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| --- | --- |
| function A = generatematrix(n)  A = rand(n,n);  A = A\*A';  A = A + n\*eye(n);  end | function X1 = sst(A,b)    n = length(b);  S(1,1) = sqrt(A(1,1));    for j = 2:n  S(1,j) = A(1,j)/S(1,1);  end    for i = 2:n  S(i,i) = sqrt(A(i,i)-sum(S(1:i-1,i).\*S(1:i-1,i)));  for j = i+1:n  S(i,j) = (A(i,j)-sum(S(1:i-1,i).\*S(1:i-1,j)))/S(i,i);  end  end    Y(1)=b(1)/S(1,1);  for i = 2:n  Q = 0;  for k = 1:i-1  Q = Q+S(k,i).\*Y(k);  end  Y(i) = (b(i)-Q)/S(i,i);  end    X1(n) = Y(n)/S(n,n);  for i = n-1:(-1):1  Q = 0;  for k = i+1:n  Q = Q+S(i,k).\*X1(k);  end  X1(i) = (Y(i)-Q)/S(i,i);  end  X1 = X1';    end |
| function res = is\_SPD(A)  if (~issymmetric(A))  res = false;  return;  end    ev = eig(A);    if (any(ev <= 0))  res = false;  return;  end    res = true;  end |
| function b1 = disturbance\_b(b)  n = length(b);  for i=1:n  b1(i)=(1+rand\*0.01)\*b(i);  end  end |
| function A1 = disturbance\_A(A,b)  n = length(b);  for i=1:n  for j=1:n  A1(i,j)=(1+rand\*0.01)\*A(i,j);  end  end  end |
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