Editorial

Intelligent Modeling and Verification

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System modeling tends to have many complex features, and uncertainties often lead to numerous complications and influence many important aspects related to its applications. Intelligent modeling merges mathematical and computer-based approaches, and it utilizes pioneering new scientific methods and cutting-edge technologies.

In recent years, significant achievements have been made in system modeling and verification. This special issue concentrates on current developments in the areas of intelligent modeling, intelligent computing, and formal methods. After a high-quality peer-reviewing process, 27 papers have been selected and published in this special issue as follows.

The paper entitled "*An algorithm for discretization of real value attributes based on interval similarity*" (L. Zou et al.) defines an interval similarity function as a new merging standard in the process of discretization. The paper entitled "*Recursive identification for dynamic linear systems from noisy Input-Output measurements*" (D. Fan and K. Lo) deals with the adaptive identification problem of real-time EIV models. Based on the graph structure, the paper entitled "*An effective heuristic based approach for partitioning*" (X. Zhao et al.) constructs a communication graph for embedded system and describes the delay-related constraints and the cost-related objective. Between agents, the paper entitled "*Proactive communicating process with asymmetry in multi-agent systems*" (J. Wang et al.) presents a formalized communicating process to deal with information asymmetry. A Monte-Carlo reliability analysis method for MANET is presented in the paper entitled "*A novel two-terminal reliability analysis for MANET*" (X. Zhao et al.). Using a probabilistic analysis, the paper entitled "*Reliable node clustering for mobile Ad Hoc networks*"

(T. Wang and W. Hung) investigates clustering algorithm. Based on optical flow motion features extraction, the paper entitled "*Action recognition by joint spatial-temporal motion feature*" (W. Zhang et al.) introduces a method for human action recognition. Convergence and consistent properties of the EFOP method are shown in the paper entitled "*An identification method based on EFOP and frequency domain smoothing*" (Y. Zhang et al.). Using an enhanced mean shift method, an intelligent modeling method for perceptual spatial-space generation model is presented in the paper entitled "*Spatial object tracking using an enhanced mean shift method based on perceptual spatial-space generation model*" (P. Han et al.). The macroscopic approximation models are proposed in the paper entitled "*Positive macroscopic approximation for fast attribute reduction*" (Z. Lu et al.). All 3120218828 optimal 4-bit reversible circuits with up to 8 gates for the CNT are created in the paper entitled "*Efficient algorithms for optimal 4-bit reversible logic system synthesis*" (Z. Li et al.). A discrete-time, continuous-state Hopfield neural network with states being updated synchronously is presented in the paper entitled "*Chaotic Hopfield neural network swarm optimization and its application*" (Y. Sun et al.).

Furthermore, the paper entitled "*Formalization of linear space theory in the higher-order logic proving system*" (J. Zhang et al.) presents the formalization of the linear space theory in HOL4. The paper entitled "*Bounded model checking of ETL cooperating with finite and looping automata connective*" (R. Wang et al.) presents a semantic BMC encoding approach and an algorithm for the model checker ENuSMV. The paper entitled "*Efficient semantics-based compliance checking using*