```matlab
function [ yn ] = linear_interp( x,y,xn )
n = length(x); N = length(xn);
m = 1;
for i = 1:N
    for j = 1:n-1
        if xn(i) > x(j) && xn(i) < x(j+1)
            m=j;
        end
    end
    yn(i)=((xn(i)-x(m+1))*y(m)/(x(m)-x(m+1)))-((xn(i)-x(m))*y(m+1)/(x(m)-x
(m+1)));
end
end
```