Department of MATHEMATICS and COMPUTER SCIENCE

JOHN JAY COLLEGE OF CRIMINAL JUSTICE

Women in Tech and CS Seminar Series

When: April 30
Time: 1:40 – 2:45 pm
Location: 6.67 NB

Autonomous walker to improve gait of patients with Parkinson's Disease

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Abstract

Parkinson's disease (PD) is a neurodegenerative disease which often affects patients' movement. Gait abnormalities are one of the distinguishing symptoms of patients with PD that contribute to fall risks. In this talk, I will give an overview of several studies we have conducted by using technology and data analysis to improve the understanding of the disease as well as an assistive device that can keep patients moving to maintain their treatment outcome. The talk will focus on the design of an autonomous walker that provides touch and speed cues to a user to improve their gait performance. Our study compares the gait parameters of people with PD when they walk through a predefined course without assistance, with a conventional walker, and with a motorized walker under different speed cues. The study included six PD subjects recruited at the New York Institute of Technology College of Osteopathic Medicine and compared spatial posture and gait data of the test subjects collected via a VICON motion capture system. We showed that motorized walkers with haptic cues significantly improved gait symmetry of PD subjects and has potential to reduce fall risks.

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