Keynote Address

Reorganizing Model Design for a Unified Simulation Discipline

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Abstract:

The area of model design in simulation is currently fragmented, with different groups espousing a plethora of model types. Simulation, as a discipline, has dealt adequately with the area of analysis in terms of characterizing analysis into logical groupings. However, with regard to model design, there exist different categories including “discrete event models,” “continuous time models” and “combined models.” The present terminology does not include certain types, such as conceptual models and spatial models, and there is no unified, agreed-upon modeling methodology which captures the different model types used in science and engineering. We present a model design taxonomy and a way of thinking about modeling which unifies various methodologies into a coherent framework.

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Paul A. Fishwick is an associate professor in the Department of Computer and Information Sciences at the University of Florida, in Gainesville. He received a BS in Mathematics from Pennsylvania State University; an MS in Applied Science from the College of William and Mary; and in 1986, a Ph.D. in Computer and Information Science from the University of Pennsylvania. He also has six years of industrial/government production and research experience working at Newport News Shipbuilding and Dry Dock Co. (doing CAD/CAM parts definition research) and at NASA Langley Research Center (studying engineering database models for structural engineering). His research interests are in computer simulation modeling and analysis methods for complex systems.
He is a senior member of the IEEE and the Society for Computer Simulation. He is also a member of the IEEE Society for Systems, Man and Cybernetics; ACM; and AAAI. Dr. Fishwick founded the computer simulation Internet news group (Simulation Digest) in 1987, which now serves over 15,000 subscribers. He was chair of the IEEE Computer Society Technical Committee on Simulation (TCSIM) for two years (1988-1990) and he is on the editorial boards of several journals, including *ACM Transactions on Modeling and Computer Simulation; IEEE Transactions on Systems, Man and Cybernetics; the Transactions of the Society for Computer Simulation; the International Journal of Computer Simulation; and the Journal of Systems Engineering.*