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Mean field games as a tool for studying the long-term behaviour of agent-based models

Abstract:

Mean field games represent a class of dynamic games that fill the gap between finite-size agent-based models and their deterministic approximations in the limit of an infinitely large population. They show features, such as metastability or robustness of equilibria with respect to fluctuations, that are not present in the latter class of systems, while being amenable to a thorough mathematical analysis. I will discuss how mean field games and mean field limits can be used for modelling, simulation and analysis of agent-based models and discuss possible applications in the direction of opinion dynamics.