Extractions of Human Movement from Instruction

Today, games are the most popular tool for health and educational research. Exergames are a type of video game which are used especially in health related categories, e.g. in physical activities, fitness etc. The reasons are: (1) exergames do not require an exercise partner or a visible guide to be present, (2) exergames are performed in place, which minimizes the risk of injury, (3) the ability to play the same games with their peers or family may increase socialization, (4) access to exergames significantly increases their existing exercise opportunities. It is impractical for therapists or smaller practices to transform their preferred sets of therapeutic exercises into exergames that can be used by their patients for it.

Motivation

During our study we found out that if someone wants to do some exercise they typically do it in two ways: either from an instruction sheet or with the help of a physiotherapist. Instruction sheets only provide rough guidance and no feedback, which leads to wrong or even harmful exercises. Physiotherapists are expensive and not always available nearby. So, if we can design an animated version of the exercises from the instruction sheets, users will face fewer problems and have a better experience while doing the exercises.
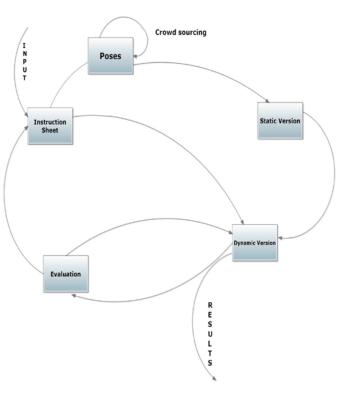
Research Objective and Steps to Solution

Transforming physical therapy exercises into computer-supported playful exercises to exergames is the aim of this research.

First of all, we need to match the position of a virtual human skeleton to the instruction sheet image either using automation or human computing (crowd sourcing). Through crowd sourcing we will try to transform the human skeleton into an instruction image and from those

solutions we can find an average solution how to transform the human skeleton into an instruction sheet image. At last, with the help of the therapist and the results from the crowd sourcing, we will try to give the best output result of the exercise which will support the user.

Contribution to Application Areas

- Training robots

- Interpreting data from other domains such as logistics

Dr.-Ing. Himangshu Sarma
MTECH

Faculty of Mathematics /
Computer Science

Guwahati, India
Finished in July 2019

International Graduate School for Dynamics in Logistics
Contact: Dr.-Ing. Ingrid Rügge

Universität Bremen
Hochschulring 20
28359 Bremen, Germany

www.logistics-gs.uni-bremen.de
info@IGS.LogDynamics.de

Universität Bremen