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Statistical Challenges in Agent-Based Models

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Agent-based models (ABMs) are computational models used to simulate the actions and interactions of agents within a system. Usually, each agent has a relatively simple set of rules for how it responds to its environment and to other agents. These models are used to gain insight into the emergent behavior of complex systems with many agents, in which the emergent behavior depends upon the micro-level behavior of the individuals. ABMs are widely used in many fields, and this talk reviews some of those applications. However, as relatively little work has been done on statistical theory for such models, this talk also points out some of those gaps and recent strategies to address them.