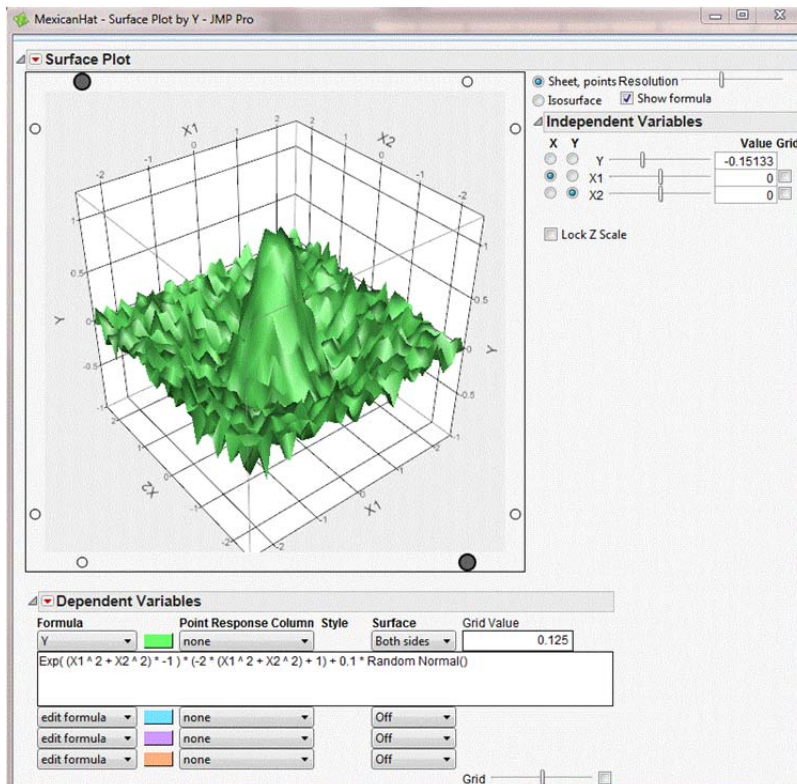
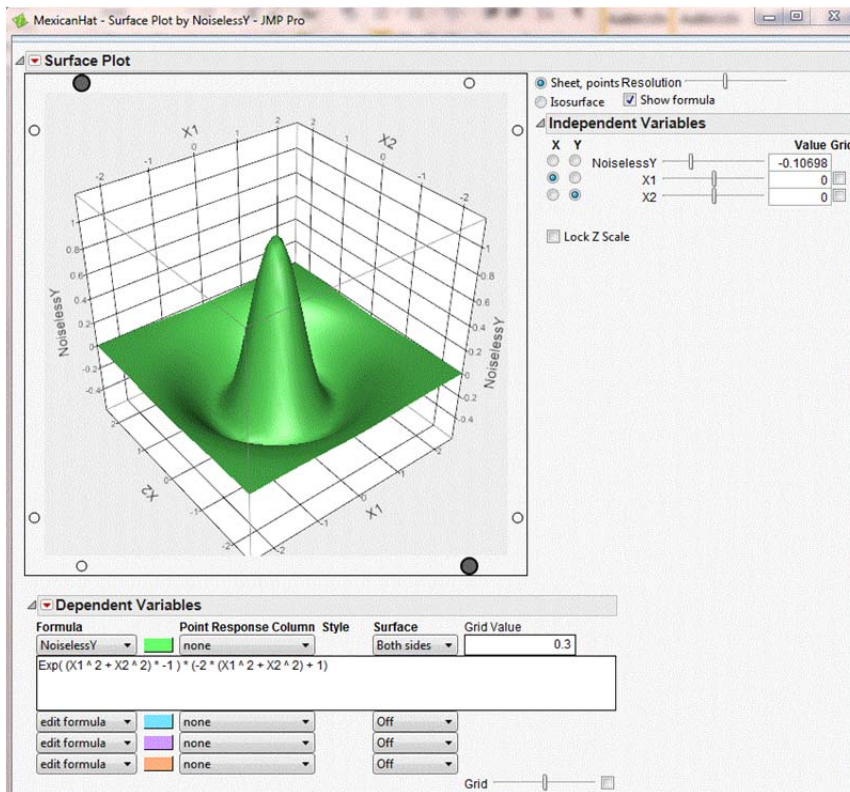


## Neural Net Examples (JMP)

The following are mostly a set of screen shots concerning fits to a "Mexican Hat" data set (on a 9x9 grid). Here are plots for the noiseless and noisy raw data.



Here is a summary of a fit using a single hidden layer with 4 hidden nodes.

MexicanHat - Neural of Y - JMP Pro

**Neural**

**Model Launch**

Validation Method: KFold  
 Number of Folds: 10

Hidden Layer Structure

Number of nodes of each activation type

Layer	TanH	Linear	Radial
First	4	0	0
Second	0	0	0

Second layer is closer to X's in two layer models.

Boosting

Fit an additive sequence of models scaled by the learning rate.

Number of Models: 0  
 Learning Rate: 0.1

Fitting Options

Transform Covariates  
 Robust Fit  
 Penalty Method: Squared  
 Number of Tours: 1

Go

MexicanHat - Neural of Y - JMP Pro

**Neural**

Validation: Random KFold

**Model Launch**

**Model N TanH(4)**

Training		Validation	
Y	Measures	Y	Measures
RSquare	0.2972649	RSquare	0.0696477
RMSE	0.206061	RMSE	0.3437275
Mean Abs Dev	0.1575945	Mean Abs Dev	0.2353749
-LogLikelihood	-11.72705	-LogLikelihood	2.8082603
SSE	3.0996626	SSE	0.9451889
Sum Freq	73	Sum Freq	8

**Diagram**

**Y**

**Response Grid Slider**

-0.15

**Independent Variables**

X Y Value Grid

X1  0

X2  0

Lock Z Scale

**Appearance**

data points are  Off  Surface plus Residual  Actual  Residual

Resolution

Orthographic projection

Contour: On Surface

Here's a summary of a fit using 2 hidden layers and 4 nodes per layer.

MexicanHat - Neural of Y 2 - JMP Pro

**Neural**

**Model Launch**

Validation Method: KFold  
Number of Folds: 10

Hidden Layer Structure  
Number of nodes of each activation type  
Activation Sigmoid Identity Radial

Layer	TanH	Linear	Gaussian
First	4	0	0
Second	4	0	0

Second layer is closer to X's in two layer models.

Boosting  
Fit an additive sequence of models scaled by the learning rate.  
Number of Models: 0  
Learning Rate: 0.1

Fitting Options  
 Transform Covariates  
 Robust Fit  
Penalty Method: Squared  
Number of Tours: 1

Go

MexicanHat - Neural of Y 2 - JMP Pro

**Neural**

Validation: Random KFold

**Model Launch**

**Model N TanH(4)N TanH2(4)**

Training		Validation	
Y	Measures	Y	Measures
RSquare	0.8555023	RSquare	0.9787788
RMSE	0.0939575	RMSE	0.0549104
Mean Abs Dev	0.0728636	Mean Abs Dev	0.0449062
-LogLikelihood	-69.05615	-LogLikelihood	-11.86491
SSE	0.6444442	SSE	0.0241212
Sum Freq	73	Sum Freq	8

**Diagram**

**Y**

**Response Grid Slider**  
0.2

**Independent Variables**

X	Y	Value Grid
<input checked="" type="radio"/> X1		0
<input checked="" type="radio"/> X2		0

Lock Z Scale

**Appearance**

data points are  Off  
 Surface plus Residual  
 Actual  
 Residual

Resolution: \_\_\_\_\_

Orthographic projection

Contour: On Surface

Here's a summary of a fit using a single hidden layer, but 8 nodes instead of just 4.

MexicanHat - Neural of Y 3 - JMP Pro

**Neural**

**Model Launch**

Validation Method: KFold  
 Number of Folds: 10

Hidden Layer Structure

Number of nodes of each activation type

Layer	TanH	Linear	Gaussian
First	8	0	0
Second	0	0	0

Second layer is closer to X's in two layer models.

Boosting

Fit an additive sequence of models scaled by the learning rate.

Number of Models: 0  
 Learning Rate: 0.1

Fitting Options

Transform Covariates  
 Robust Fit

Penalty Method: Squared  
 Number of Tours: 1

Go

MexicanHat - Neural of Y 3 - JMP Pro

**Neural**

Validation: Random KFold

**Model Launch**

**Model N TanH(8)**

**Training**

Y	Measures	Y	Measures
RSquare	0.7083669	RSquare	0.3914042
RMSE	0.1483323	RMSE	0.1467981
Mean Abs Dev	0.1135188	Mean Abs Dev	0.1151949
-LogLikelihood	-35.72343	-LogLikelihood	-3.998069
SSE	1.6061794	SSE	0.1723974
Sum Freq	73	Sum Freq	8

**Validation**

**Diagram**

**Y**

**Response Grid Slider**

0.125

**Independent Variables**

X	Y	Value Grid
<input checked="" type="radio"/> X1		0
<input type="radio"/> X2		0

Lock Z Scale

**Appearance**

data points are  Off  Surface plus Residual  Actual  Residual

Resolution: \_\_\_\_\_

Orthographic projection

Contour: On Surface