

# VR COLLIDE!

## Comparing Collision-Avoidance Methods Between Co-located Virtual Reality Users

Anthony Scavarelli, Robert J. Teather • Carleton University • Ottawa, Ontario, Canada

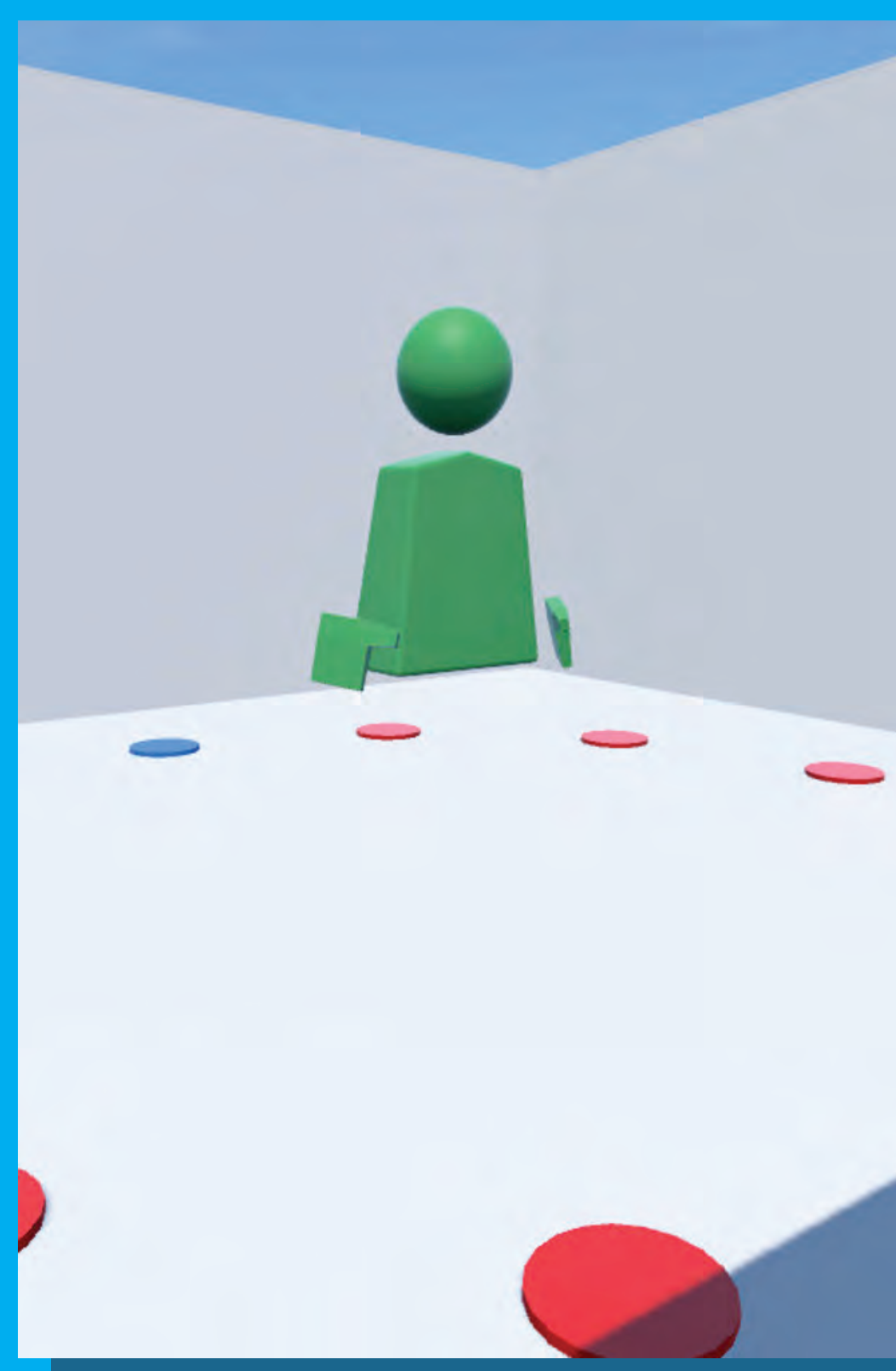


### THE PROBLEM

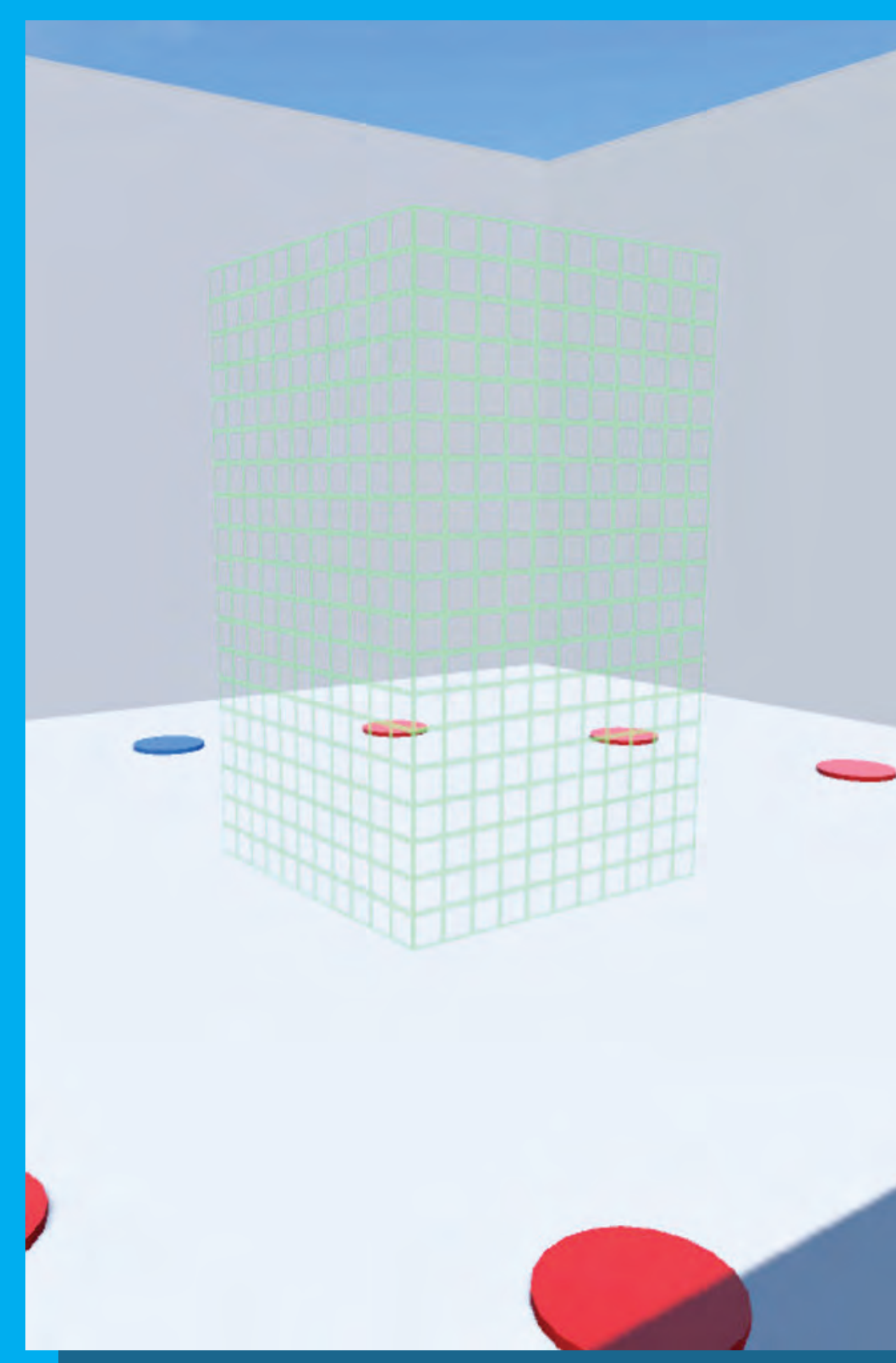
- Physically co-located VR users may collide
- We studied methods to prevent collisions

### VISUALIZATIONS

- Compared 3 methods of visualizing simulated user
- Chosen based on commercial usage
- CameraOverlay as control condition



Avatar  
basic humanoid



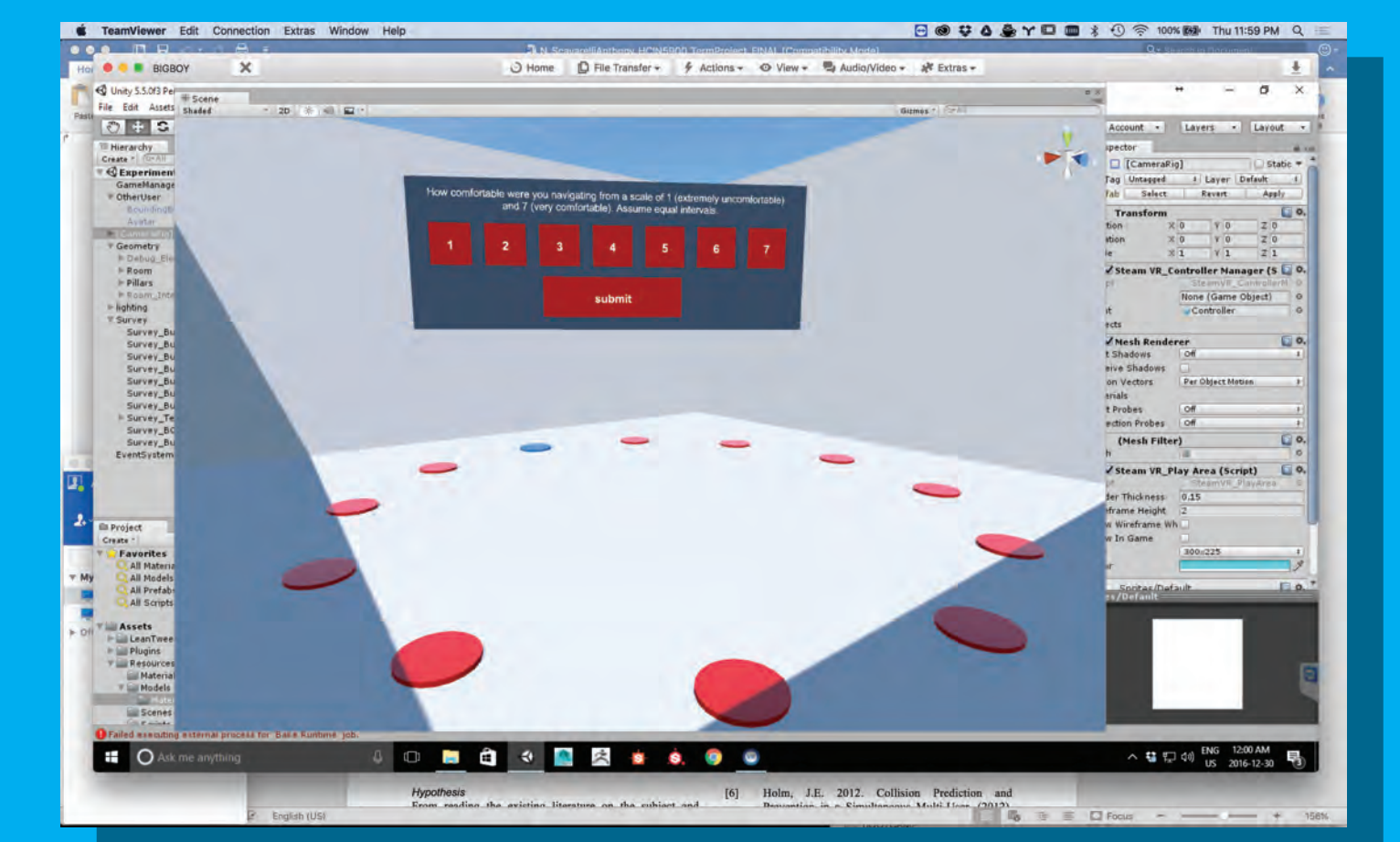
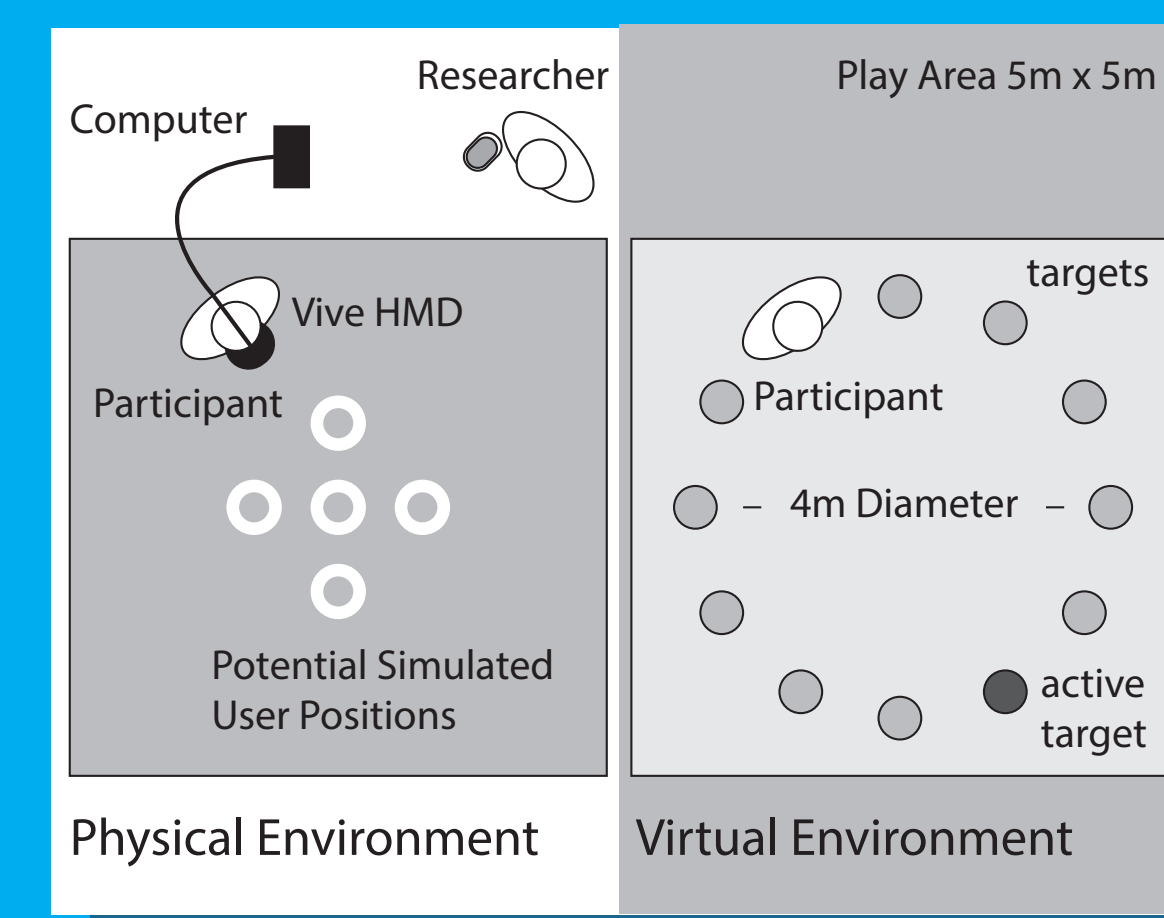
BoundingBox  
appears only when close



CameraOverlay  
live camera feed overlaid over environment

### EXPERIMENT

- 18 participants crossed circle from start to target location
- Simulated second user presented by using three visualizations
- Second user could be in direct, glancing, or no collision
- Software recorded time, collisions, and subjective preference
- 12 participants x 3 visualizations x 3 collision types x 6 trials = 648 trials total



### RESULTS

- Avatar fastest and most preferred
- BoundingBox had half as many collisions

