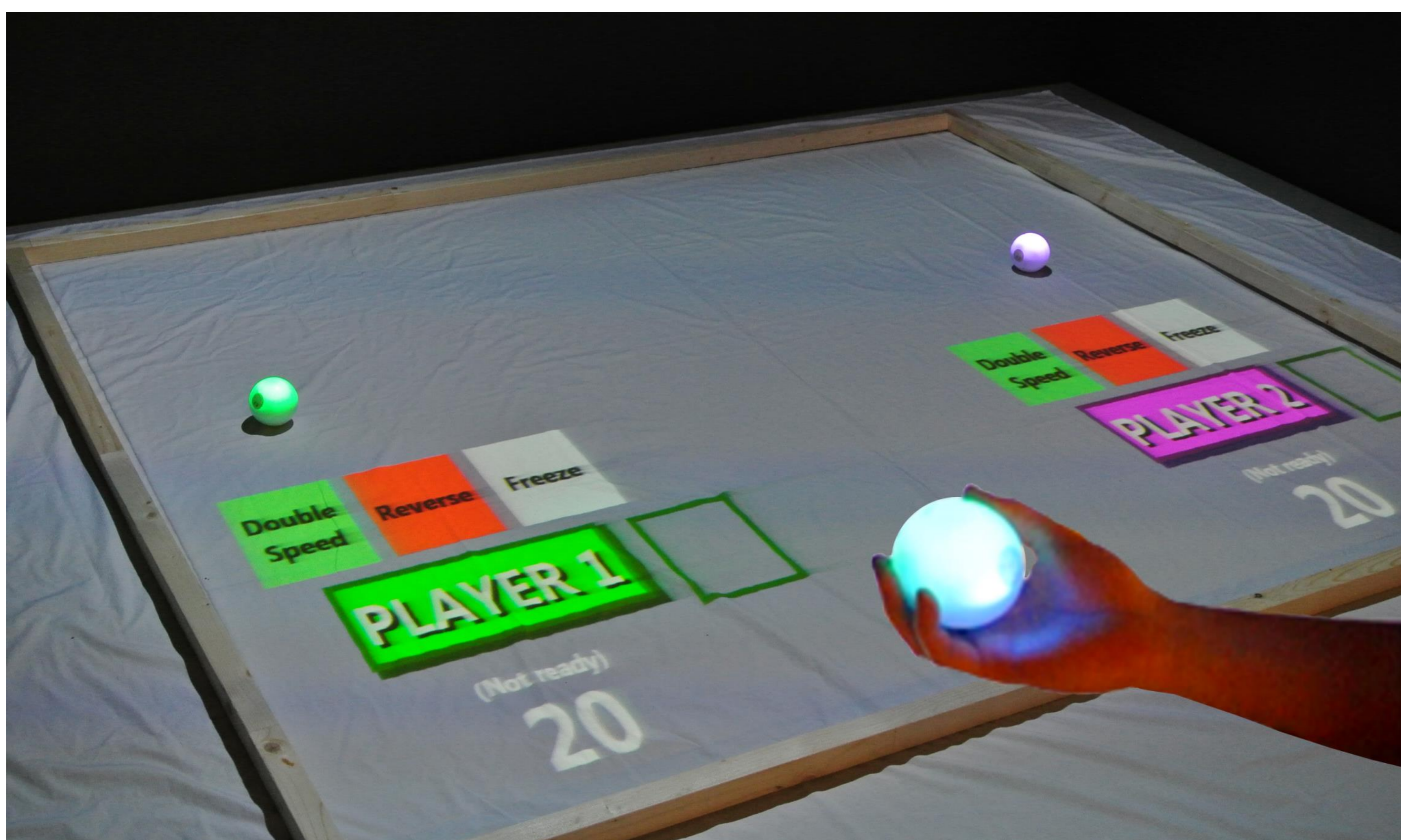# DESIGNING AN IMMMERSIVE AND ENTERTAINING PERVASIVE GAMEPLAY EXPERIENCE WITH
SPHER⬤S AS GAME AND INTERFACE ELEMENTS

Brennan Jones,   Kody Dillman,   Setareh Aghel Manesh,   Ehud Sharlin,   Anthony Tang

{bdgjones, kody.dillman, setareh.aghelmanesh}@ucalgary.ca, ehud@cpsc.ucalgary.ca, tonyt@ucalgary.ca

Sphero Sumo, a pervasive game requiring two players to each control a Sphero in an arena and fight against each other.

The Sphero is a robotic remote-controlled ball capable of rolling around on its own in any direction at multiple speeds. Numerous games have been designed for the Sphero for smartphones and tablets. However, most of these games provide an interface for controlling the Sphero that is far from natural. These games also do not put a strong focus on the physical environment around the Sphero.

We present a control scheme used to control a Sphero with another Sphero, and a pervasive game leveraging this scheme that emphasizes physical properties of the environment to create an immersive experience.

Holding the controller still keeps the roller still.
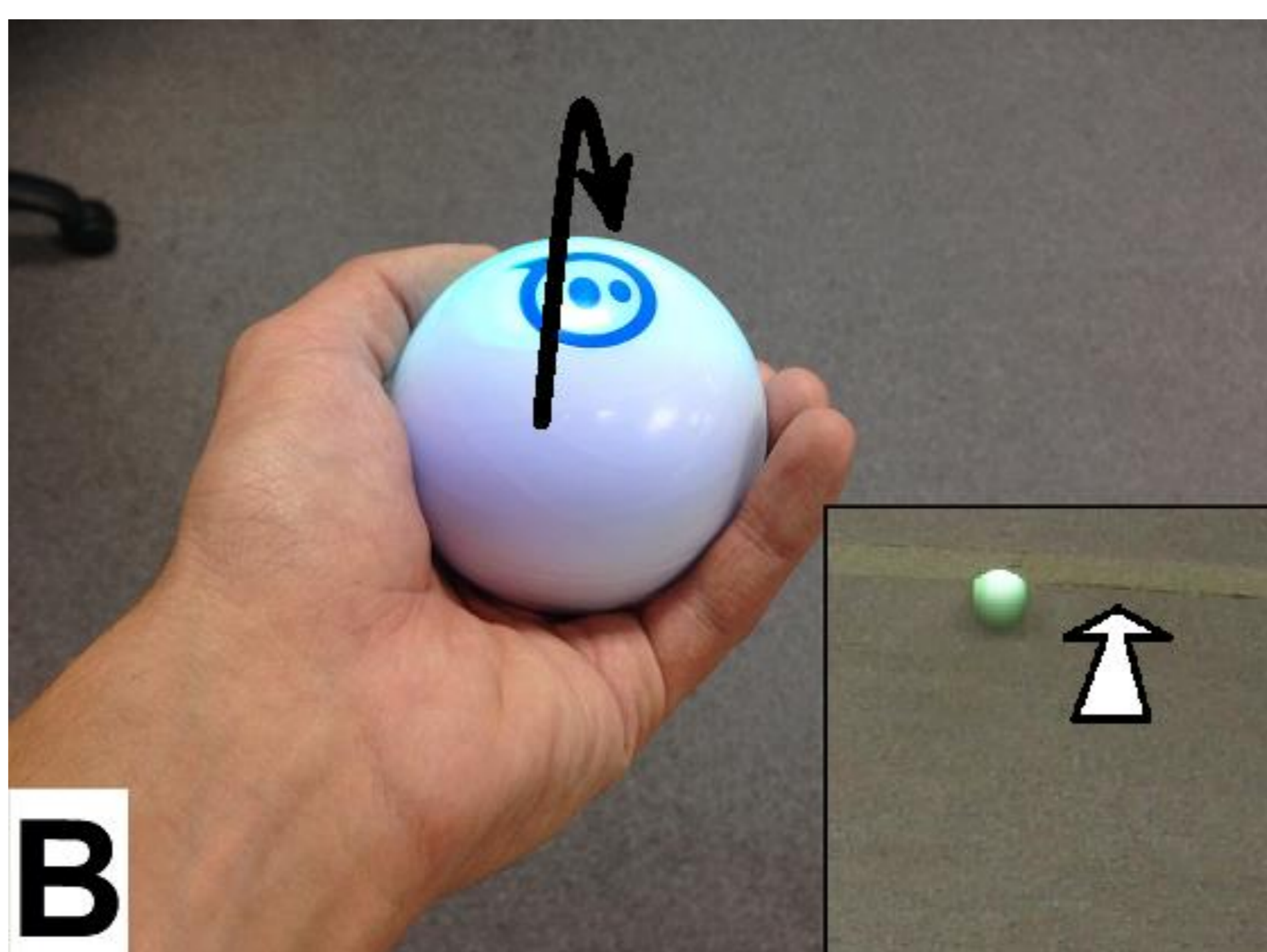
Tilting the controller in any direction moves the roller in that direction. Tilting the controller harder makes the roller move faster.
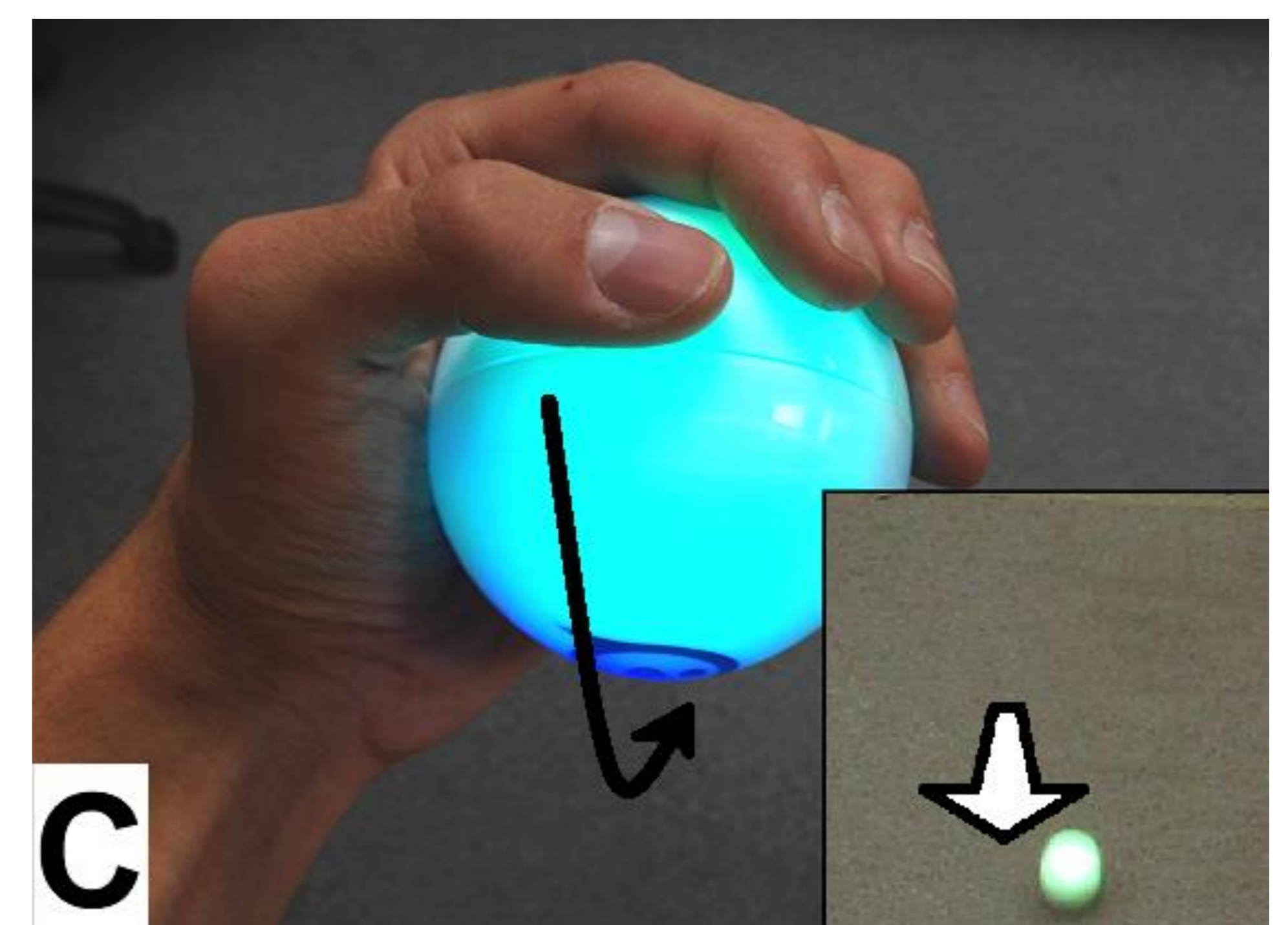
Effects of Physical Properties on Player Experiences

Previous research has shown that the experience of a game can be made more enriching and immersive by emphasizing physical aspects of it, including tangible interfaces and physical game elements and game state representations.

The Sphero controller is a tangible interface, while the roller is a physical game element. Other physical properties that add to the experience include the arena bounds, the stage, and the projector–which acts as a stage light in drawing focus (and emphasis) on the game stage.

Future Work

(1) Run user studies that compare our control scheme to controlling a Sphero with a smartphone or a tablet to see if our control scheme is perceived as more natural than the smartphone.

(2) Compare Sphero Sumo to a similar fighting game played without Spheros but with only virtual game elements to see if emphasizing the physical aspects of the game in this case affects the perceived immersiveness of the game.

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