CS714/814 Fall 2013

Assignment 3

Due on: Oct. 30, 2013.
Total points: 100

For this homework assignment, you’ll first need to download the data file “H.tar.gz” from the course website (<http://www.cs.odu.edu/~yaohang/cs714814/Assg/H.tar.gz>)

1. Programming Part: (50 pts)

**Use** Von Neumann- Ulam Algorithm with $N$ random walks to compute the first component $x\_{1}$ of the solution of the simultaneous equations

$x=a+Hx$.

 The matrix $H$ is provided in the file “**dataI.dat**”, and the vector $a$ is filled with ones.

**Draw** a plot with of the variance and the number of random walks$ N$ (100, 1000, …, 10^6).

1. Brain Part: (50 pts)

**Run** your Monte Carlo program using the matrix $H$ from the “**dataII.dat”.** (the vector $a$ is filled with ones.)

**Draw** a plot with of the variance and the number of random samples$ N$ (100, 1000, …, 10^6).

**What conclusions can you get? Do you have any ideas to handle this problem?**

**Delivery form**The delivery form of the assignment should be a document with the program printout and the corresponding figures.