The using of Monte Carlo simulation in the teaching process

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Abstract

The Monte Carlo (MC) method is one of the basic simulation statistical methods, which can be used both to demonstrate basic probability and statistical concepts, as well as to analyse of the behaviour stochastic models. The introduction part of the article provides a brief description of the MC method. The main part of article is concentrated on three practical exercises that demonstrate advantages of the MC approach in several part of mathematics. The first example is focused on the classical use of the MC method for calculating the area of polygons, the second example is directed to the application of the MC method for demonstrating the basic properties of different types of statistical estimations, and the last example shows possibilities of MC method for the numerical approximation solution of the differential equations.

CADGME 2018, 25-29 June 2018, Coimbra, Portugal