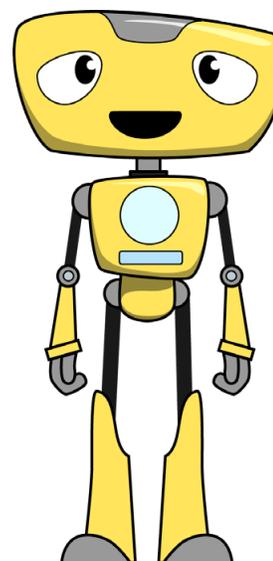




## Mixed reality therapy games

Mixed reality therapy games aim to help children and youth of all abilities reach goals related to their physical wellbeing, and help them practice physical and occupational therapy goals at home, by playing immersive, interactive video games.

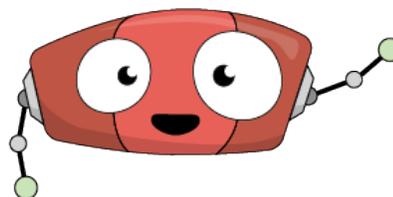


These games use a combination of colour and depth cameras, and skeleton and colour tracking to promote the practice of therapeutic movements. But these aren't your typical video games. Scientist Elaine Biddiss and team in the Bloorview Research Institute at Holland Bloorview Kids Rehabilitation Hospital use different technologies to help track and guide the player in performing correct therapeutic movements.

A standard camera enables the player to watch their own movements while playing so that they can match certain tasks displayed on a screen, while also tracking objects that the player may be interacting with. An infrared camera provides a 3D view of the player and tracks up to 25 joints of the player's body to promote the practice of therapeutic movements for health improvement.

### Introducing Botley's Bootle Blast

Mixed reality therapy game Botley's Bootle Blast draws children and youth of all abilities into a robotic city that is in need of assistance to capture the mischievous mini-robots that are running amok. Children and youth visit various themed headquarters that are home to



mini-games that each target different therapy goals, including upper body movements, lower body movements, physical activity, and fine motor movements. By playing these mini-games, the user saves the city by capturing mini-robots, discovers fun and engaging collectible items and characters, all while helping them practice physical and occupational therapy goals.

As a very customizable experience, players use real life objects, such as plush toys or building blocks, to play. By using real life objects, children and youth are improving their fine motor movements. In Botley's Bootle Blast specifically, players control a plush toy (a "bootle") to capture the mini-robots.

The game can be played in several ways, including focusing on:

- **Grasp, release and squats:**  
Pick up the bootle and drop it on the floor
- **Grasp and release:**  
Pick up the bootle and drop it on a table
- **Wrist extension and flexion:**  
Hold the bootle and flex your wrist

Science has shown that training with real-life objects provides the player with touch feedback that can improve skill transition – bringing skills learned in mixed reality therapy games to real-life application.

For more information about mixed reality therapy games or Botley's Bootle Blast, please contact scientist Elaine Biddiss at [ebiddiss@hollandbloorview.ca](mailto:ebiddiss@hollandbloorview.ca)