



## \*\*\*Simply Fitting\*\*\*

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# The Problem...

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- ▶ The want for fitting programs is rising
- ▶ Current programs out there...
- ▶ NCNR Guest Researchers



# The Solution?

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- ▶ An online data fitting application



# How to code in new functions?

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- ▶ Functions are interactors



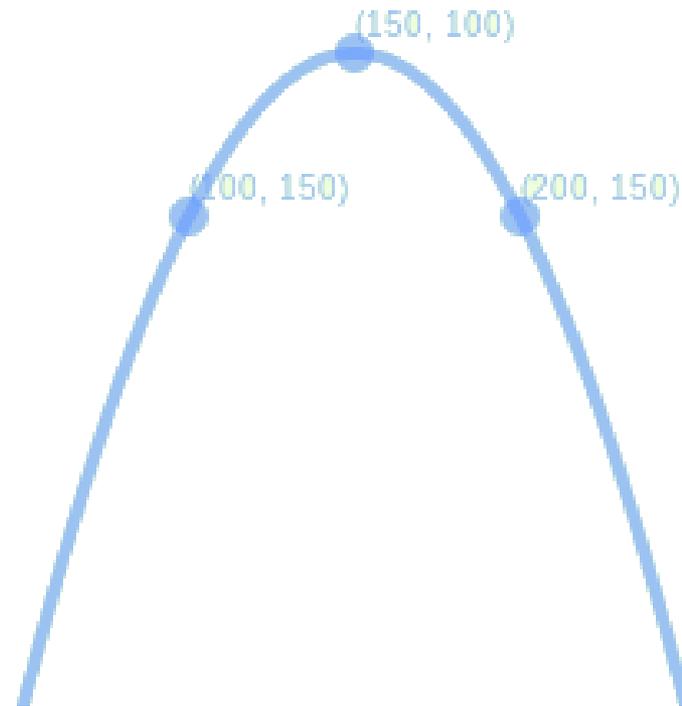
# What are interactors?

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► Functions are interactors

~ Grobs

~ Function itself



# Coding in Javascript

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- ▶ Prototype
- ▶ Plugin



# Coding the Prototype

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```
$.jqplot.Gaussian = function() {};
$.jqplot.Gaussian.prototype = new $.jqplot.FunctionConnector();
$.jqplot.Gaussian.prototype.constructor = $.jqplot.Gaussian;
$.extend($.jqplot.Gaussian.prototype, {
  initialize: function(parent, peak, pl, width) {
    $.jqplot.FunctionConnector.prototype.initialize.call(this, parent, width);
    this.name = 'gaussian';
    this.f = this.gaussian;
    this.points = {pk: peak, pw:pl};
    this.c = peak;
    this.pl = pl;
    this._setpars();
  },

  _setpars:function(){
    var cx = this.c.pos.x,
        cy = this.c.pos.y,
        wx = this.pl.pos.x,
        wy = cy - this.pl.pos.y;
    var height = wy,
        bkgd = -2*height,
        FWHM = Math.abs(wx - cx),
        stdDev = FWHM / Math.sqrt(Math.log(256));
    this.pars = { center: cx, stdDev: stdDev, height: height, bkgd: bkgd };
  },

  gaussian: function(x) {
    var resid = (x - this.pars.center)/this.pars.stdDev;
    return this.pars.height - this.pars.height * Math.exp(-0.5 * resid * resid);
  }
});
```

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# Coding the Plugin

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```
$.jqplot.GaussianInteractorPlugin = function() {};  
$.jqplot.GaussianInteractorPlugin.prototype = new $.jqplot.InteractorPlugin();  
$.jqplot.GaussianInteractorPlugin.prototype.constructor = new $.jqplot.GaussianInteractorPlugin;  
$.jqplot.InteractorPluginSubtypes.Gaussian = $.jqplot.GaussianInteractorPlugin;  
  
$.jqplot.GaussianInteractorPlugin.prototype.init = function(options) {  
    $.jqplot.InteractorPlugin.prototype.init.call(this, options);  
    this.ymin = -1.9;  
    this.ymax = 2;  
    this.xc = 2.35;  
    this.xhw = 5.2;  
  
    $.extend(this, options);  
    this.pk = new $.jqplot.PluginPoint();  
    this.pk.initialize(this, this.xc, this.ymax);  
    this.pw = new $.jqplot.PluginPoint();  
    this.pw.initialize(this, this.xhw, this.ymin);  
    this.Gaussian = new $.jqplot.Gaussian();  
    this.Gaussian.initialize(this, this.pk, this.pw, 3);  
    this.grobs.push(this.pk, this.pw, this.Gaussian);  
  
};
```



# A Future Direction

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- ▶ Add Accounts
- ▶ Organize and Add Data in Layers
- ▶ Finish implementing Nelder-Mead Simplex Algorithm for Fitting

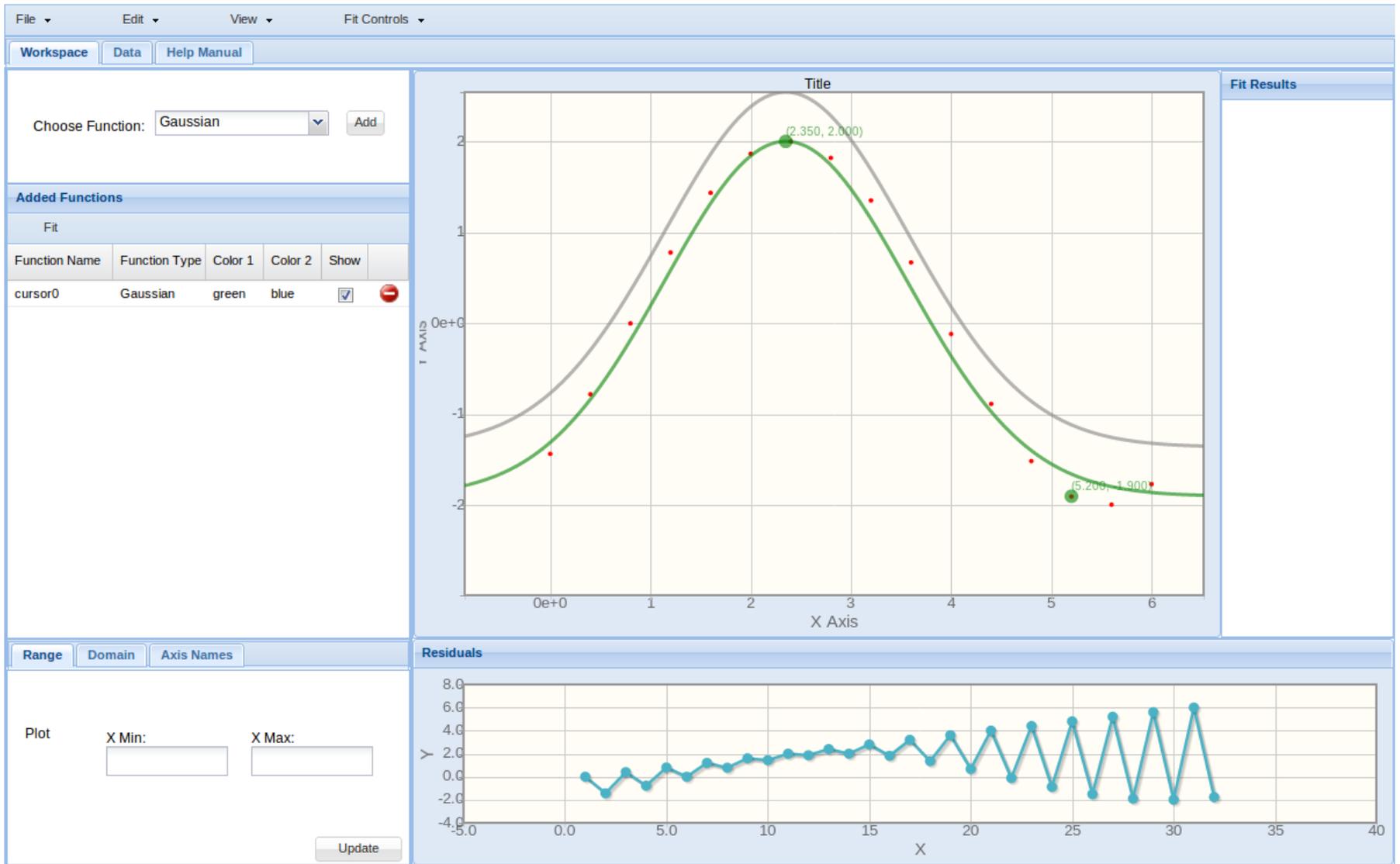


# Acknowledgements:

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- ▶ Special thanks to





File ▾ Edit ▾ View ▾ Fit Controls ▾		
Workspace Data Help Manual		
X	Y	
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0.4	-0.778836684617301	⊖
0.8	0	⊖
1.2000000000000002	0.7788366846173013	⊖
1.6	1.4347121817990456	⊖
2	1.8640781719344526	⊖
2.4	1.9991472060830104	⊖
2.8	1.8185948536513636	⊖
3.1999999999999997	1.3509263611023026	⊖
3.5999999999999996	0.6699763003118102	⊖
3.9999999999999996	-0.1167482868551584	⊖
4.3999999999999995	-0.8850408865897041	⊖
4.8	-1.5136049906158564	⊖
5.2	-1.903204147779032	⊖
5.6000000000000005	-1.9923292176716811	⊖
6.000000000000001	-1.7669093114403056	⊖

