Special Issue on Artificial Intelligence in Modeling and Simulation

Tentative Submissions due: 10 January 2017
Estimated Publication date: September/October 2017

Artificial Intelligence (AI) is concerned with the development of innovative computing systems based on new models that simulate or emulate different aspects of natural intelligence. Such models can exhibit characteristics typically attributed to human intelligence like reasoning, perception, planning, learning, pattern recognition, problem-solving, rationality, and decision making, as well as more general characteristics of intelligence, like autonomy, proactivity, adaptability or sociability. Examples of AI models are knowledge-based systems, intelligent agents and multi-agent systems. AI can be an appealing computational tool for the modeling and simulation of systems for which it is difficult or even impossible to develop detailed physical or engineering simulation models using standard mathematical methods. AI-based models can be very useful for simulating natural and intentional systems as found for example, but not only, in different fields like social, economic and life sciences.

The call for papers of this special issue highlights the particular aspects of AI-based Modeling and Simulation (M&S) and its applications. The focus in on emphasizing the features and advantages of AI-based models for capturing phenomena difficult to represent using standard methods and models derived from physics and engineering. In particular such AI-based models are based on AI problem solving methods including heuristic searching, knowledge representation, inference and machine learning. This special issue is interested in contributions focused on the application of these AI-based M&S methods and tools for solving problems from different fields like social, economic and life sciences, as well as from physics and engineering.

We encourage submissions from members of both M&S and AI communities. Papers should address issues including, but not limited to:

Novel aspects and paradigms of AI-based M&S tools
Real world M&S case studies with AI-based methods
Enhancing and complementing M&S using AI-based methods, languages and technologies
Intelligent and multi-agent approaches for the M&S of complex systems and behaviors
AI-based methods for the development of simulation models
Applications of AI-based M&S methods and tools in interdisciplinary fields
M&S of specific intelligence features and characteristics

Guest Editors
Giancarlo Fortino, University of Calabria, Italy
Tülay Yildirim, Yildiz Technical University, Turkey

Submissions are due by 10 January 2017, and the issue is planned for publication in September/October 2017.

Authors are asked to submit high-quality original work that has neither appeared in nor is under consideration by other journals. All submissions will be peer-reviewed following standard

journal practices. Manuscripts based on previously published conference papers must be extended substantially to include at least 50 percent new material. Manuscripts should be written in the active voice, should be no longer than 6,000 words (counting each standard figure and table as 250 words), and should follow the style and presentation guidelines of SIMULATION (https://uk.sagepub.com/en-gb/eur/journal/simulation#submission-guidelines).

Please submit your article using the online manuscript submission service at https://mc.manuscriptcentral.com/simulation. When uploading your article, select the appropriate special-issue title under the category "Manuscript Type." Also include complete contact information for all authors. If you have any questions about submitting your article, contact the peer review coordinator at vmpate@scs.org.

*GIANCARLO FORTINO (SM'12) received the Laurea (B.S and M.S) and Ph.D in computer engineering from the University of Calabria, Italy, in 1995 and 2000, respectively. He is currently an Associate Professor of Computer Engineering (since 2006) with the Department of Informatics, Modeling, Electronics and Systems (DIMES), University of Calabria. He holds the Scientific Italian Habilitation for Full Professor and he is also Adjunct Full Professor of Computer Engineering at Wuhan University of Technology in the framework of High-End Foreign Experts in China and adjunct senior researcher at Italian National Research Council. He authored about 300 publications in journals, conferences, and books. He is currently the Scientific and Technical Project Manager of the EU-funded H2020 INTER-IoT project on heterogeneous IoT platform interoperability. His research interests include distributed computing, wireless sensor networks, body area networks, software agents, IoT technology, cloud computing. He is an associate editor of IEEE Trans. on Affective Computing, IEEE Trans. on Human-Machine Systems, IEEE Sensors Journal, Information Fusion, Engineering Application of Artificial Intelligence, Journal of Network and Computer Applications. He is founding co-chair of SMC TC on Interactive and Wearable Computing and Devices and is the Chair of the Italian Chapter of the IEEE SMC Society. He is co-founder and CEO of SenSysCal S.r.l., a spin-off of University of Calabria, engaged in advanced applied research and development of IoT systems.*
*Email: giancarlo.fortino@unical.it*

*Tülay YILDIRIM, received the B.S. and M.S. degrees in Electronics and Communication Engineering from Yildiz Technical University (YTU), Istanbul, Turkey, in 1990 and 1992, respectively, and the Ph.D. degree in electrical and electronics engineering from the University of Liverpool, U.K., in 1997. Currently, she is a Full Professor with YTU. Her current research interests include analog and digital integrated circuit design, hardware implementations of neural networks, medical electronics, biometrics and artificial intelligence.*
*Email: tulay@yildiz.edu.tr*