Special Issue

Entropy Application in Biomechanics

Message from the Guest Editor

Many sport, locomotion, ergonomic, pathological, and other observable phenomena exhibit time evolution and can be successfully modeled via suitable mathematical expressions, usually in a set of differential equations. Because input–output relations between system quantities are generally non-proportional, associated dynamical behavior could be very complex or, under specific conditions, chaotic. Detection, description, analysis, quantification, and control of this random-like erratic motion associated with nonlinear dynamical systems is important due to universality (through dimensionless mathematical modeling) and several unique properties (sensitivity to initial conditions, mixing attractors, fractal dimension, long-term unpredictability, continuous frequency spectrum, etc.). Entropy, alongside Lyapunov exponents and fractal dimensions, measures dynamical complexity under varying parameters, forcing, and initial conditions. We continue exploring new methods for analyzing and modeling human behavior using nonlinear dynamics.

Guest Editor

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Message from the Editor-in-Chief

The concept of entropy is traditionally a quantity in physics that has to do with temperature. However, it is now clear that entropy is deeply related to information theory and the process of inference. As such, entropic techniques have found broad application in the sciences.

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Editor-in-Chief

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