NAPLES, ITALY 30 JUNE - 4 JULY
ACEX2025 NAPLES
18th International Conference on Advanced Computational Engineering and Experimenting

ABSTRACT

Exoskeleton for Ankle Assistance with Wearable Strain Sensor as a Human-Machine Interface

Jesús Ricardo López-Gutiérrez1 ; Luis Antonio Carrillo-Martinez1; Eric Williams-Linera1; Ruben Fuentes-Alvarez1; Uriel Pérez-Flores2; Nicolas R. Tanguy3

1Tecnológico de Monterrey, Monterrey 64849, Mexico
2Benemérita Universidad Autónoma de Puebla, Puebla 72592, Mexico
3Universidad Nacional Autónoma de MéxicoCiudad de México 04510, México
e-mail : jesusl.lopez@tec.mx

A one degree of freedom exoskeleton is presented to assist a patient with foot drop during walking. The exoskeleton assists the flexion-extension movement that the user cannot do on his or her own. According to the analysis of gait movement, the indicated moment to perform ankle flexion can be identified by the angle of the knee flexion. For this reason, a wearable strain sensor is used to command and indicates to the exoskeleton when to carry out the trajectory control of ankle flexion through that identifies the measurement of knee flexion.