

Generative Motion-based Games for Health (MGH)

Master's Project Digital Media
Winter Term 2016/17



Rainer Malaka
malaka@tzi.de



Jan Smeddinck
smeddinck@tzi.de



Nina Runge
nr@tzi.de



Marc Herrlich
mh@tzi.de

- ▶ Mainstream: Gamification & Fitness
- ▶ Is that all?
- ▶ MGH have the potential to offer:
 - **Motivation**
 - **Guidance**
 - **Analysis**

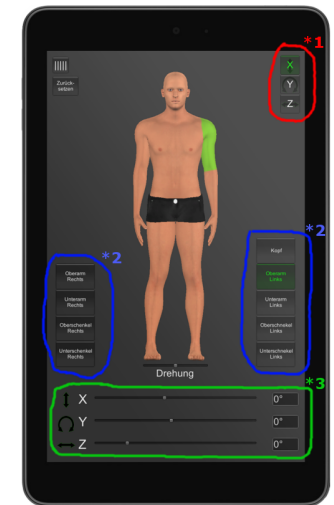
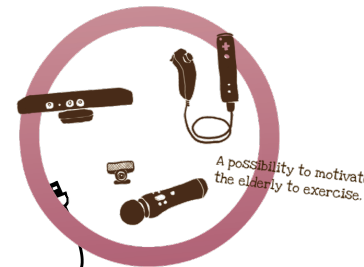
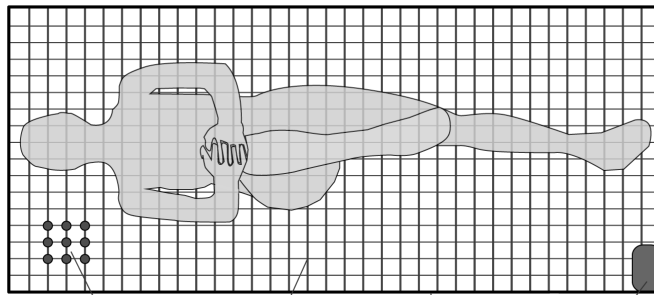
- ▶ **Older adults**
- ▶ People in **stroke** recovery
- ▶ People with **cerebral palsy**
- ▶ People with **Parkinson's disease**

- ▶ Three main aspects / areas:
- ▶ Games that motivate the users and provide direct feedback
 - Human-centered design
- ▶ New tracking devices
 - Enhance the detection of errors during the execution of the exercises'

Name Übung	
Wiederholung	3/10

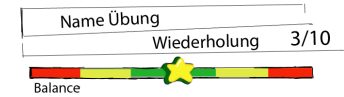
Balance

Punkte: 30
00:30

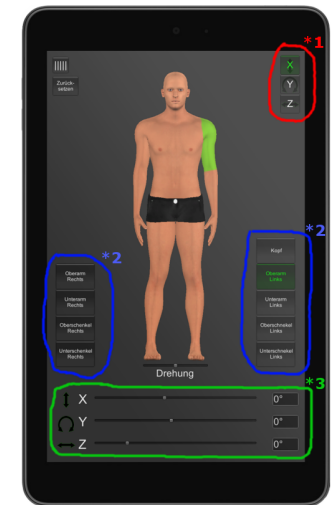


- ▶ Adapt the games to the patients needs
 - Based on the physiotherapists knowledge
 - Manual / Semi-Automatic / Automatic Adaptation

- ▶ Beyond Gamification:
- ▶ Generative Exergames
 - Non-repetitive gameplay without big budgets
- ▶ Next-generation tools for therapists
 - Direct intervention / interaction possibilities
 - Body-based exercise recording



Punkte: 30
00:30



- ▶ Early on: Meetings and discussions with patients and experts
- ▶ Fast, iterative prototyping
- ▶ Regular workshops
- ▶ Many small focus group evaluations for iterating the design
- ▶ Bigger and controlled evaluations for scientific questions

- ▶ Close collaboration with patient associations and therapists

“Entertainment Computing”

- ▶ Lecture (6 ECTS)
- ▶ Summer term 2016
- ▶ Theoretical and practical approach
- ▶ Mandatory for all project members
- ▶ Dates & times TBA soon on dm.tzi.de/teaching

“MGH for Physiotherapy and Rehabilitation”

- ▶ Full-time (30 ECTS) winter term 2016
- ▶ 4 days a week, Oct 16 – Apr 17
- ▶ Attendance expected at least 3 days a week
- ▶ Agile model (SCRUM)

- ▶ Commitment
- ▶ Enthusiasm for topic area
 - Computer Games / Serious Games
 - Interaction and Interface design
 - Machine Learning / AI / Arduino
 - Human-centered Design Methodology / Evaluation
- ▶ Creativity
- ▶ Work by scientific method
- ▶ Willing to research, design, code, experiment

- ▶ Human-centered research & development
- ▶ Human-computer interaction, interaction design, natural user interfaces
- ▶ Computer Game Technology, AI & ML Techniques