A need therefore exists to provide a system and method for motor learning that seeks to address at least one of the abovementioned problems.

SUMMARY

According to a first aspect of the present invention there is provided a method of motor learning comprising the steps of detecting a user's motor intent; obtaining a first score based on the detected motor intent; calculating a second score based on the first score and a threshold score value for the motor intent; and giving robotic assistance to the user for executing a motor task associated with the motor intent based on the ~~detected motor intent~~second score.

Obtaining the first score~~The method~~ may ~~further~~ comprise processing signals detected by the detector to derive a~~the first~~ score associated with the detected motor intent~~, and giving the robotic assistance based on the score~~.

The method may further comprise adjusting the~~a~~ threshold score value for ~~giving the robotic assistance to the user for executing a motor task associated with~~ the motor intent ~~based on the detected motor intent~~.

Adjusting the threshold score value~~robotic assistance~~ may comprise comparing a target performance in relation to the motor task with an actual performance, and lowering the threshold score value~~for giving the robotic assistance~~ if there is a deficit of the actual performance compared to the target performance, and increasing the threshold score value~~for giving the robotic assistance~~ if there is a surplus in the actual performance compared to the target performance.

The target performance and the actual performance may be compared over a session, k, of N_k trials, and the threshold score value is adjusted for a next session, $k+1$, based on the session k.

The method may further comprise obtaining a default threshold score value, R_0, for a first session, k=1, from a calibration process.

The detecting of the user's motor intent may be performed asynchronously.

The detecting of the user's motor intent may be performed substantially continuously.

According to a second aspect of the present invention there is provided a system for motor learning comprising a detector unit for detecting a user's motor intent; a processing unit for obtaining a first score based on the detected motor intent, and for calculating a second score based on the first score and a threshold score value for the motor intent; and a robotic device for giving robotic assistance to the user for executing a motor task associated with the motor intent; wherein the robotic device is configured for giving of the robotic assistance based on the second scoredetected motor intent.

The system may further comprise a processing unit may be configured for processing signals detected by the detector to derive athe first score associated with the detected motor intent, and the robotic device is configured for giving the robotic assistance based on the score.

The processing unit may be configured for adjusting a threshold score value for giving the robotic assistance to the user for executing a motor task associated with the motor intent based on the detected motor intent.

The processing unit may be configured for lowering the threshold score valuefor giving the robotic assistance if there is a deficit of an actual performance compared to a target performance, and for increasing the threshold score value for giving the robotic assistance if there is a surplus in the actual performance compared to the target performance.

The target performance and the actual performance may be compared over a session, k, of N_k trials, and the threshold is adjusted for a next session, $k+1$, based on the session k.

The system may further comprise obtaining a default threshold, R_0, for a first session, k=1, from a calibration process.

The detector may be configured for detecting of the user's motor intent asynchronously.

The detector may be configured for detecting of the user's motor intent substantially continuously.