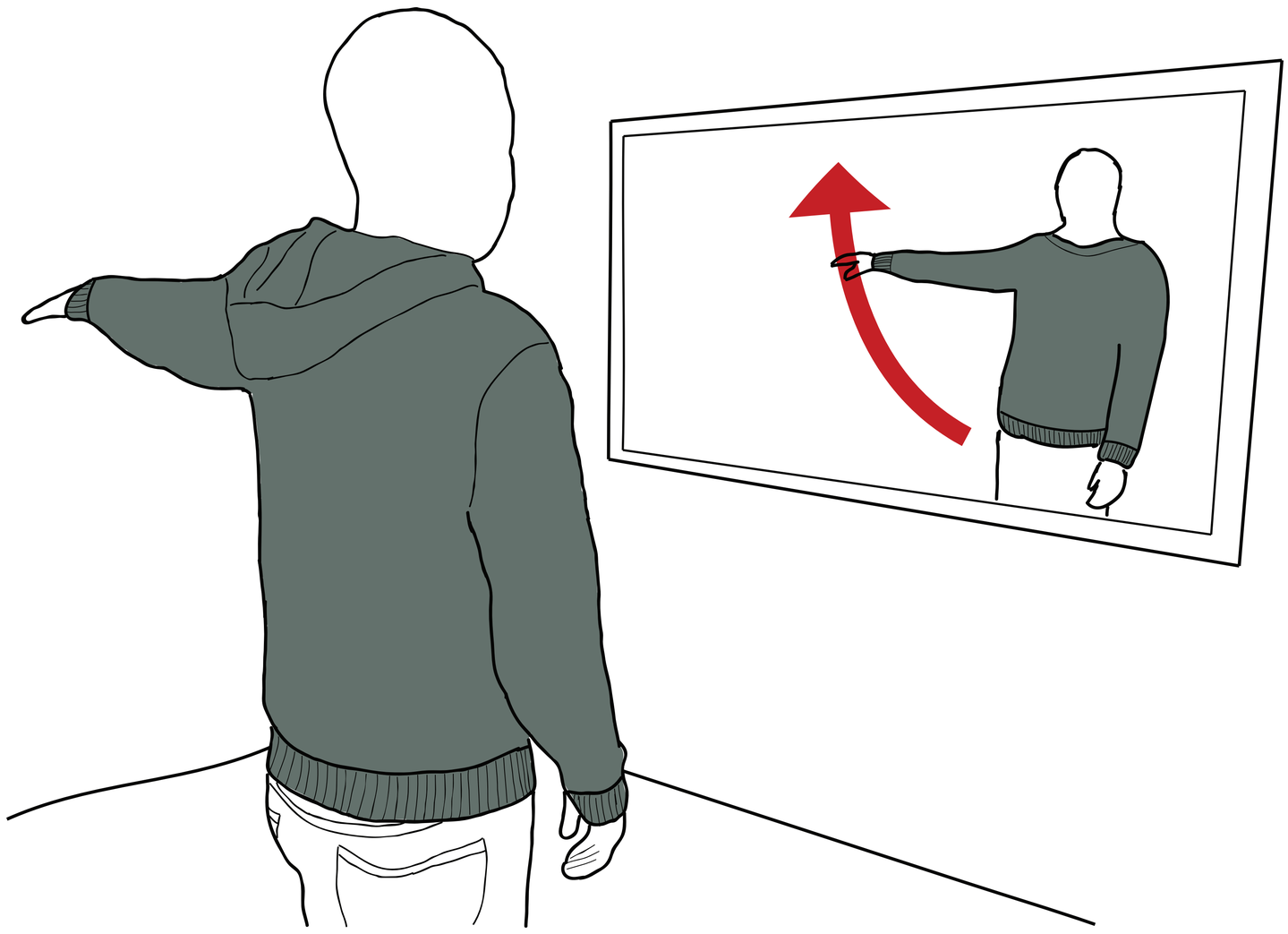
Physio@Home

Design Explorations to Support Movement Guidance

Richard Tang, Hesam Alizadeh, Anthony Tang, Scott Bateman, Joaquim Jorge



Physiotherapists guide and correct patients when they learn physiotherapy exercises. The problem is when patients are at home without corrective feedback from the physiotherapist, the patient will not know whether they are doing their exercises wrong.

To investigate this problem, we implemented a prototype that guides patients through pre-recorded exercise movements using visual guides overlaying a mirror-view of the patient on a wall-mounted display.

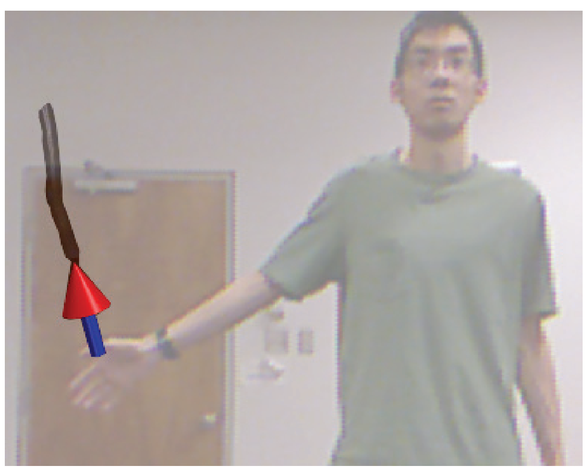
Representations

2 Dimensional

Direction-guiding Arrow

Tracing arm path with lines

3 Dimensional



Arrow with feed-forward path

Future arm path with 3D tubes

Findings

Both 2D and 3D arrows were helpful and easy to understand due to simplicity and timely interpretation. Arm traces are promising due to inferred simplicity and ease-of-use. Depth perception still requires work.

Future Work

We will: (1) implement more varieties of guides, particularly for showing depth, (2) reimplement system with Vicon cameras to more accurately evaluate our designs, and (3) run real user studies and evaluations with physiotherapy exercises.

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