SampleUniformSums.m

function X = SampleUniformSums(nSamples,nSum)

% function X = SampleUniformSums(nSamples,nSum)
% Returns nSamples i.i.d. random variables, each
% of which is a sum of nSum i.i.d. uniform rv’s.

% loop through the number of samples
for n = 1:nSamples
  Usum = 0;
  for k = 1:nSum
    Usum = Usum + rand; % rand is i.i.d. uniform
  end
  X(n) = Usum;
end

return

Uniform r.v.’s. The above figure was made with the following commands:

X = SampleUniformSums(50000,1);
hist(X,40)
Sum of 2 uniform r.v.’s. The above figure was made with the following commands:

\begin{verbatim}
X = SampleUniformSums(50000,2);
hist(X,40)
\end{verbatim}

Sum of 50 uniform r.v.’s. The above figure was made with the following commands:

\begin{verbatim}
X = SampleUniformSums(50000,50);
hist(X,40)
\end{verbatim}