

Bachelor, Semester or Master Project

Implementation of Simple and Intuitive Games for a Rehabilitation Robot

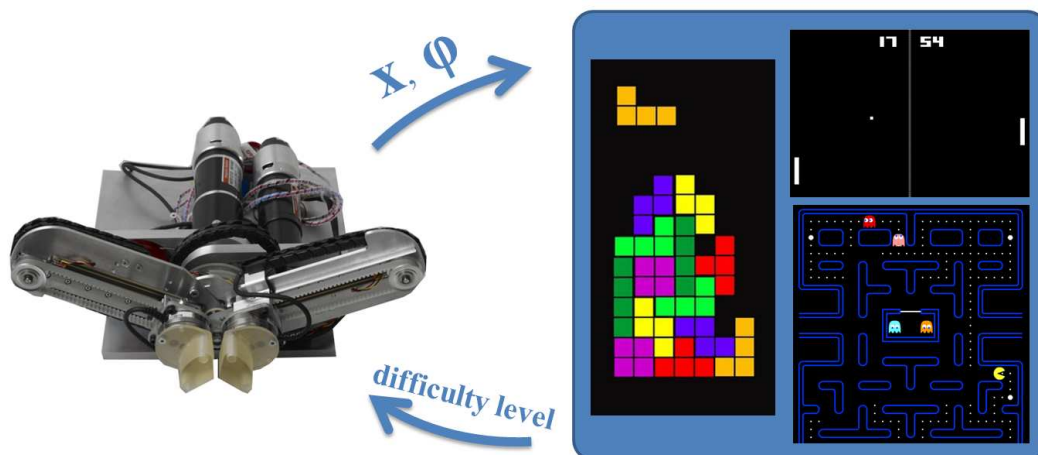
The Rehabilitation Engineering Lab at ETH Zurich (<http://www.relab.ethz.ch>) is seeking applications for a student project in the field of **game design** applied to rehabilitation.

Background:

The ReHapticKnob is the second generation of one of the first robots for stroke rehabilitation to train hand and forearm function, i.e. grasping and forearm rotation. The ReHapticKnob includes several new features which give new input signals to drive games and assess the patient's performance in order to adjust game complexity.

Goal of this project:

The aim of this project is to propose and develop simple and intuitive games for the ReHapticKnob, which are engaging and involve clinically meaningful tasks. Game input commands from the robot (positions in two degrees of freedom: grasping and forearm rotation) are acquired in Labview and need to be forwarded to OpenGL or the chosen game engine. The games should be intuitive and easy to understand and can be based on well known games like Tetris, Pacman, Pinball, etc. The difficulty level of the game is required to be adjustable to adapt the games to the level of impairment of the patient. Different games (modes in the game) should focus on different aspects of hand function, e.g. speed of movement, precision, strength, etc.



Student Project: Bachelor thesis, Semester thesis, Master thesis

Starting: As soon as possible

Required work: 10% literature research, 10% interfacing OpenGL (or any chosen game engine) with Labview, 50% Game(s) development, 10% Game(s) evaluation, 20% report/presentation

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