modelling stiffness of lower limb by predictive classifier to control stiffness of prosthec leg

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Abstract

this experiment describes a process to deveop a classifier which can be used to modulate the stiffness of prosthetic leg based on the movement of hands, elbows and position of the other leg of the amputee

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Guidelines

the initial experiments shoud be conducted on healthy subject.

Protocol

step 1
Step 1.

Place the IMU sensors on the hands and elbows of the subject

step 2
Step 2.

Place the force sensors on the heels of the subject at strategic positions so that centre of pressure or centre of force can be measured at different GAIT phases.

step 3
Step 3.

Record the readings of imu sensors and force sensors at different gait phases

step 4
Step 4.

Conduct the experiment at a wide variety of subjects to get wide variety of data

step 5

Step 5.

Process the data in a predictive classifier like neural network to obtain the the predicted position of the other leg.

step 6

Step 6.

Hence the stiffness of prosthetic leg can be controlled based on our GAIT phase