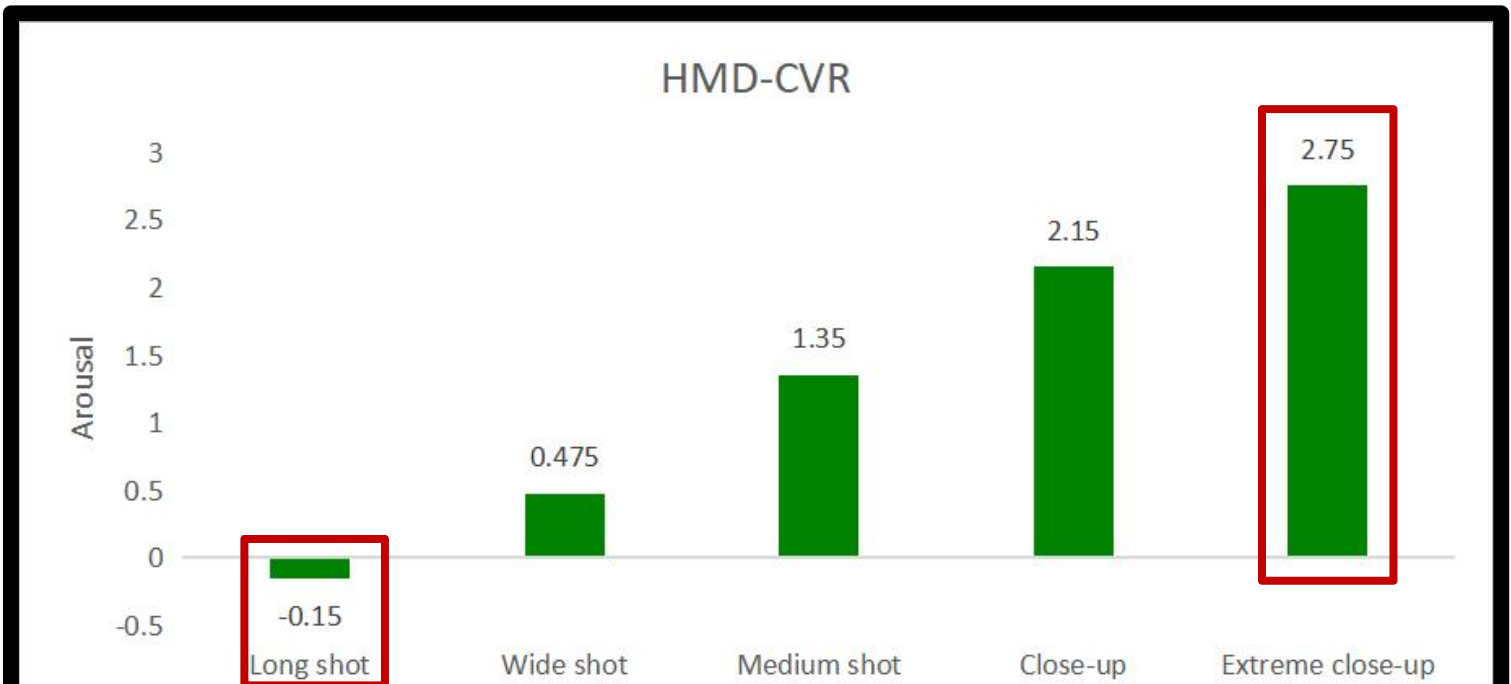
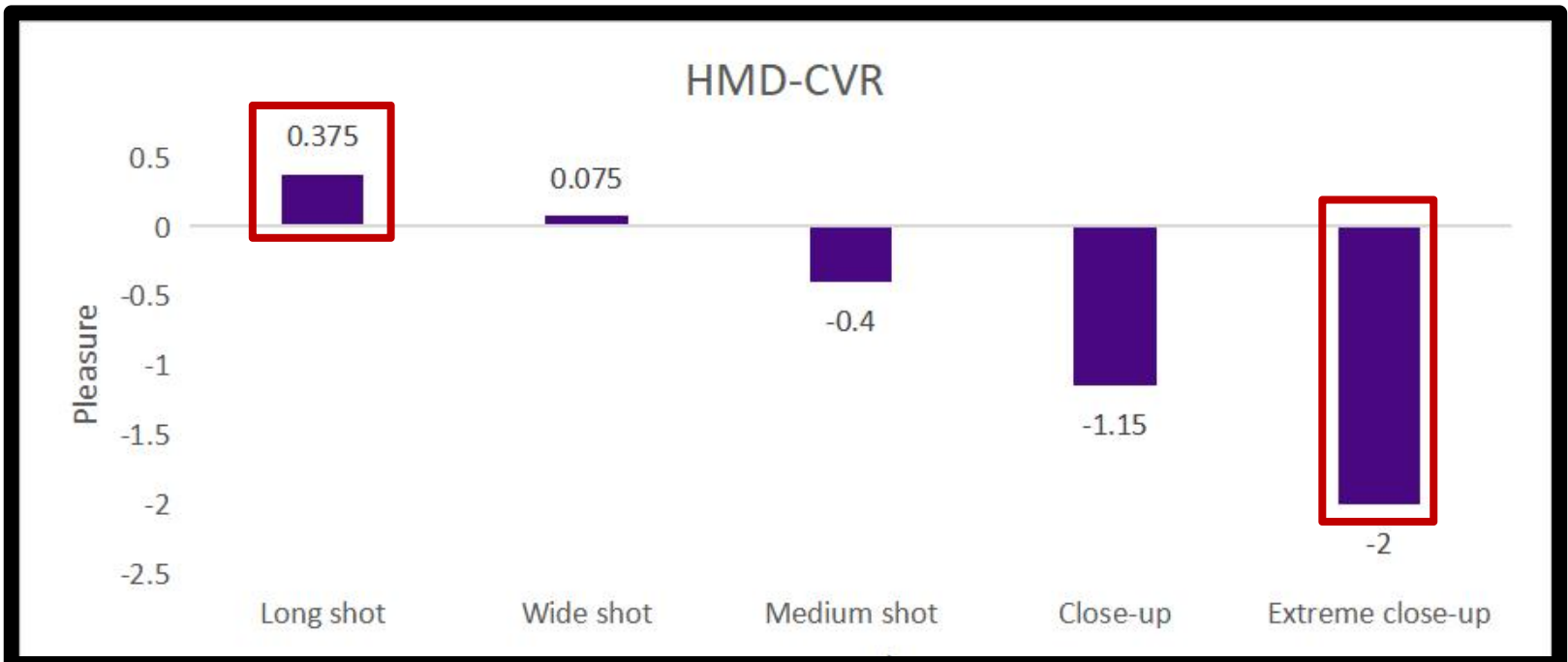
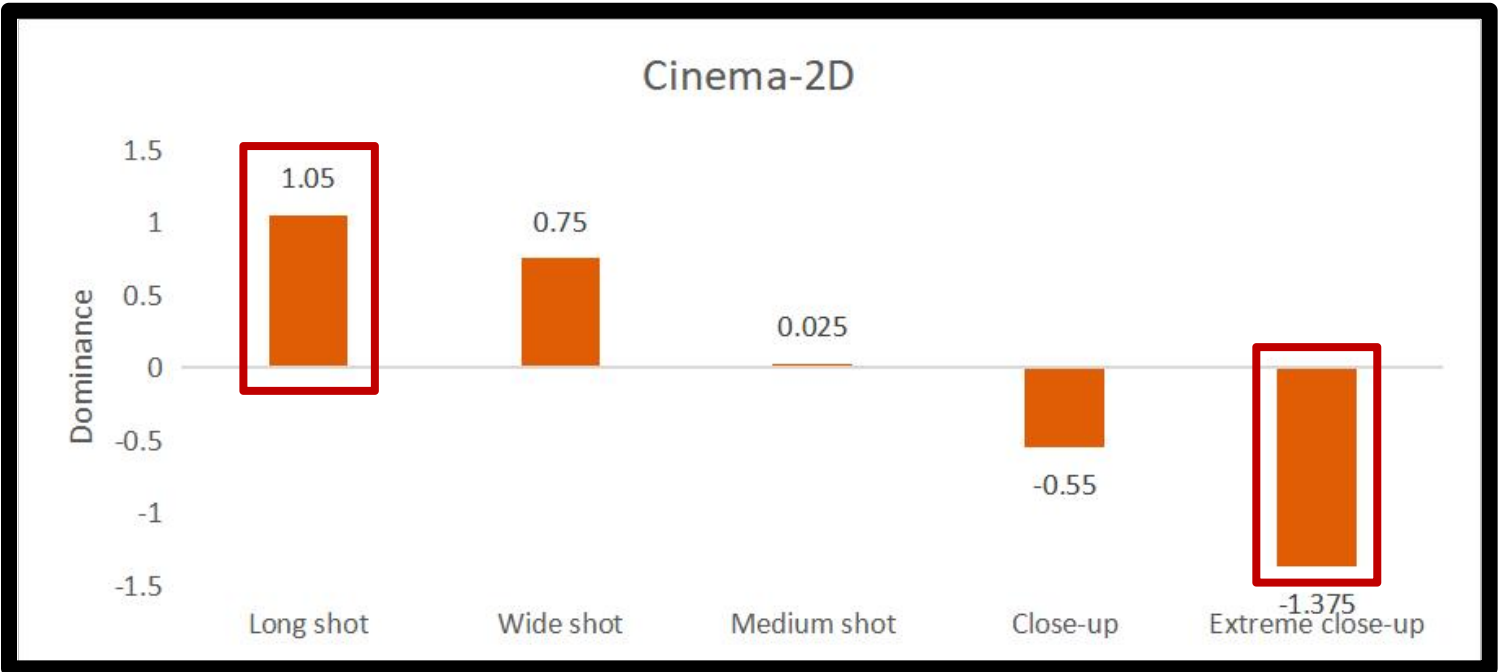


We recorded these emotional responses using the SAM

A non-verbal pictorial assessment technique that measures the pleasure, arousal, and dominance associated with a person's affective reaction to various stimuli.

Participants rating their emotional responses on a scale from 1 to 9 for each video clip.

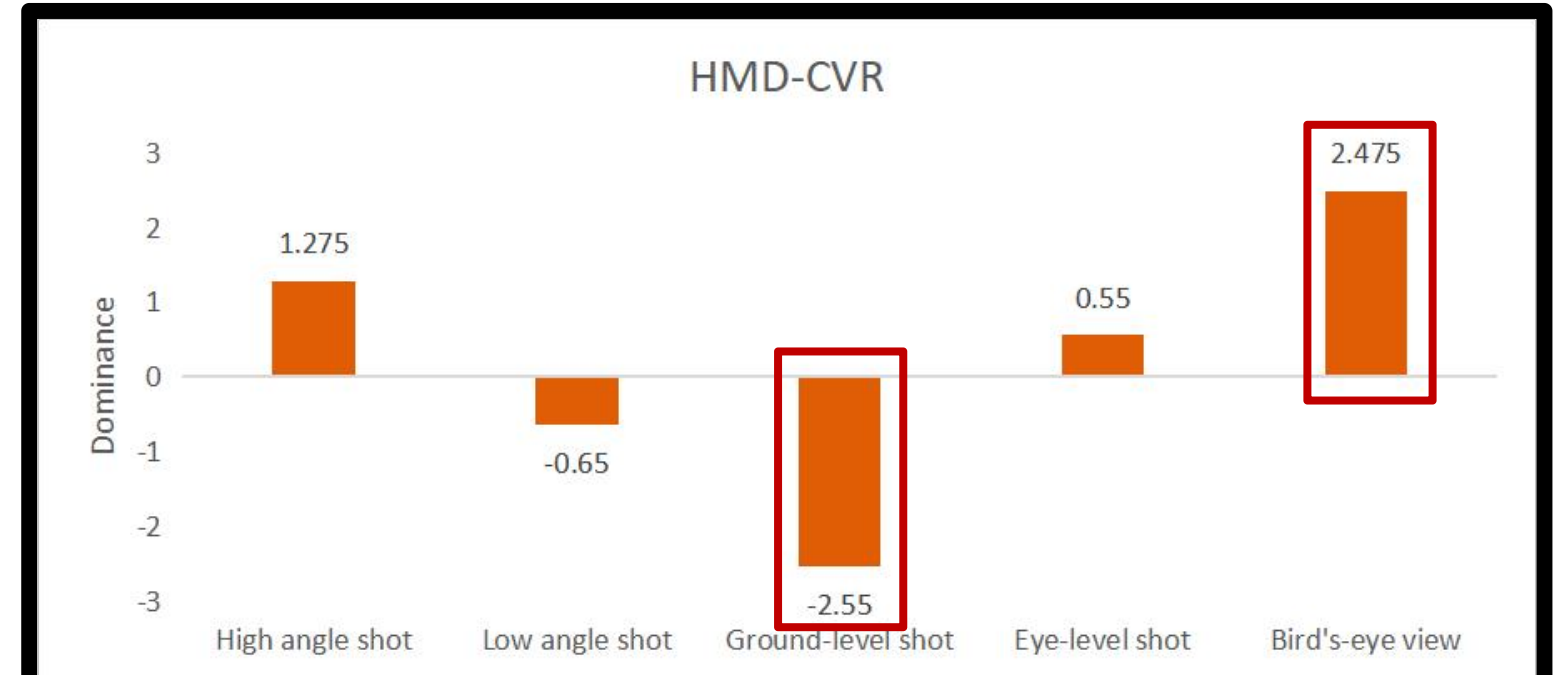
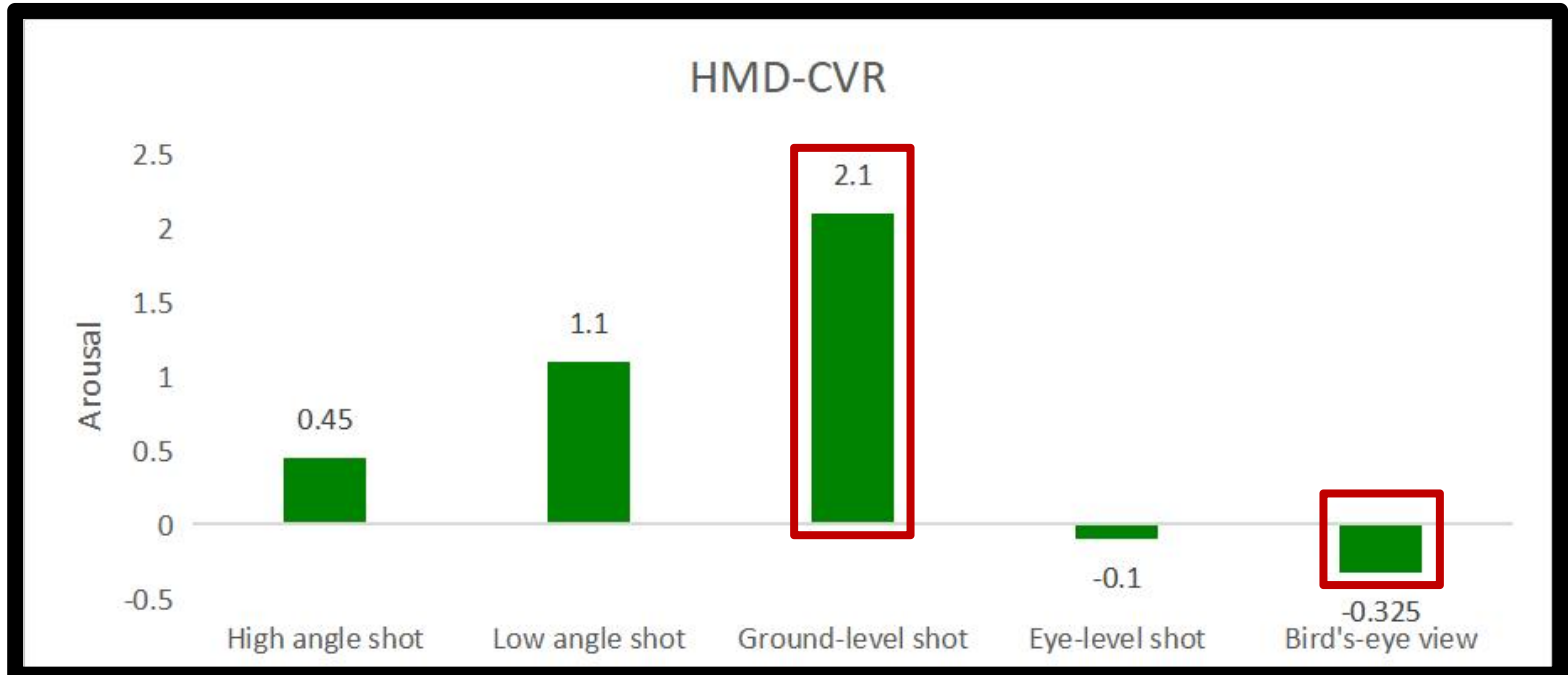
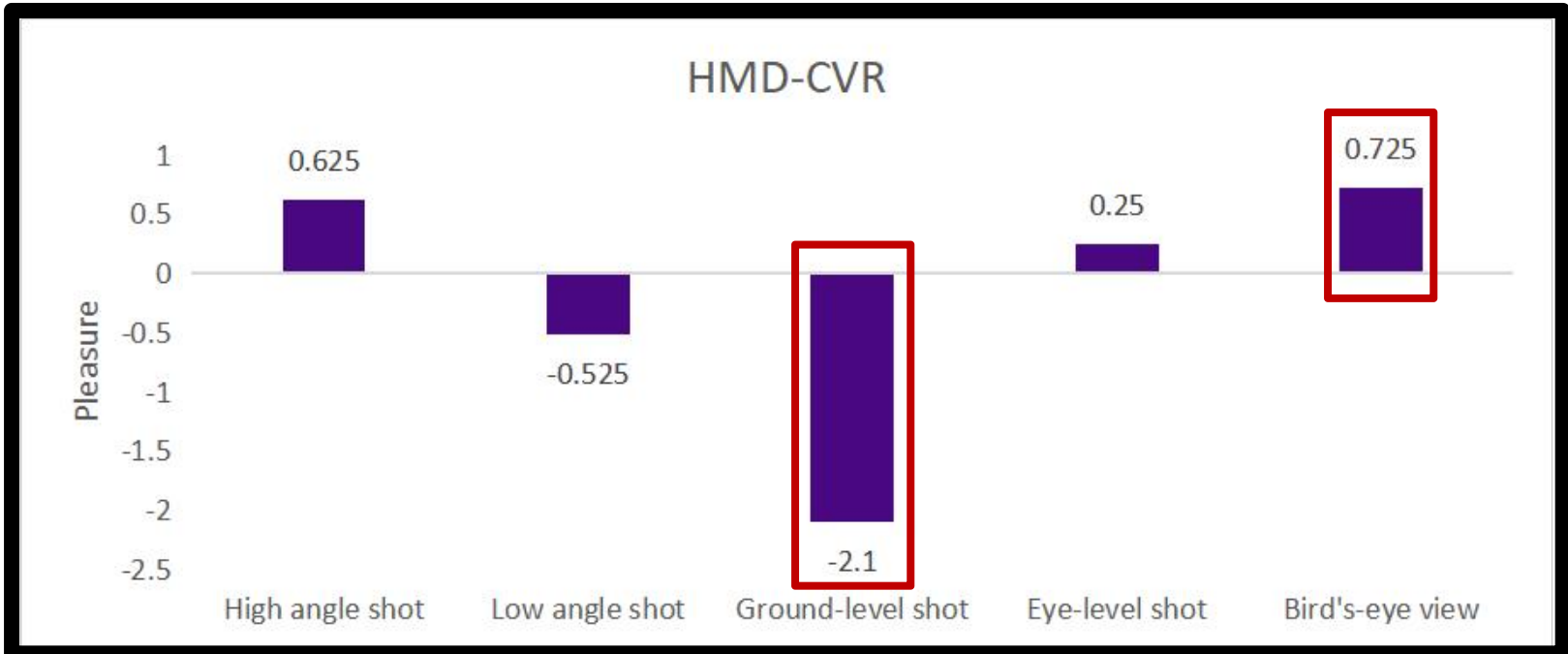
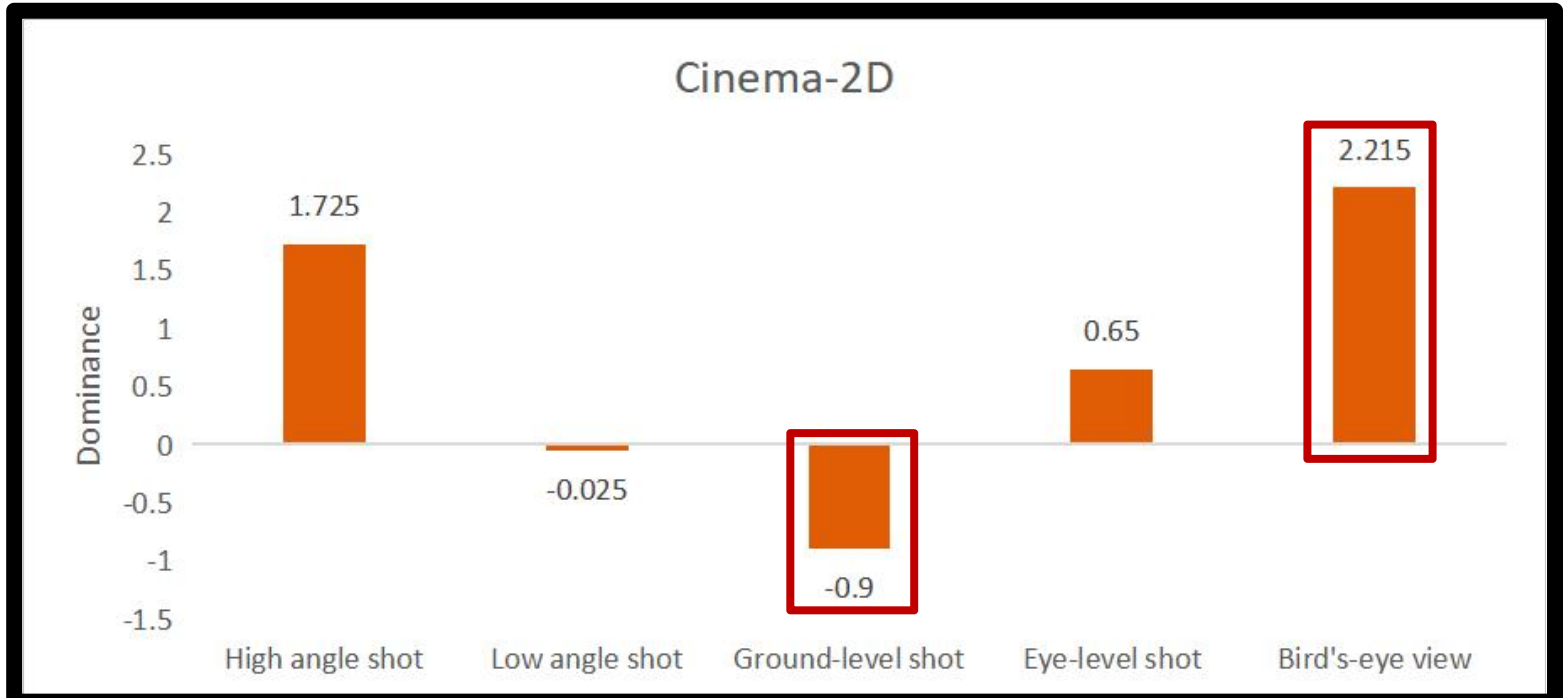
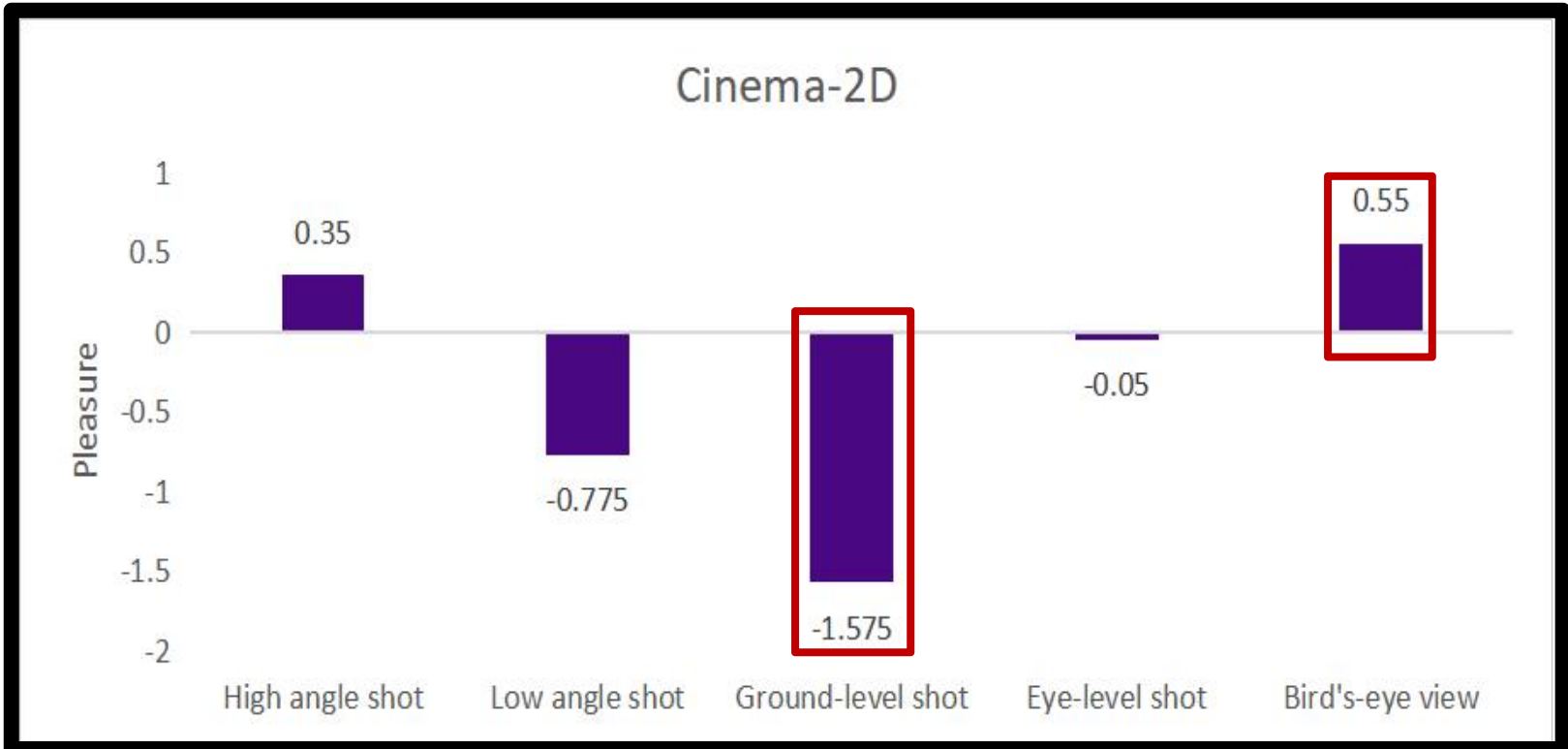
# Results



Shots size in 2D and panoramic



# Results



Camera angle in 2D and panoramic

# Discussion

- **Emotional responses across different shot sizes and camera angles**

Pleasure responses varied significantly between traditional cinema and CVR. **Arousal responses showed a positive trend** in CVR compared to traditional cinema across all shot sizes. **Dominance responses were generally reduced** in CVR compared to traditional cinema.

- **Key disparities in emotional responses**

The most significant disparities in emotional responses were observed in **long shots, extreme close-ups, ground-level shots, and bird's-eye views.**

# Discussion

- **Impact of proximity in CVR**

**Viewer reactions to proximity in CVR vary considerably.** This variability could be influenced by factors such as **personal comfort zones, prior VR experiences, or individual personality traits.**

- **Implications for CVR storytelling**

The pronounced emotional responses to **bird's-eye views** may be particularly beneficial for scenes aiming to evoke feelings of grandeur, overview, or control.

# Conclusion

The study **provide strong evidence of the embodiment effect in CVR**, with significant emotional variations observed between the two mediums.

- **finding long shots, extreme close-ups, ground-level shots, and bird's-eye views**
- **offer practical implications for cinematic virtual reality storytelling**
- **highlighting the impact of altered spatial cognition**
- **help understanding of CVR's unique storytelling potential**

# Contact

# Thanks

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