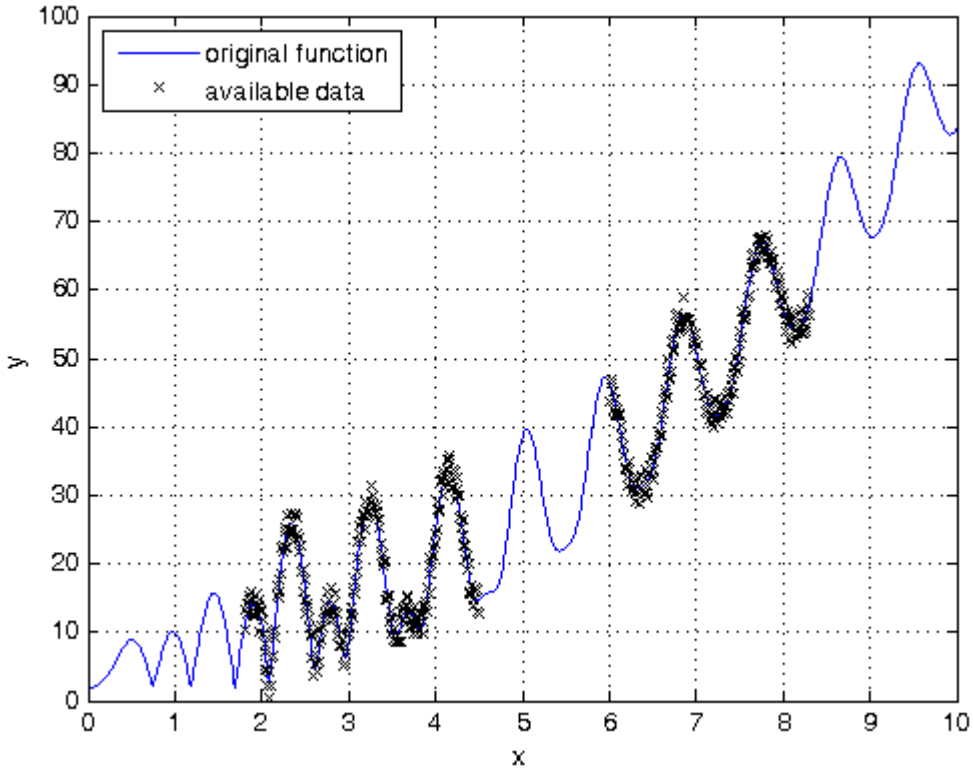
Function approximation with a GRNN

```
% ========================================================================
% PROBLEM DESCRIPTION:
% Create a function approximation network based on a measured data set.
% ========================================================================
% NEURAL NETWORK course example by Primoz Potocnik, 2010.
% Optimized for MATLAB 2010b with Neural Network Toolbox 7.0
% ========================================================================
close all; clear; clc
```

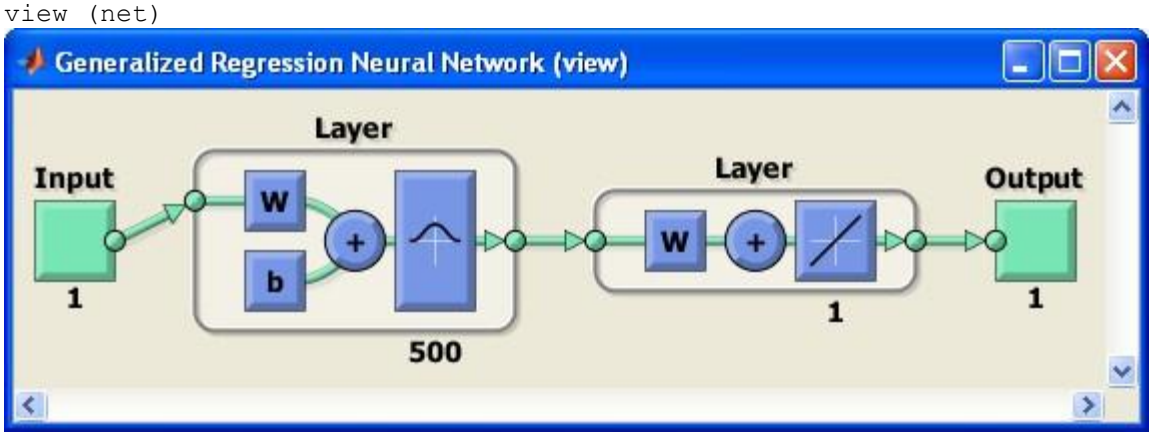
Prepare data

```
% data generator
t = 0.01:.01:10;
f = abs(besselj(2,t*7).*asind(t/2) + (t.^1.95)) + 2;
plot(t,f,'b-')
hold on
grid on
% available data points
y = f + 5*(rand(1,length(f))-.5);
x = t([181:450 601:830]);
y = y([181:450 601:830]);
plot(x,y,'kx')
xlabel('x')
ylabel('y')
legend('original function','available data','location','northwest')
```



Create a GRNN

```
% choose a spread constant
spread = .12;
% create a neural network
net = newgrnn(x,y,spread);
% view net
view (net)
```



Evaluate network performance

```
% simulate a network over complete input range
Y = net(t);
% plot network response
plot(t,Y,'r')
ylim([0 100])
legend('original function','available data','neural
net','location','northwest')
```