

Solving technology barriers for home use of *Bootle Blast*, a movement-tracking video game for motor therapy

Botley's Bootle Blast: Overcoming barriers to home use for children and families with motor therapy goals

Team:

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Organization/Programs:

- Bloorview Research Institute
- Holland Bloorview Kids Rehabilitation Hospital

Rationale:

- Bootle Blast is a movement tracking video game created by children, families, clinicians, and researchers at Holland Bloorview.
- Bootle Blast provides an engaging way for young people to practice motor therapies and has been used in clinics at Holland Bloorview since 2017.
- Bootle Blast uses Microsoft's Kinect sensor to track movements. This technology is not commonplace. The ability to track movements using a simple webcam would increase the accessibility of Bootle Blast for families at home.

Objective:

- To enhance the accessibility of Bootle Blast by integrating a new method for movement tracking using low-cost webcams.



Methods:

Phase 1: Technology Development

- We will use open-source software (PoseNet, Google Creative Labs) to enable real-time skeletal tracking of multiple people using a simple webcam.

Phase 2: In-lab usability testing

- We will invite 6 young people with cerebral palsy, aged 6 to 17 years of age, to play Bootle Blast with the webcam tracking. We will ask participants about their play experience and observe how well the technology tracks their movements.

Phase 3: In-home usability testing.

- We will invite 3 young people with cerebral palsy to trial the webcam enabled Bootle Blast at home for a 2 week period. We will monitor use via computer logs and ask families about their play experience (e.g. likes/dislikes).

Results

- A proof-of-concept prototype has been created demonstrating that Bootle Blast can be played using movement tracking via webcam.

Conclusion.

- This co-creation process will yield the first video game to support body and object tracking for rehabilitation therapies via webcam. Hardware barriers to home use of Bootle Blast for hand/arm therapy will be mitigated by replacing the Kinect sensor with a low-cost, ubiquitous webcam.