

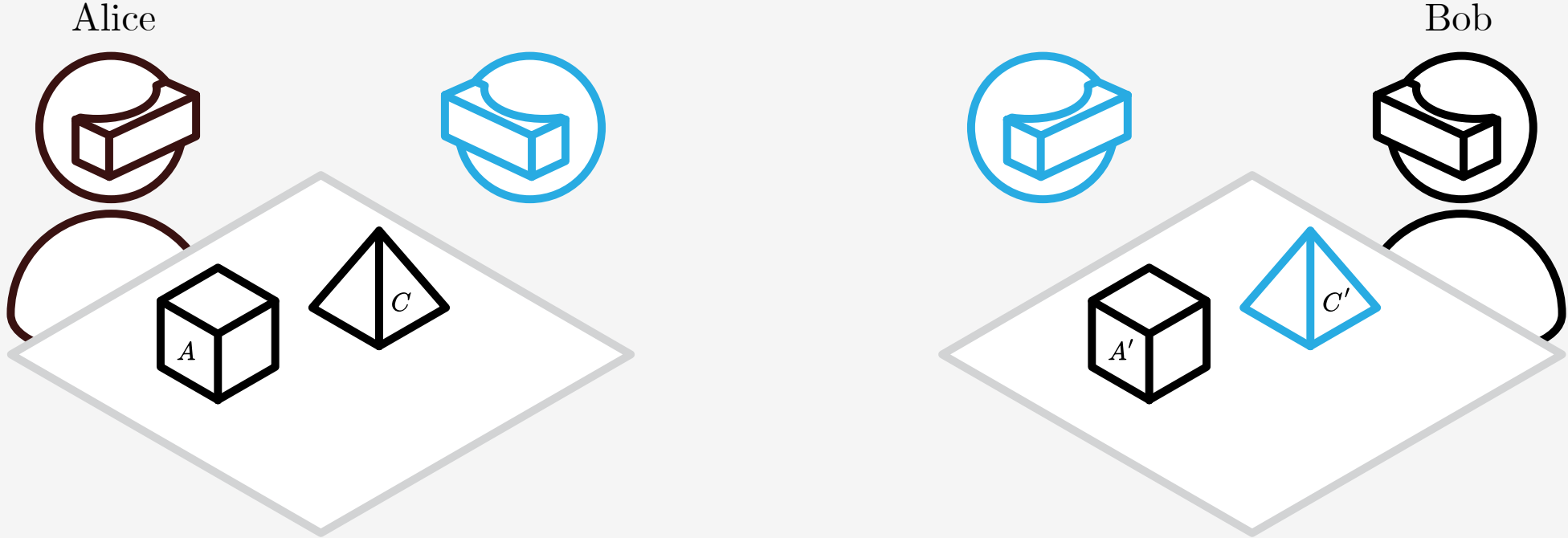
# Supporting Artefact Awareness in Partially-Replicated Workspaces

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1st Joint Workshop on Cross Reality to be held in conjunction with the  
IEEE International Symposium on Mixed and Augmented Reality (ISMAR 2023)



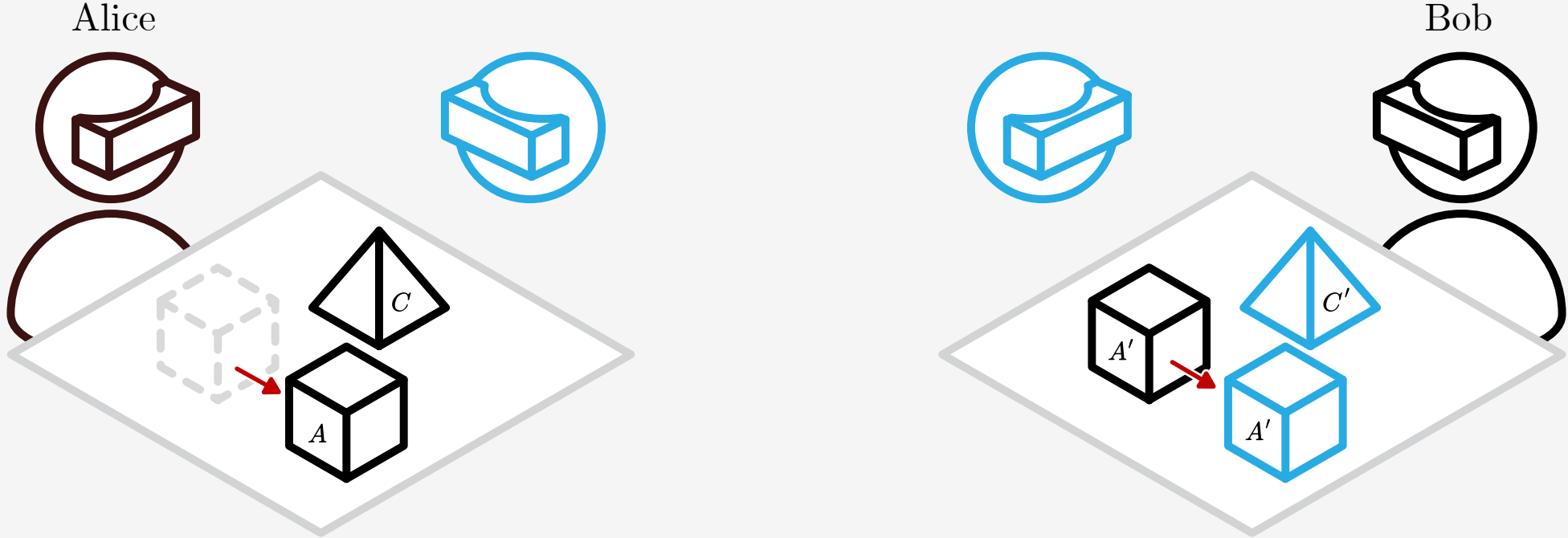
**How collaborators in different locations work together in shared workspaces with partially replicated objects?**



**Fig 1a:** Alice and Bob in separate locations with access to **physical (in black)** artefacts  $A, C$  for Alice, physical artefact (non-mechanical) twin  $A'$  and **virtual (in blue)** replica of  $C'$  for Bob. ( $A \leftrightarrow A', C \leftrightarrow C'$ )



Fig 1b: Presumably, if Alice moves C, C' would move in Bob's workspace



**Fig 1c:** If Alice moves artefact *A*, *A'* is not able to move on its own. Instead, a virtual replica would emerge as a representation of the artefact in a new location in Bob's workspace. Should Bob be able to interact with this new virtual object?

## Artefact Awareness Cues

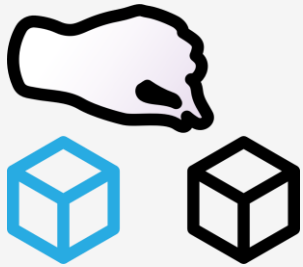
Designed to replace explicit verbal communication during collaboration

“What is this artefact?” (Identity)

“Where was this artefact?” (Past Location)

“What should this artefact be?” (Future Property)

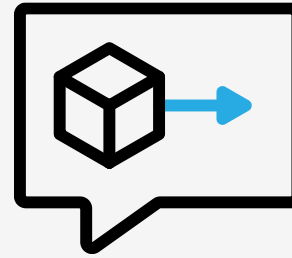
## Problem 1



## Interaction

How does users interact with a CR object?

## Problem 2



## Intention

How to communicate to a collaborator about CR objects?

“Should we interact/communicate differently with cross reality objects?”

Are you looking at the same problems?  
Know how Artefact Awareness can be applied?

Contact me! [emran.poh@u.nus.edu](mailto:emran.poh@u.nus.edu)

