CollaboVR: A Reconfigurable Framework for Creative Collaboration in Virtual Reality

Zhenyi He[*] Ruofei Du[†] Ken Perlin[*]

[*]Future Reality Lab, New York University [†]Google LLC

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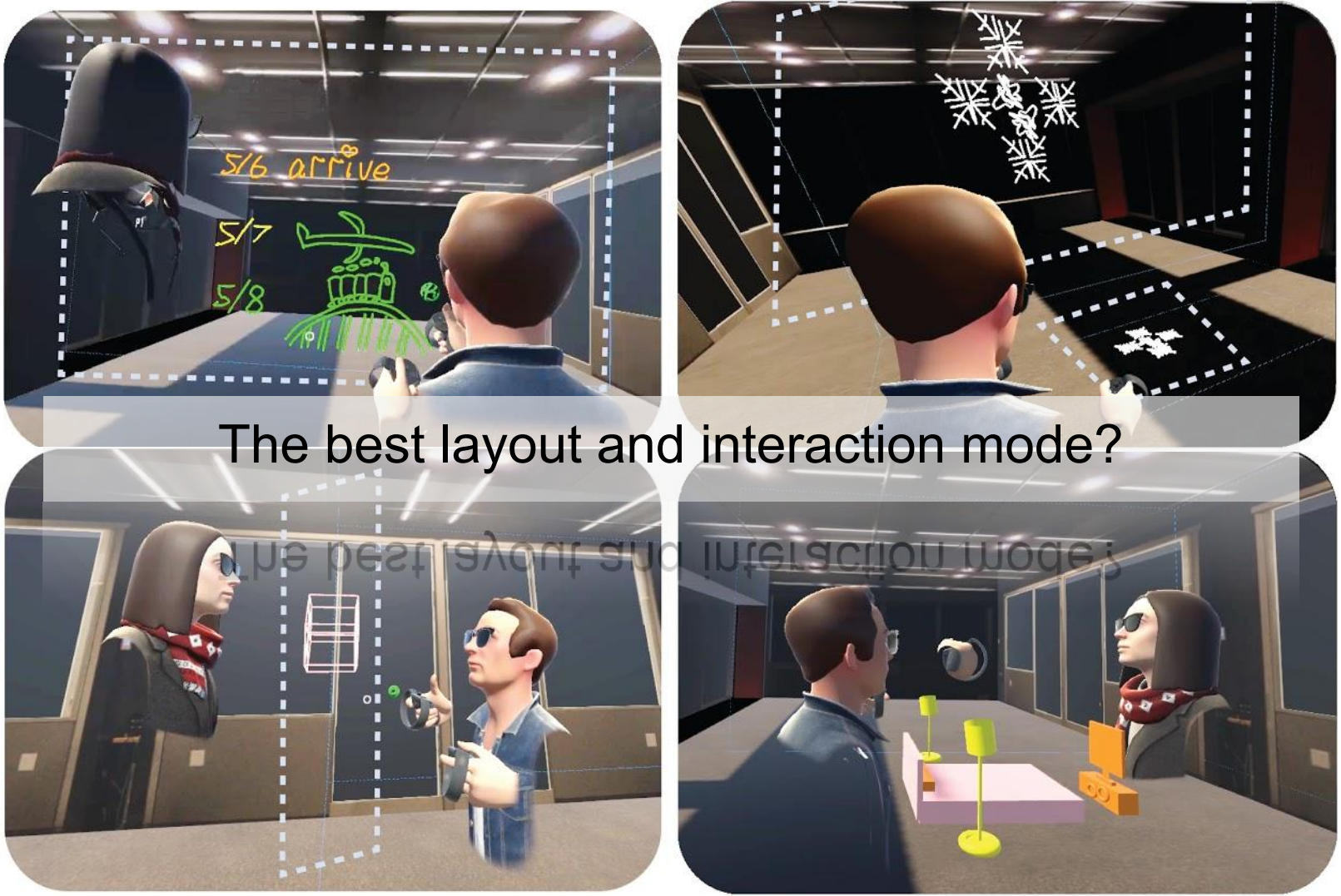
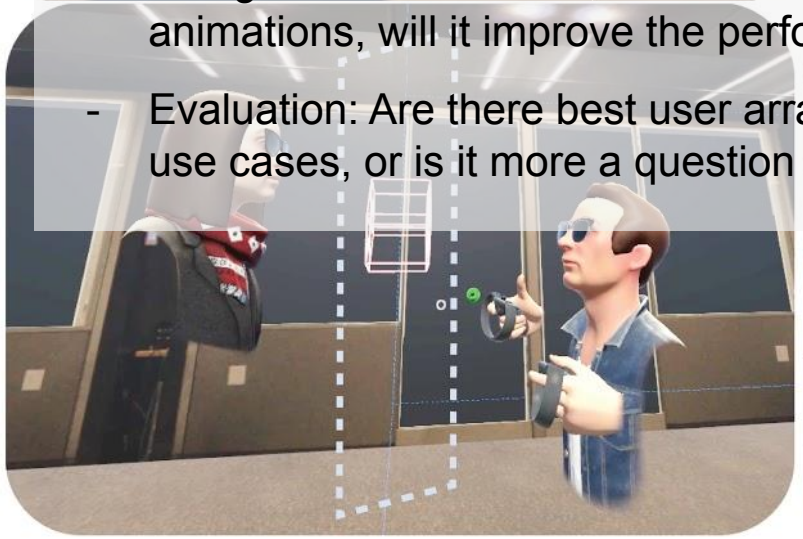
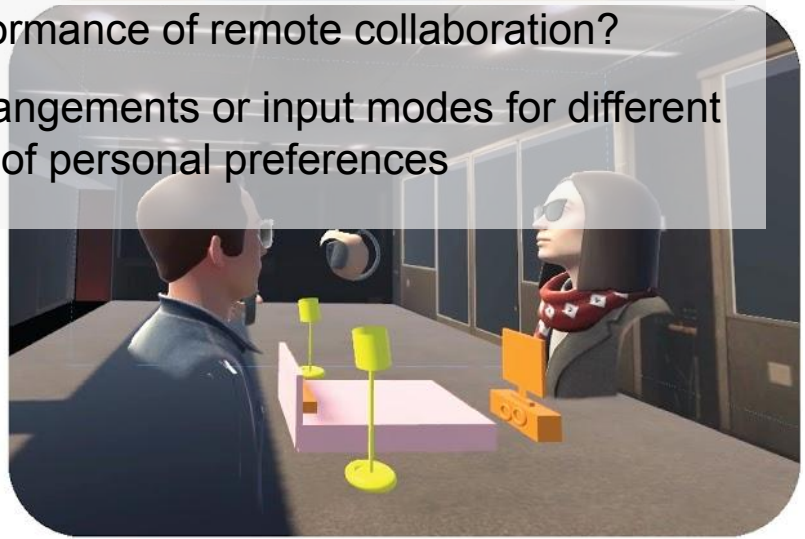

5/6 arrive
5/7
5/8
The best layout and interaction mode?

Research Questions:

- Design: What if we could bring sketching to real-time collaboration in VR?
- Design + Evaluation: If we can convert raw sketches into interactive animations, will it improve the performance of remote collaboration?
- Evaluation: Are there best user arrangements or input modes for different use cases, or is it more a question of personal preferences





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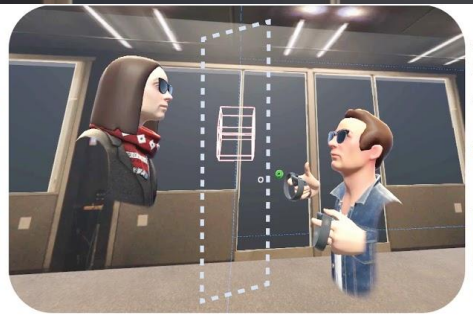
(a) Discussing travel schedules in *integrated layout* with remote participants.



(b) Presenting the topic of four dimensional shapes in *mirrored layout*.

(c) Sketching a baroque pattern in *projective layout* to remote users.

(d) Collaborative design session of furniture and apartment arrangements.

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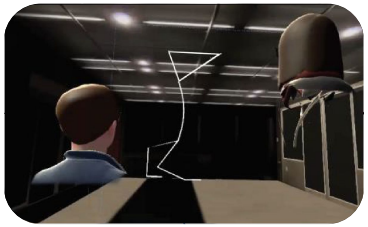
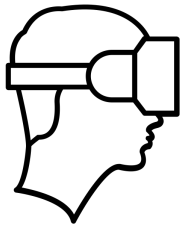
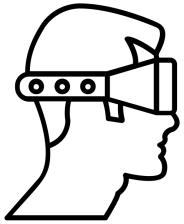
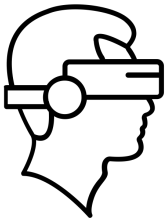
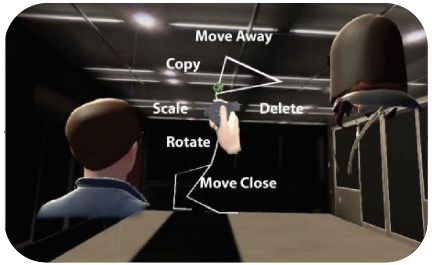




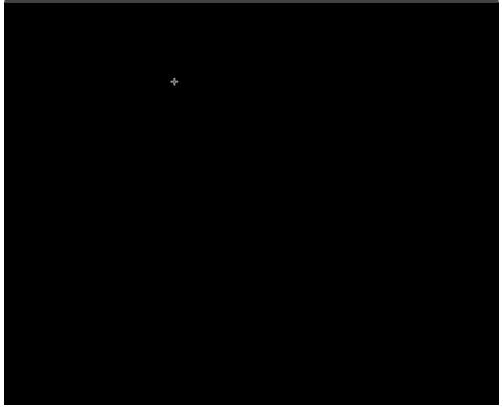




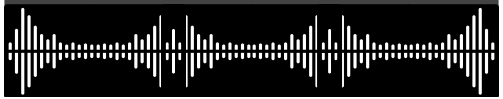
CollaboVR



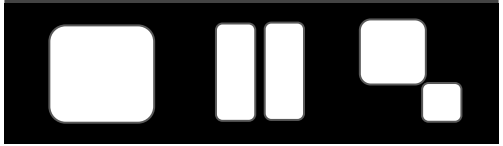
Chalktalk (Cloud App)

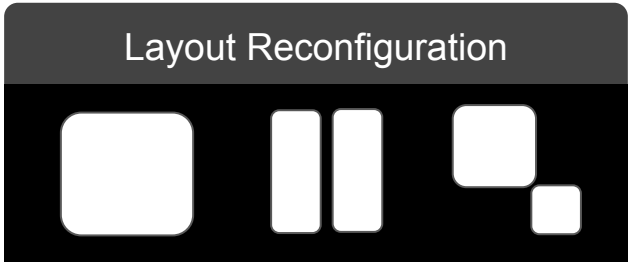


Audio Communication



Layout Reconfiguration



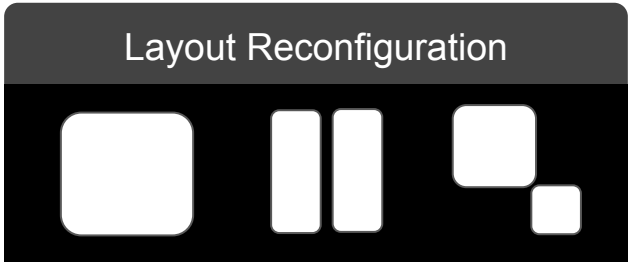


User Arrangements

(1) side-by-side
(2) face-to-face
(3) hybrid

Input Modes

(1) direct
(2) projection



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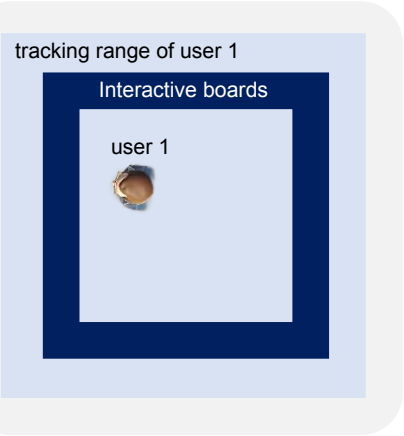

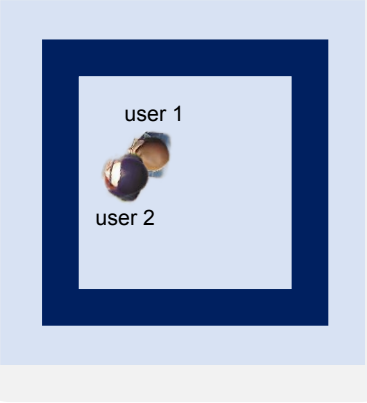

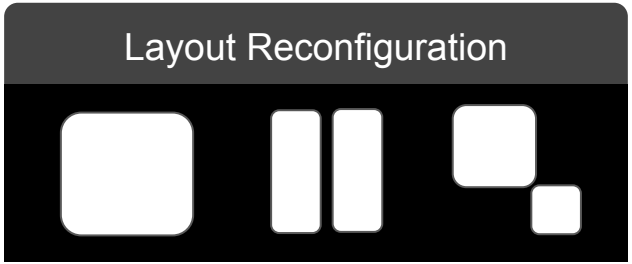

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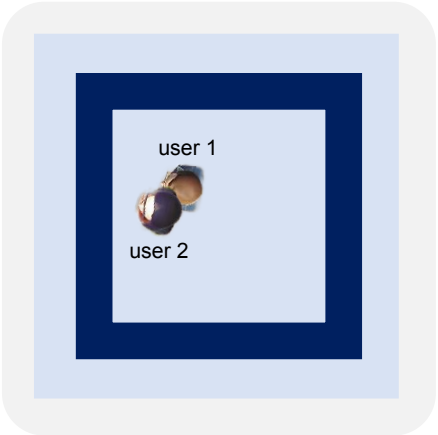

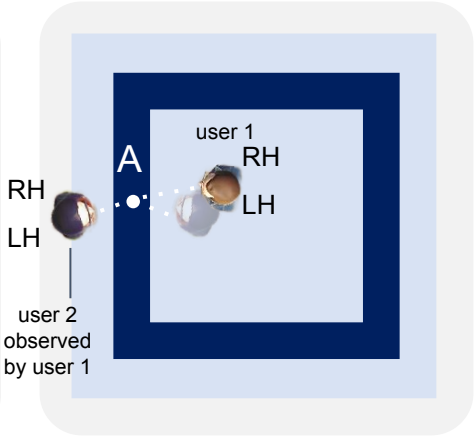

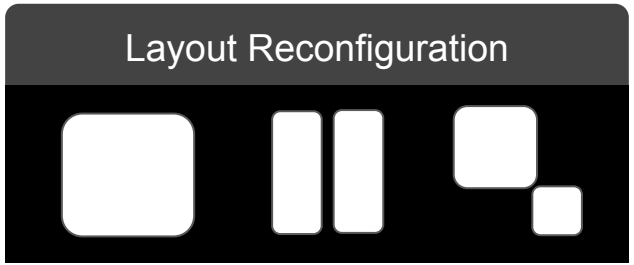

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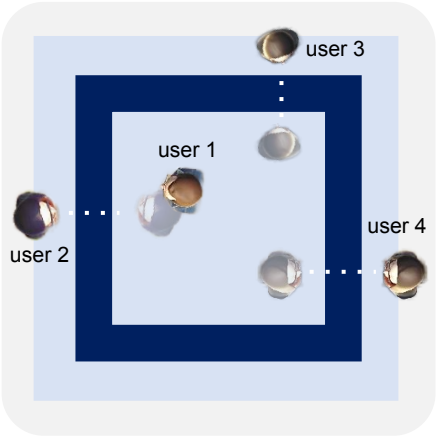

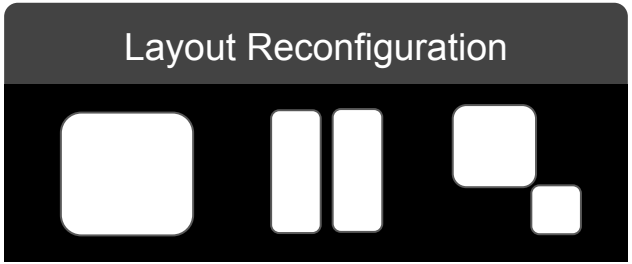

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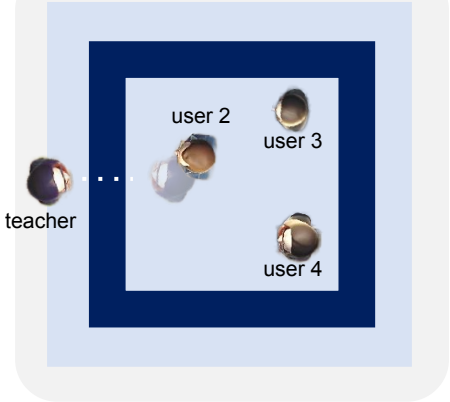

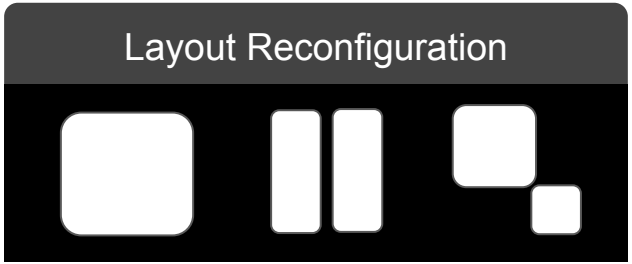

Input modes

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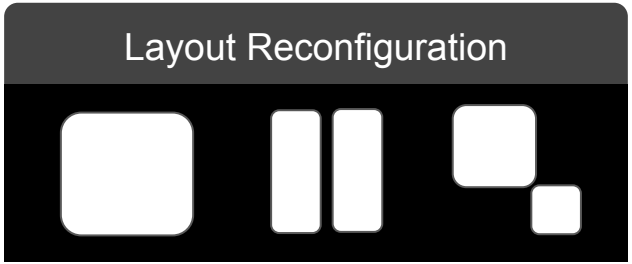
(2) projection



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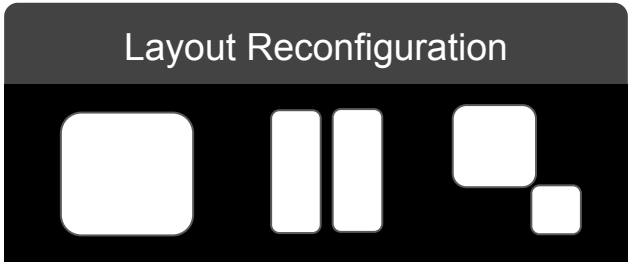

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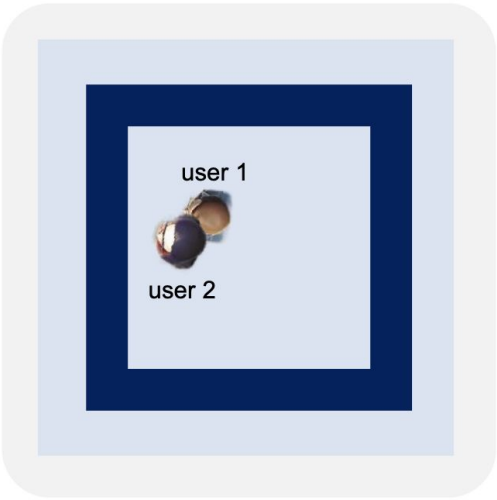
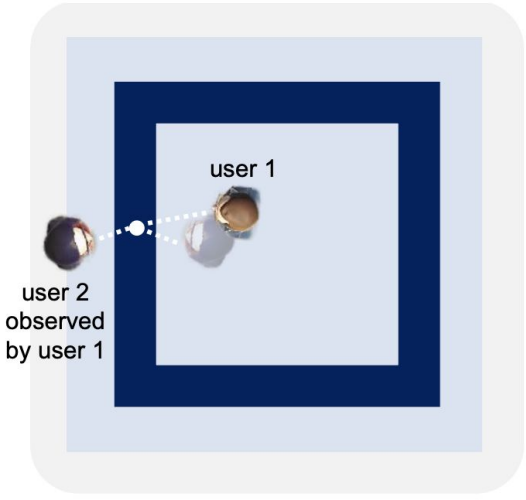
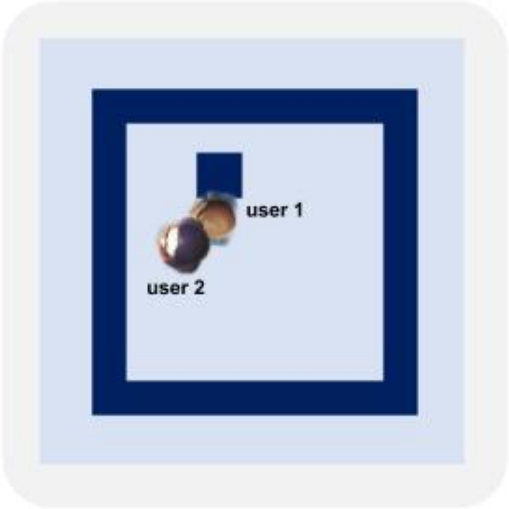
C1: Integrated Layout



C2: Mirrored Layout



C3: Projective Layout



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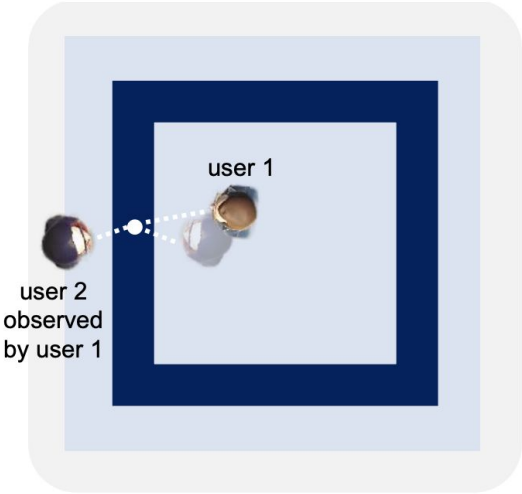

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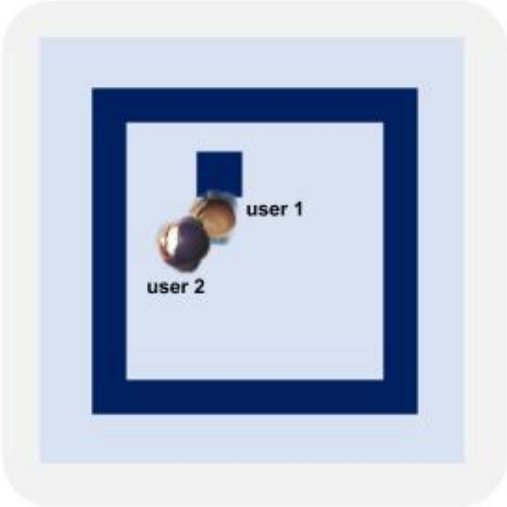

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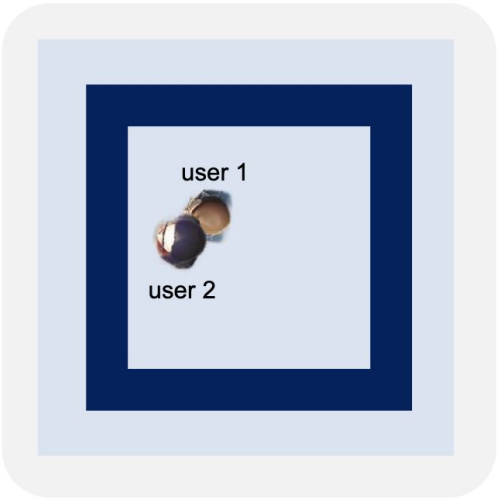
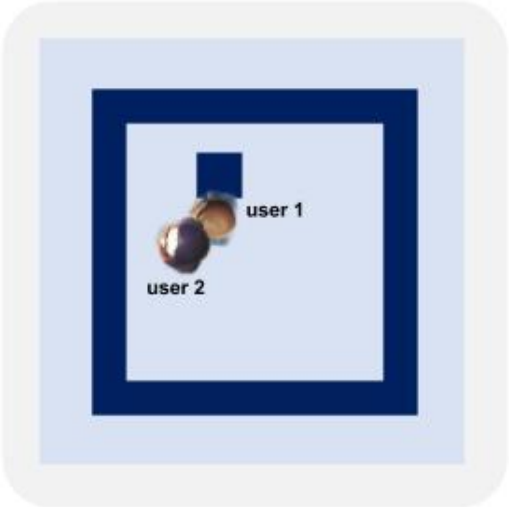


C2: Mirrored Layout

C3: Projective Layout



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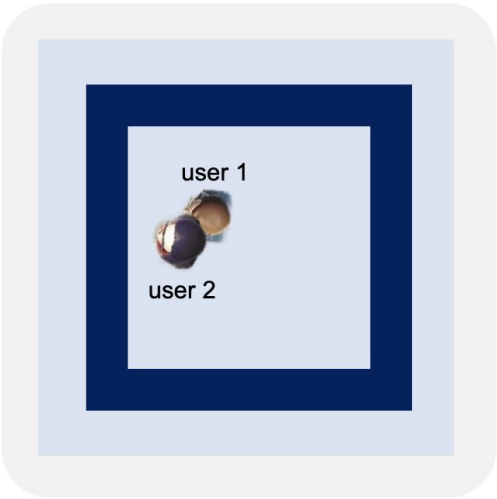

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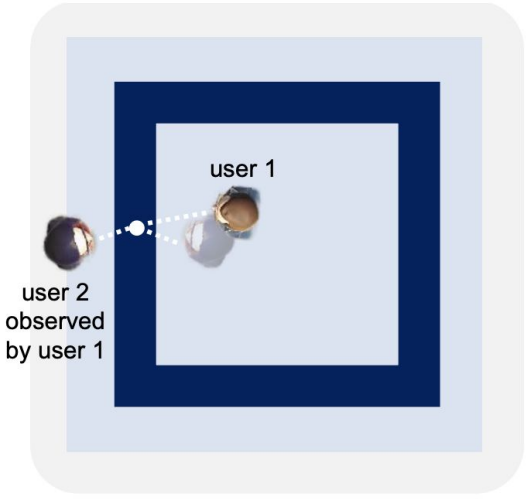
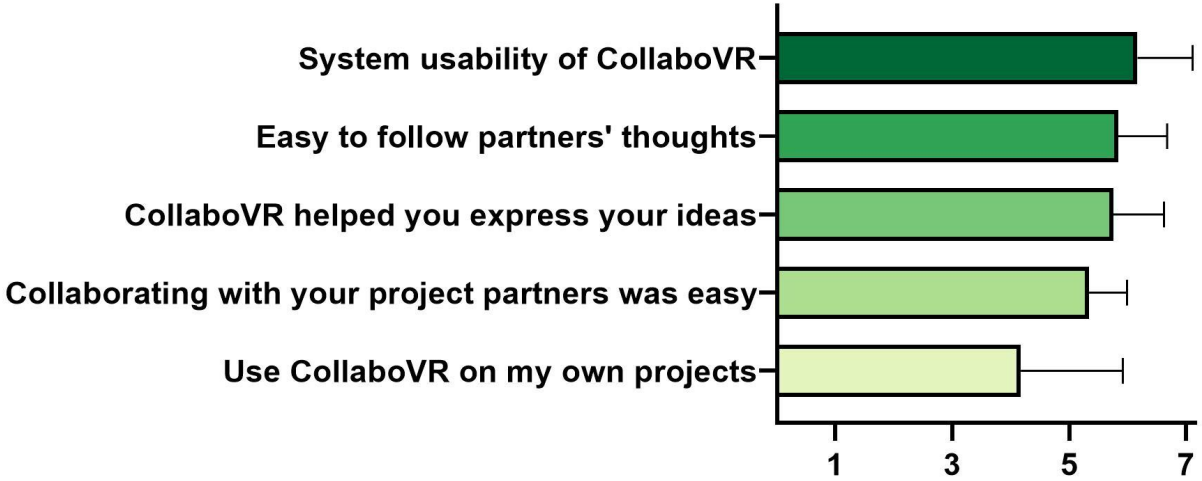


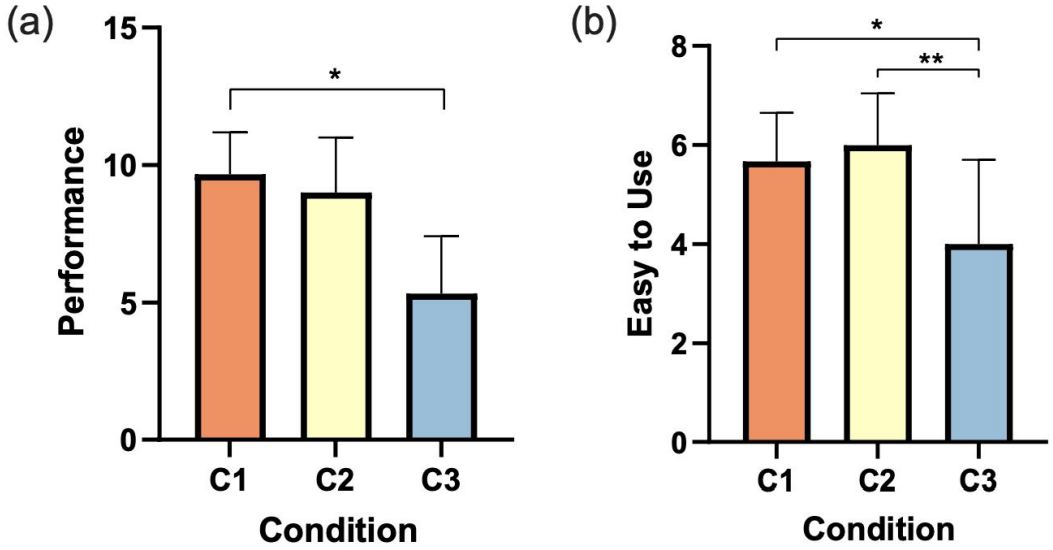
C3: Projective Layout

Evaluation

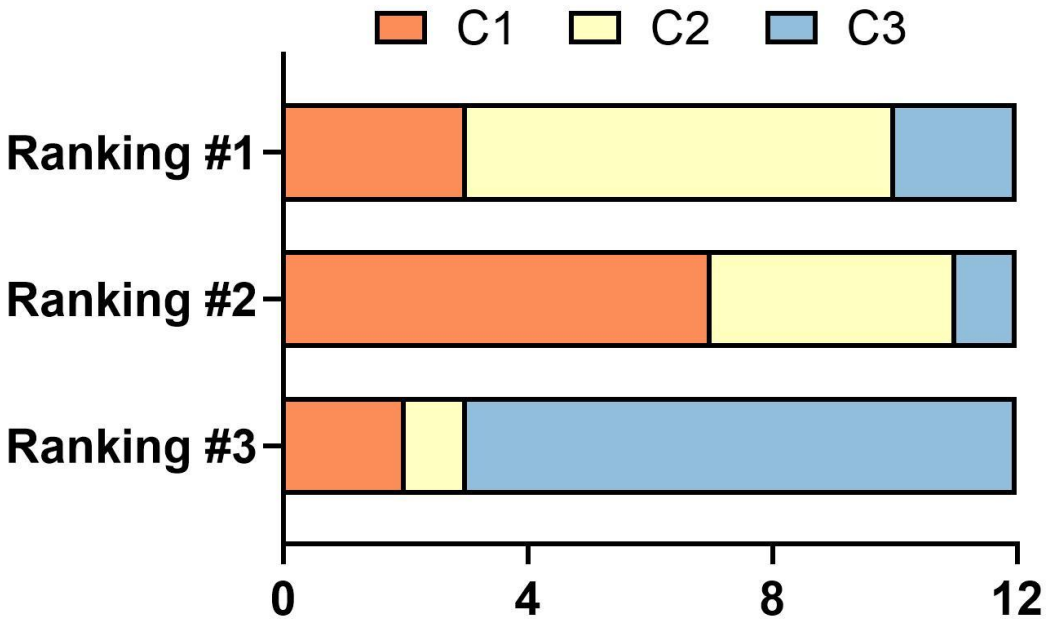


Overview of subjective feedback on CollaboVR

Evaluation


(a)
15
10
5
0
Performance
*
C1
C2
C3
Condition
(b)
8
6
4
2
0
Easy to Use
*
**
C1
C2
C3
Condition

Evaluation



Takeaways

1. Developing CollaboVR, a reconfigurable end-to-end collaboration system.
2. Designing custom configurations for real-time user arrangements and input modes.
3. Quantitative and qualitative evaluation of CollaboVR.
4. Open-sourcing our software at https://github.com/snowymo/CollaboVR.

more live demos...

Create Board
Manipulate Sketch
Color Palette
DrawToggle

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Thank you very much

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