Dr. Martin Tanaka will be present his research on biodynamic system. His research includes evaluation of stability and balance control for the diagnosis and treatment of low back pain. He will show how Lagrangian Coherent Structures (LCS) can be used to find the basin of stability through analysis of the Finite Time Lyapunov Exponent obtained from time series data. In addition, he will discuss his research on functional electrical stimulation, a techniques to artificially excite (depolarize) human muscles and how it can be used for stroke rehabilitation; research on the use of blended shared control for use in assistive devices and rehabilitation; and mathematical modeling of brain tumors (glioblastoma multiforme) to characterize the progression and the effect of chemotherapy. Finally he will provide information about Western Carolina University and opportunities for interdisciplinary collaboration.