StatSim & CM - Exercise 1 Stadler

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Contents

Exercise 1 - Introduction to Simulation with Variance Estimation

Compare the 4 algorithms against R's 'var' function as a gold standard regarding the quality of their estimates.

Implement all variants of variance calculation as functions.

Code for algorithm 1-4

```
var_1 <- function(){
  value<-0
  return(value)
}
```

Write a wrapper function which calls the different variants.

Code for wrapper

Compare the computational performance of the 4 algorithms against R's 'var' function as a gold standard and summarise them in tables and graphically.

Investigate the scale invariance property for different values and argue why the mean is performing best as mentioned with the condition number.

Compare the results according to the instructions provided by Comparison I and Comparison II of the slides.

Provide your results in table format and graphical format comparable to the example in the slides.

Compare condition numbers for the 2 simulated data sets and a third one where the requirement is not fulfilled, as described during the lecture.