

genoform

Getting Started

Generate Your SolidWorks Model

GenoForm works by capturing and varying your design intent—defined by parameters and dimensions, to generate interesting and surprising design variations for your exploration.

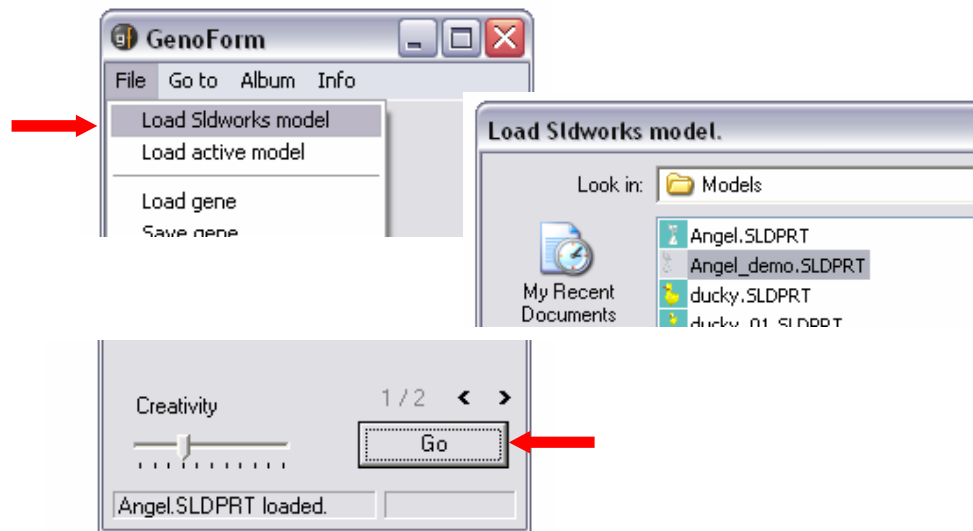
Before we begin to generate, GenoForm has to be first launched independently.

To launch GenoForm:

Program menu→Genometri→GenoForm.

To generate:

1. If you already have your SolidWorks part file open in your SolidWorks active window,
 - a. File→Load active model
 - b. Click [Go] to begin
2. If you have not launched SolidWorks,
 - a. File→Load SolidWorks model
 - b. Click [Go] to begin



Launching SolidWorks file from GenoForm

NOTE: This version of GenoForm only supports SolidWorks Part (sldprt) model.

Increasing Your Design's Divergence

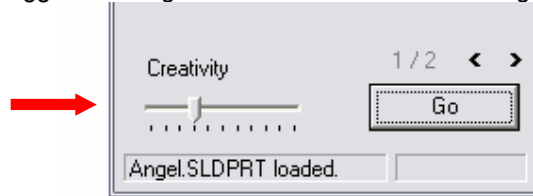
The level of divergence in your model can be controlled by adjusting the Creativity bar.



*Example of increasing Creativity on a shark model
Modeled and genovated by Chua Wun Fong*

To vary Creativity:

Slide the toggle to the right to increase the level of divergence, or left to decrease it.



Creativity slider

Gene Pool

As mentioned, GenoForm works by varying your parameters and dimensions of your design. These parameters and dimensions which influence your design intent, we call them "genes". In the SolidWorks modeling process, adding dimensions to your model adds to the "gene pool" for GenoForm, increasing the interest and variety in the generated models.

TIP: A quick way to add dimensions is to auto-dimension.

To auto-dimension:

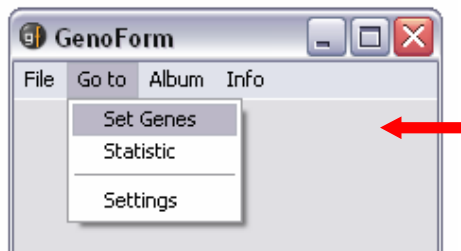
In sketch mode, go to menu, Tools→Dimensions→Autodimension.

Gene Modification

In GenoForm, we can control the way these genes are being generated. Hence we are able to steer the direction in which the design is being explored. For instance, the height of a model should always remain constant throughout all the generated models, or it should not exceed a certain height.

To access Set Genes:

In menu, Go to→Set Genes

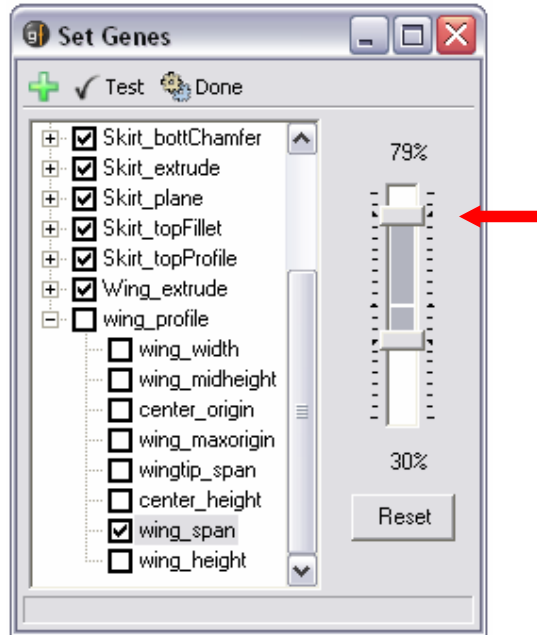


Access Set Genes

To Set Genes:

1. Unselect the check boxes next to the parameters/dimensions you want to keep constant.
2. Leave the boxes "ticked" for those you wish to generate
 - a. By default, "ticked" genes will follow the creativity level set in the creativity slider mentioned earlier.

- b. Slide the Max and Min values to limit the range of divergence; this will override the creativity bar control. "Reset" will tie your range back to the creativity slider.
3. Enable validity check of range by depressing the [Test] button. SolidWorks model will be rebuilt to the extremity values every time the max/min range is changed.
4. Click [Done] to set the genes and return to main window.

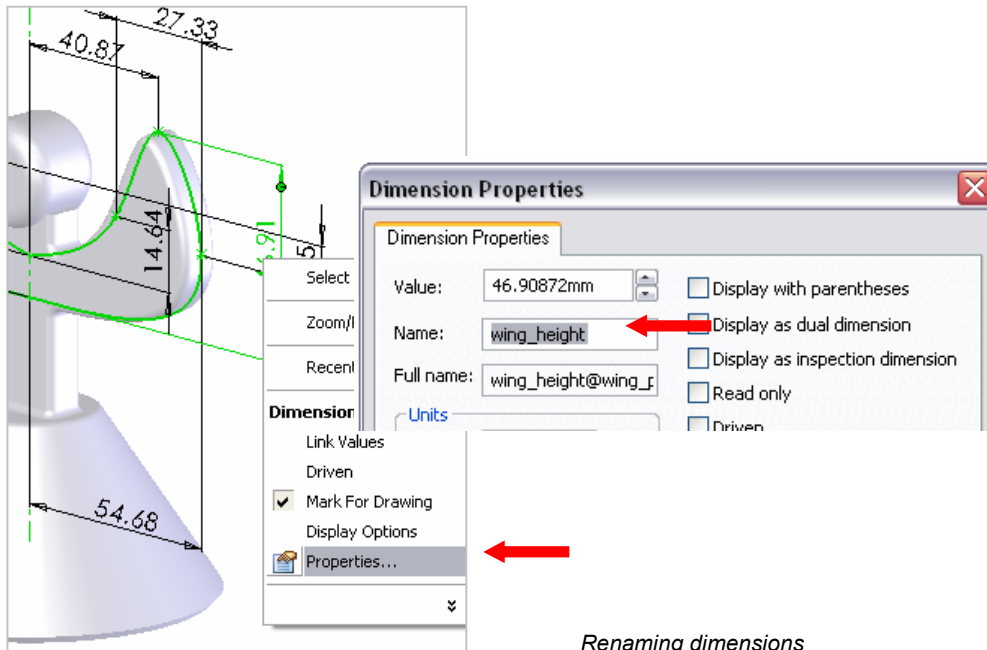


Set Genes panel

TIP: It is useful to rename your dimensions with meaningful names for easy reference when setting genes.

To rename dimensions:

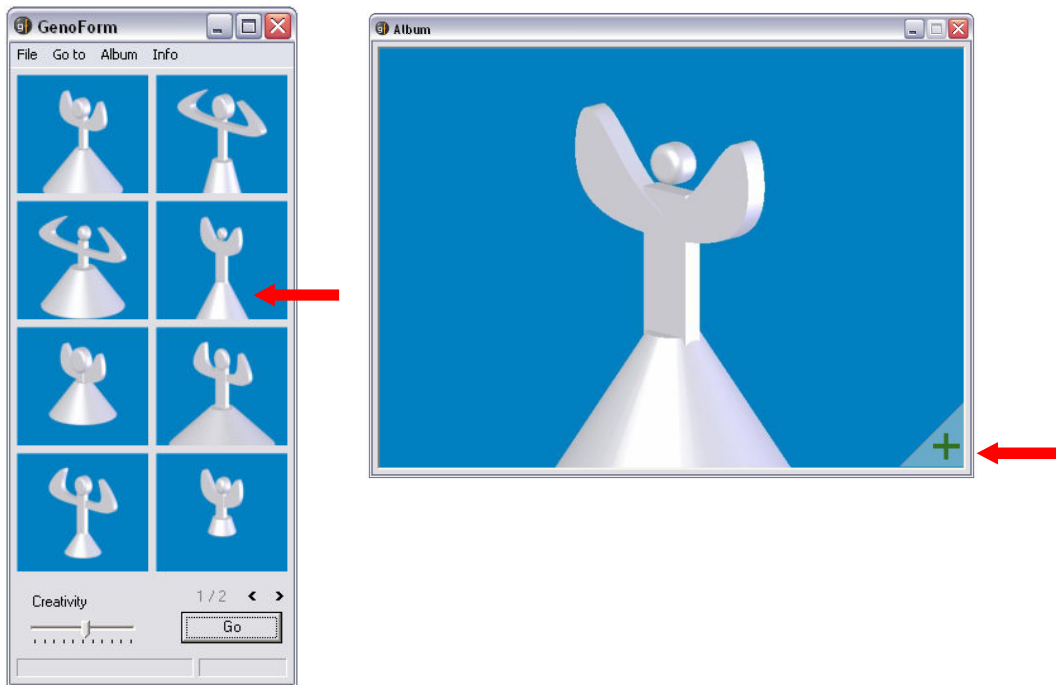
Right-click on the dimension you want to rename in your SolidWorks model → Properties → (type in "Name" textbox) → OK.



Renaming dimensions

Model Variations

Upon clicking [Go], thumbnails of your generated models will appear within the main window. Clicking on the thumbnail will display an enlarged image and the option to add or remove it from your album.



Selecting thumbnail and adding to album

To add variation to Album:

1. In the preview window, click the green [+] sign.
2. If variation was previously added to Album, the preview window will have a red [-] sign. Click it to have it removed from Album.

NOTE: You may continue to click on [Go] to explore more model variations, and continue to add these to your album.

Sorting Your Album

The album will store all thumbnails of selected generated models for the session. You may further filter the desired designs in the album.

To access Album:

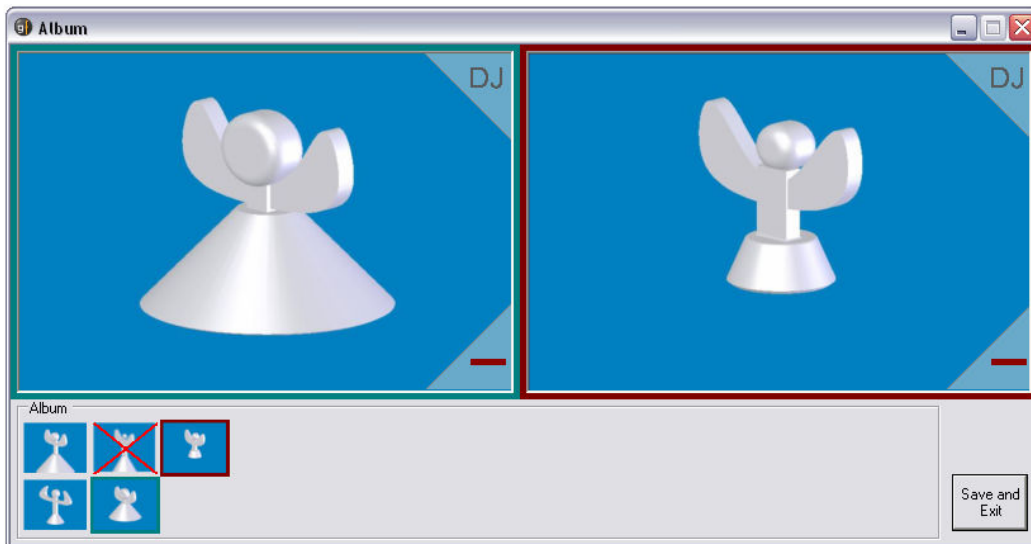
In main menu, click “Album”



Accessing Album

To sort album:

1. Double-click on thumbnail to load into left-image box, and single-click on thumbnail to load into right-image box. These adjacent image boxes make it easier to compare models and decide which designs to keep or discard.
2. Clicking on [-] in the lower-right corner of the loaded image will mark the thumbnail for deletion. Clicking on [+] will re-instate the model into the album.
3. Click “Save and Exit” to return to main window. Those thumbnails marked for deletion will be permanently trashed from the album.



Album window

NOTE: You may continue to generate more variations to be selected and added into this album.

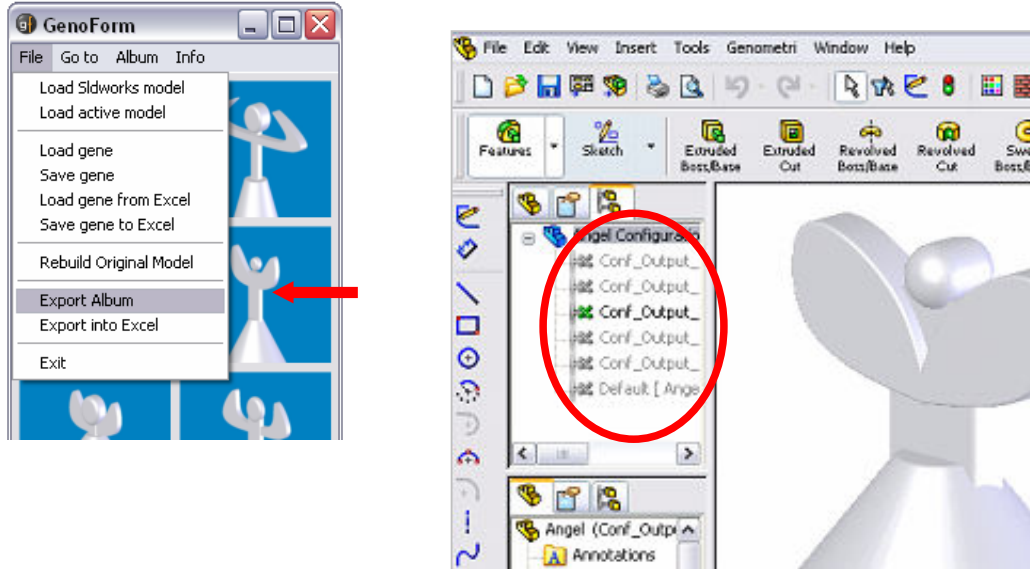
Back to SolidWorks

Once you have collected all your desired generated models in your album, you may export these models back into your SolidWorks model as configurations.

To export configurations:

1. File→Export Album.
2. Alternatively, use File→Export into Excel. The resultant Excel file can be loaded back into SolidWorks through SolidWorks Insert→DesignTable→FromFile option.

You can now retrieve these variations from the SolidWorks window.



Configurations in SolidWorks

Congratulations! You have now successfully generated many design possibilities from your original design model. Continue to explore the possibilities that GenoForm can offer, and reap its limitless potential.

Have Fun!

The Genometri Team