DISCRETE-EVENT AND AGENT-BASED SIMULATION AND WHERE TO USE EACH

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ABSTRACT

Discrete-event simulation (DES) has been used since the late 1950s. In contrast, agent-based simulation (ABS) is much newer but has been the "hottest" topic in simulation since 2005, despite a lack of agreement on what is an agent or ABS. We carefully define DES and ABS, and discuss their similarities and differences. We argue that emergence is not a fundamental tenet of ABS, as is often suggested. We give three general situations where ABS will probably be required, and relate these to actual applications. The talk concludes with a discussion of the most-important developments in simulation technology in the last five years.

AUTHOR BIOGRAPHY

AVERILL M. LAW is President of Averill M. Law & Associates, the world leader in simulation training. He has presented 535 simulation seminars in 20 countries on topics such as system design and analysis, model validation, and agent-based simulation. He is the author of the book *Simulation Modeling and Analysis*, with more than 158,000 copies in print and 15,000 citations. He was awarded the 2009 INFORMS Simulation Society Lifetime Professional Achievement Award. Previously, he was a faculty member at University of Wisconsin-Madison and University of Arizona, and has a Ph.D. in operations research from University of California at Berkeley.