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Editorial Announcement

The interest in the study of hybrid systems has grown exponentially over the last few years because of the theoretical challenges involved in the investigation of such systems and also because of the impact on applications in several disciplines and industrial contexts. At a conceptual level, scientists identify computational systems with processing tools of the available information. In its turn, information may arise either from already formalized knowledge, or from sharp observations of a phenomenon, or even from rough information granules linked to the observations. Recent technological innovations have caused a considerable interest in the study of dynamical processes of a heterogeneous continuous and discrete nature, denoted as hybrid systems, characterized by the interaction of a continuous time models, governed by differential or difference equations, and of logic rules and discrete event systems and discrete components. Hybrid systems switch between many operating modes where each mode is governed by its own characteristic dynamical laws. Typical hybrid systems are embedded systems that are at the heart of a wide area of applications. Also, hybrid systems arise frequently in the supervision of complex dynamical processes that may exhibit a highly complex behavior which can only be effectively analyzed by computationally effective methods for modeling, analysis and synthesis of hybrid systems. Moreover, impulsive differential equations with variable structure generated by switching into a new differential system and dynamic systems on time scale, where the time is an arbitrary closed set may also be considered as hybrid system applicable to real-world problems. The scientific literature of hybrid systems covers almost all branches of disciplines. For example, we find that research work in agricultural and biological sciences, chemistry and chemical engineering, astronomy, earth and planetary sciences, computer science, engineering, energy and technology, environmental sciences, economics, business and management, life sciences, materials science, mathematics, medicine, neuroscience, pharmacology, psychology, social and behavioral sciences, languages and linguistics, and law.

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