



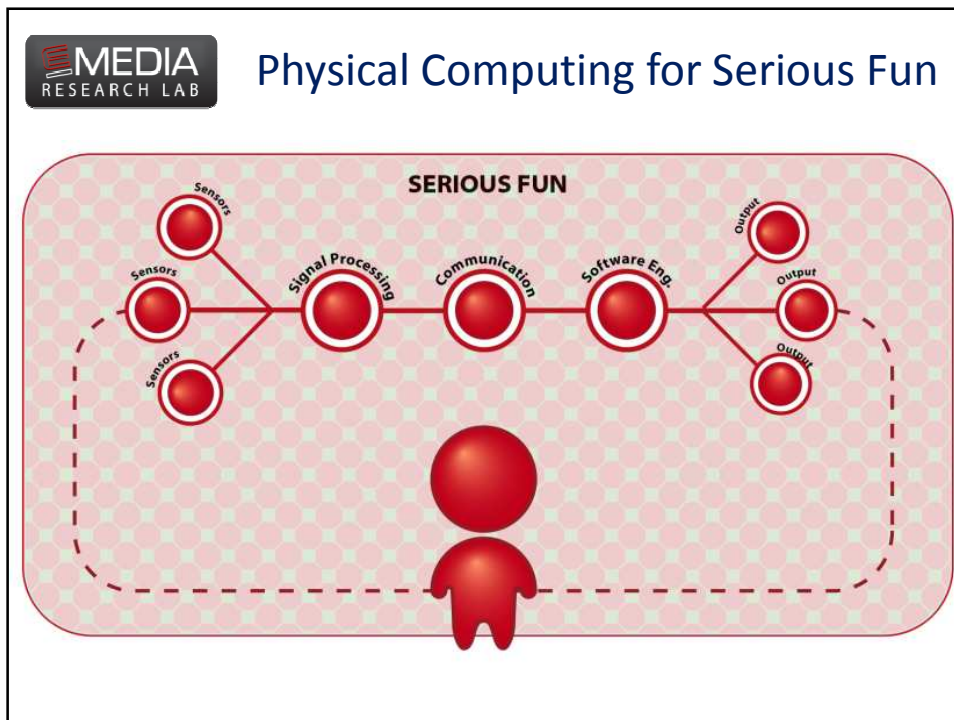
Kungfu
KEUKEN

Kungfu Kitchen: Digital Games for Physical Therapy

Luc Geurts
Vero Vanden Abeele

GROEP T KATHOLIEKE UNIVERSITEIT LEUVEN

The cover art features two cartoon characters in blue kungfu uniforms and brown hats, holding red chopsticks. They are standing in front of a traditional Chinese building with a tiled roof. The title 'Kungfu KEUKEN' is written in a stylized, bubbly font. The authors' names and the logos for GROEP T and KATHOLIEKE UNIVERSITEIT LEUVEN are also present.







Theme of the mini games:

Kung Fu Kitchen



What do you mean...

Calibration?

Adaptation?

Mini Game 1
Catching Dishes

Exercise

Stretching and bending of the arms
Extension of the elbow and exorotation of the shoulder

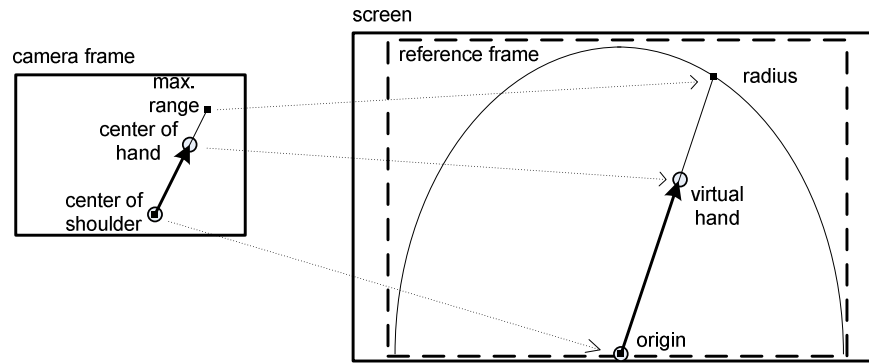
Sensor
Webcam

Clip

<http://www.youtube.com/watch?v=tDUz2OcQjtw>

<http://www.youtube.com/watch?v=TXbkprAlBy4>

Mapping Camera Position to Screen Position



Adjustable parameters



Mini Game 2
Preparing Recipes

Exercise
Controlled head movements
Rotation of the head in a horizontal plane and/or
bending forward of the neck

Sensor
Wii Remote (IR camera)

Clip
<http://www.youtube.com/watch?v=pabbC4ZK-6E>

Adjustable parameters

Drag factor

$$pos_{new} = pos_{old} + (pos_{target} - pos_{old}) * drag$$

Size of selection circle

Mini Game 3
Collecting eggs

Exercise
Maintaining balance standing on one leg
Lifting the other leg high enough

Sensor
Wii Remote (accelero & gyros)

Clip
<http://www.youtube.com/watch?v=-3mzJYs7m1o>

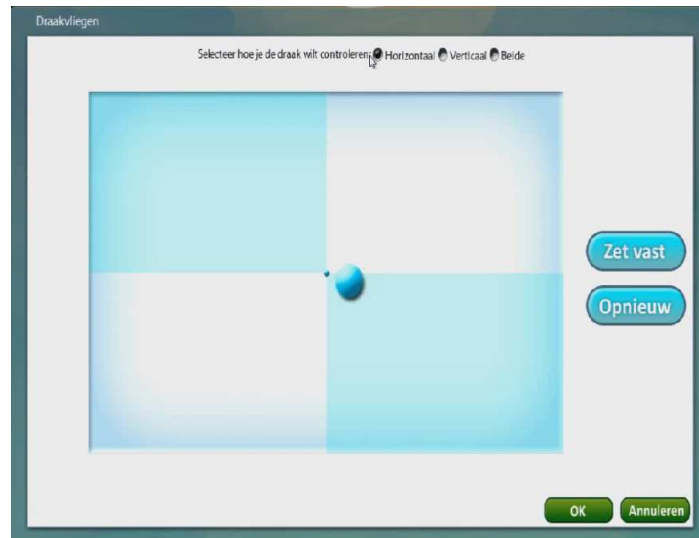
Mini Game 4
Flying Dragons

Exercise
Transfer of weight and balancing when seated
thereby strengthening muscles of the back and abdomen

Sensor
Wii Balance board

Clip
<http://www.youtube.com/watch?v=43vmHws1mJY>

Calibration



Adjustable parameters

Sensitivity

$$\begin{aligned} \text{yaw} &= \text{dev.x} * \text{sensitivity} \\ \text{pitch} &= \text{dev.y} * \text{sensitivity} \end{aligned}$$

Radius of the rings

Dragon's speed

Distance between fireflies

Further Steps

- Cognitive Challenges
- On-line database
- 1 year of user tests IN the centers



THANK YOU!