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DISCRETE EVENT MODELS: GETTING THE SEMANTICS RIGHT

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ABSTRACT

Discrete event models are systems where components interact via timed events. Although there are many languages and simulators with discrete-event semantics (VHDL, OpNet Modeler, ns2, etc.), there is not widespread agreement on the precise semantics. This talk examines a formal foundation for discrete-event systems that clarifies interesting corner cases, where events are simultaneous, ordered or unordered, and where Zeno conditions arise. It introduces analytical tools for studying such cases, lends insight into parallel and distributed execution of discrete-event models, and suggests a unified semantics that is efficient and clean.

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