"What is the user response to complex facades created with digital fabrication, measured through virtual reality, and how does it inform future construction trends?"

Computational Image Complexity Analysis (CICA)

3D Modeling Façade variations

Façade complexity score and data visualization

Immersive Simulation

VR interface control

VR APP FOR FAÇADE ANALYSIS

VR Application

- Building interior and exterior inspection
- Façade variation selection, complexity score CICA registration
- Complexity Data visualization

Experiment

1) Quantitative

VR interaction complex facade

Screen based complexity ranking

2) Qualitative

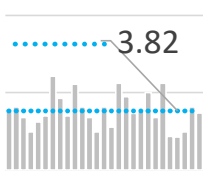
Post-interaction Survey stage

Conditions:

- 1 Building, 3 façade patterns, 10 variations

Stats. Analysis

1) Complexity level



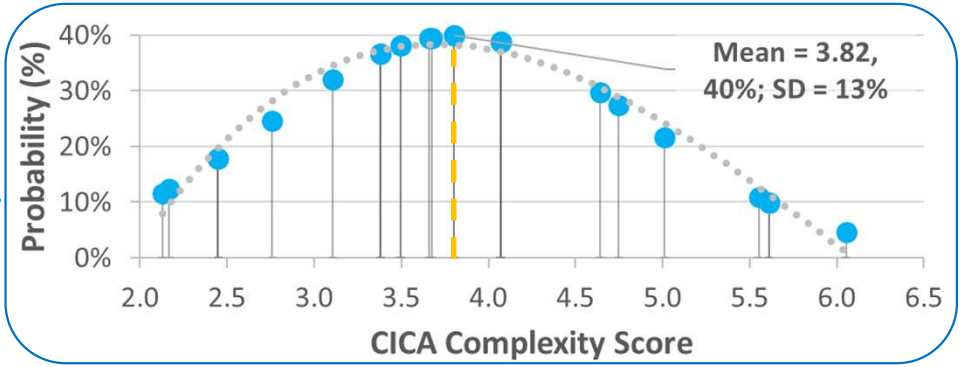
Complexity score of facade chosen

Mean Complex. score

2) Survey analysis

- Participant Background
- Perception and parameters of complexity

Experiment Design



CONCLUSION:

This research examines the role of complexity in architectural facades, using a combination of virtual reality assessment and the CICA system. Findings reveal a user preference for moderate complexity, indicating a trend towards balanced, intricate designs. Discrepancies between user perceptions and CICA rankings highlight the subjective nature of complexity. The study suggests a shift towards customizable, user-centric designs in contemporary architecture, emphasizing the importance of aligning complexity with user preferences.