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Finite-Time and -Size Scalings in the Evaluation of Large Deviation Functions. Numerical Analysis in Continuous Time. ESTEBAN GUEVARA HIDALGO, TAKAHIRO NEMOTO, VIVIEN LECOMTE, Universite Paris Diderot — Rare trajectories of stochastic systems are important to understand because of their potential impact. However, their properties are by definition difficult to sample directly. Population dynamics provide a numerical tool allowing their study, by means of simulating a large number of copies of the system, which are subjected to a selection rule that favors the rare trajectories of interest. However, such algorithms are plagued by finite simulation time- and finite population size-effects that can render their use delicate. Using the continuous-time cloning algorithm, we analyze the finite-time and finite-size scalings of estimators of the large deviation functions associated to the distribution of the rare trajectories. We use these scalings in order to propose a numerical approach which allows to extract the infinite-time and infinite-size limit of these estimators.

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