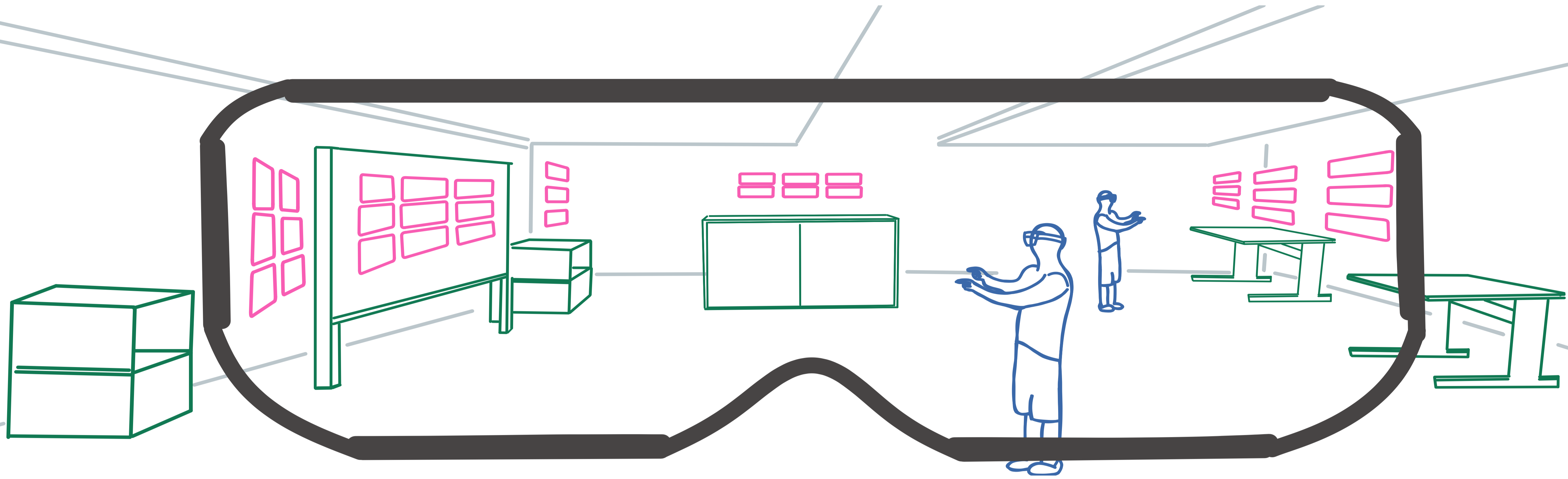


# Exploring Spatial Organization Strategies for Virtual Content in Mixed Reality Environments

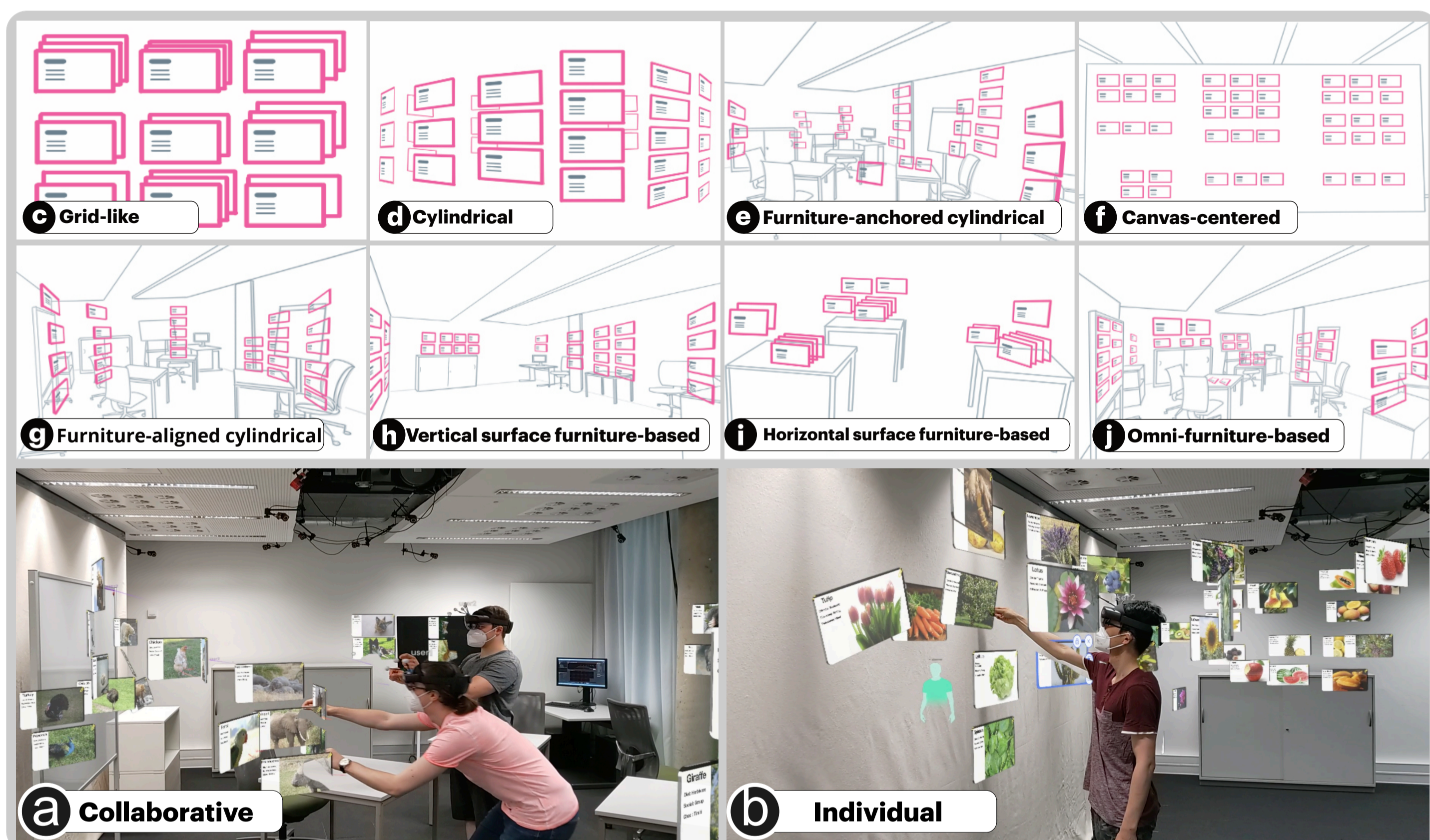
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- **Future Scenario** *sensemaking, brainstorming, presentation*
- **Virtual Content** *text, images, data visualizations*

- **Physical Environment** *furniture, architectural elements*
- **People Presence** *collaborators, audiences, bystanders*

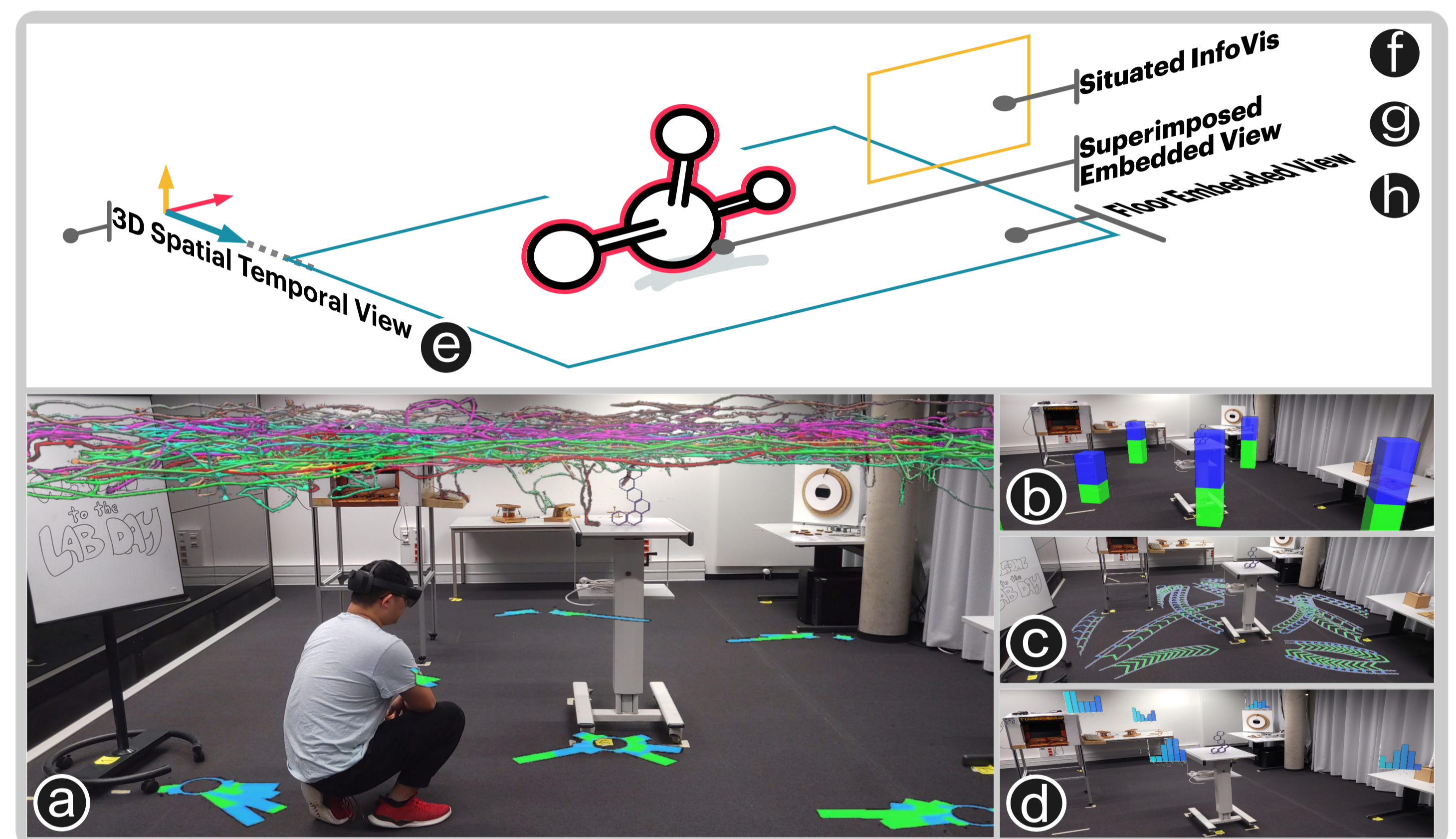
## How and where should virtual content be placed in Mixed Reality Environments?



Luo et al., Where Should We Put It? Layout and Placement Strategies of Documents in Augmented Reality for Collaborative Sensemaking. In CHI '22.

### RQ1 How would users place and organize virtual content considering real-world surroundings?

- A user study (N=28) on the impacts of environments and work styles
- Physical objects like furniture were required for organizing content
- Different layout strategies rely weakly or strongly on surroundings



Luo et al., Pearl: Physical Environment based Augmented Reality Lenses for In-Situ Human Movement Analysis. In CHI '23.

### RQ2 How can spatio-temporal activities be analyzed and evaluated in mixed-reality environments?

- A mixed-reality approach for analyzing human movement data in situ
- Interacting directly with the environment for working with data
- A suit of visualization techniques associated with physical referents

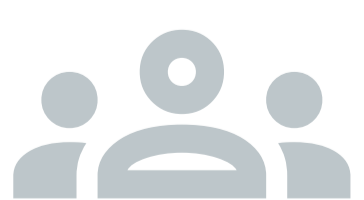
## Next Steps

### RQ3 How would users interact with virtual content and their collections for organization, exploration, and comparison?



- Document arrangement tasks like aggregating, distributing, inspecting, and navigating
- Influence of layouts and their placement on arranging strategies and spatial interaction
- The design of mixed-reality systems to assist the spatial arrangement process

### RQ4 How does the presence of people affect the organization of virtual content?



- People as referents of virtual content or as obstacles to accessing virtual content
- Social context including the number and relationship of collaborators and their dynamics
- Scenarios of mixed-reality presentation and storytelling considering presenters and audiences



Hi, I'm **Weizhou Luo**

I'm a 5th year Ph.D. student at the Interactive Media Lab Dresden, expecting to finish in Spring 2025.

My research focuses on applying mixed and augmented reality to support data exploration, interaction, and sensemaking.

My supervisor is Prof. Dr.-Ing. Raimund Dachsel.

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