

PARALLEL PROCESSING AND SIMULATION

MODERATOR:

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High instruction execution rates may be achieved (in a cost-effective manner) through a vorpal of (relatively) inexpensive processors operating in parallel. The harnessing of this raw computing power to discrete event simulation applications is an active area of research. Three major approaches to the problem, of assigning computational tasks to processing elements may be identified.

PANELISTS:

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1. Model Based Assignment. Elements in the system being simulated may be modeled on separate processors, with the processors communicating through messages about the state of the elements being modeled.
2. (Local) Function Based Assignment. The functions required to execute a simulation program (event set management, random number generation, etc.) are assigned to processors, with the processors communicating through messages regarding the specific functions to be performed.
3. (Global) Function Based Assignment. An extension extending the above idea, the functions required to support a simulation system (data base processing, graphics, performance monitoring, and the simulation itself) are assigned to groups of processors, which communicate about the tasks to be performed.

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The panelists will discuss the directions their research are taking, their view of the state of the art, and what performance gains may likely be achieved.