Exploring the Impact of Pseudo and Quasi Random Number Generators on Monte Carlo Integration for Multivariate Normal and t Distributions*

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Abstract

This is the abstract of your paper.

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Introduction

Your introduction goes here.

Literature Review

MAIN 1 G. Leobacher and F. Pillichshammer, Introduction to quasi-Monte Carlo in- tegration and applications, Birkh¨auser/Springer, Cham, 2014. Lättare kolla github

Main 2 Art B owen Monte Carlo and Quasi-Monte Methods Svårare kolla github Multivariate Gaussian Probabilities

William J. Morokoff and Russel E. Caflisch, Quasi-Monte Carlo integration, J. Comput. Phys. 122 (1995), no. 2, 218–230. (At CiteSeer: [1]) Kolla gitub

On curse of dimensionality... Kolla github

RNG

Bild jämförelse

Pseudo

Mersenne Twister https://www.rdocumentation.org/packages/base/versions/3.6.2/topics/Random https://en.wikipedia.org/wiki/Mersenne_Twister

Sobol

s.138 Leobacher

Halton

s.40 Leobacher

Complexity

MC-Integration

Curse of dimensionality

Multivariate normal, t distribution

Complexity of multivariate normal, t distribution.

Kolmogorov complexity?

Methodology

MC-integration function in R

The three cases explored

1.Constant probability space, changing integration limits. 2.Constant integration limits, changings probability space. 3.Full probability space.

The effect of increasing dimension

The effect of sample size

The effect of covariance in low dimensional cases

Results

Multivariate Normal

Increasing Dimension

Sample size

Covariance

Multivariate t-distribution

Increasing Dimension

Sample size

Covariance

Conclusion

Summarize your findings and conclude the paper.

References