

Retrospective exact simulation of diffusion sample paths with applications

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We present an algorithm for exact simulation of a class of Itô's diffusions. We demonstrate that when the algorithm is applicable, it is also straightforward to simulate diffusions conditioned to hit specific values at predetermined time instances. We also describe a method that exploits the properties of the algorithm to carry out inference on discretely observed diffusions without resorting to any kind of approximation apart from the Monte Carlo error.

Keywords: conditioned diffusion processes; discretely observed diffusions; exact simulation; Monte Carlo maximum likelihood; rejection sampling