Human-computer interface and Virtual reality

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Body perception and virtual reality (VR) technology

Physical rehabilitation for a chronic pain(Complex reginal pain syndrome:CRPS)

Virtual reality based Mirror Visual feedback (VR-MVF)

- Rehabilitation system with the use of VR technology for a patient with chronic pain in an upper limb.
- The pain intensity was decreased for a few weeks since starting the use.
- Improvement of a motor function of patients.
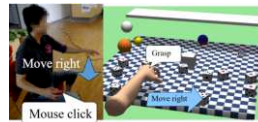

VR-MVF for a home

- The patients can use VR-MVF at their home.
- Simple and useful user interface for the patients.
- The pain intensities were decreased for a few weeks since starting the use.

Understanding human body perception with VR technology

Analysis of a relation between pain intensity and movement in the chronic pain
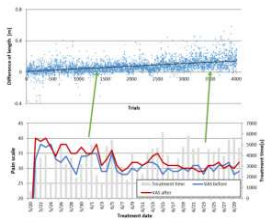
- One patient uses VR-MVF for home in one month.
- Movement in rehabilitation and pain intensity were recorded at every use of VR-MVF.
- Correspondence between pain intensity and a length of trajectories of the affected limb in the reaching movement in the use of VR-MVF.
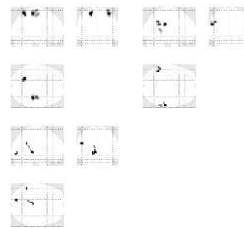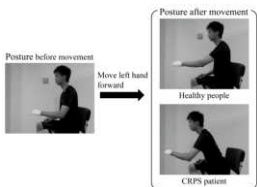
An experimental investigation of body perception in the use of VR-MVF

- Prediction error is perceived, when the prediction is not consistent with visual information.
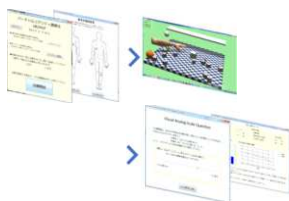

An experimental investigation with a head-mounted display and sensors

- Investigation of Sensorimotor congruence and incongruence with head-mounted display and tracking system.
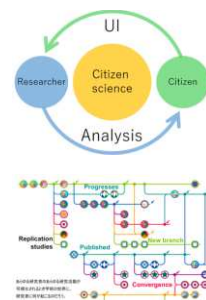
Human-computer interface/interaction

Development of a user interface and framework

Outfitted functions with principles of captology for maintaining motivation

- Maintaining Motivation is an important factor as a determinant of an outcome of rehabilitation with VR-MVF.
- Captology is a concept of technology which is designed to change behaviours of the users through persuasion.

A framework to open science.

- Collaboration of researchers and users to make a database of Good and Bad UI
- Development of a framework with a computer in an experimental investigation on cognitive science.

- Human-robot interaction
  - Social robot, robot for online meeting