

ABSTRACT OF BACHELOR THESIS

Title of bachelors thesis: Robotic systems in neurorehabilitation specialized in the upper extremity by patients after stroke

Abstract:

This bachelors research describes robotic systems application in neurorehabilitation of the upper extremity in stroke patients. Acquired paresis of the upper extremity as a result of stroke is very frequent impairment what stimulates developing of new treatment possibilities of higher effectivity. The robotic therapy is one of them. Are the robotic systems really effective in treatment of upper arm impairment in stroke patients? This is the principal question of this bachelor's work. It consists of two parts. The first, theoretic, is based mainly on foreign articles and researches regarding robotic systems. There were compared advantages and disadvantages of robotic systems, described different characteristics, and discussed economics and the effectivity rate, as it's the most controversial point, in chosen articles. And the second part, practical, is made of two case history where the robotic system Armeo®Spring was used as a treatment approach. The answer to the principal question was established according to results of this work. The robotic systems are effective in neurorehabilitation of upper arms impairment in stroke patients.

Key words: robotic systems, robotic systems specialized in the upper extremity, neurorehabilitation, Armeo®Spring, robotic therapy, stroke