Blob Sculptor for Windows 1.0

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BLOB SCULPTOR FOR WINDOWS (BSFW) Version 1.0 by

Alfonso Hermida,
Steve Anger,
Truman Brown and
Ronald Praver   4/16/94

This program helps you manipulate and model 3D objects thru the use of blobs.

THIS PROGRAM IS FREEWARE ... BUT, USE AT YOUR OWN RISK.

System Requirements:
        386 or better with coprocessor
        (math coprocessor suggested)
        VGA graphics card
         mouse

You can reach us at:
    * TGA BBS (510)524-2780
    * Pi Square BBS (301)725-9080   (Alfonso's the Sysop)
    * CompuServe: GraphDev forum

Thanks to:
    * Dan Farmer for the interest and enormous amount of
       feedback and Beta testing.
    * Ronald Praver for speeding up suggestions. Ron is
       the author of World Render 3D, a wireframe modeler
       and translator.
    * David K. Mason for the program's name.
    * Bill Allen, editor of 3D Artist. 3D Artist is
       dedicated to computer graphics and publishes how-to
       articles on computer graphics programs for different
       platforms. For more info:
                        3D Artist

Silicon Graphic's Open GL Developers

If you know how to program on Open GL for the Silicon Graphics, please contact Alfonso Hermida. He has part of the code already ported to GL. The next step is to create the user interface.

DEFINITION :
```
     LMB  = Left Mouse Button
     RMB  = Right Mouse Button
```

INTERFACE:

BSFW's display consists of 3 principal views:

		Vertical Axis	Horizontal Axis
Top	(upper left window)	Z	X
Front	(lower left window)	Y	X
Side	(lower right window)	Y	Z

and a preview window (upper right window referred to as ISO) which can be modified thru the CAMERA command. Finally the right side is the MENU area.

The horizontal and vertical coordinates of the mouse are displayed in the MENU area. The name of the view window where the mouse is currently located is displayed above the coordinates.

SUMMARY OF COMMANDS:

After each command description the letters F, S, T and Iso are used to define in which views the command is valid. If no letters are present, the command doesn't apply in that view.

BS preserves the last command selected. To execute the previous command, click the LMB. (Some of the commands can't be repeated - this is done either for convenience or for safety).

Most commands may also be activated by pressing the key
corresponding to the highlighted letter of the command as well.

FILE:
This command presents series of file-related subcommands.
        NEW: Deletes the whole database - fresh start!
        SAVE: Writes data to a file. Files may be saved in the
                following formats:

                * BLOB   Blob Sculptor
                * POV   Persistence of Vision raytracer
                * POLYRAY   Polyray raytracer
                * RAYSHADE   Rayshade raytracer
                * RAW   polygons
                * CTDS   Connect The Dots System
                * DXF   Autodesk's Data eXchange Format
                * GEO   VideoScape 3D

        LOAD: Reads in a Blob Sculptor file. Existing data is
                overwritten.
        MERGE: Reads in a Blob Sculptor file. New data is
                merged with existing data.

    The Blob Sculptor format is an ASCII file described as
follows:

```
[blob1.0]
threshold   =  .6
// A REMARK
strength    =  .6
grid_size   =  f
grid_on     =  1/0
snap_on     =  1/0
camera      =  x y z angle
target      =  x y z
up          =  i j k
top_view    =  hmin vmin hmax vmax
front_view  =  hmin vmin hmax vmax
side_view   =  hmin vmin hmax vmax
zoom_factor =  f
sphere      =  x y z radius strength
```

NOTE:
        The only statement that must appear in a specific place is
the '[blob1.0]' this is used to disern which version of the
parser to use. The identifier must be the first statement in
a .BLB file. It doesn't have to be the first line just the first

statement. No other statement is required!

—

    Example: (file HAND.BLB)

```
[blob1.0]
threshold = 0.6
sphere = -0.413502  0.0253165  0 1 1.50823
sphere =  0.43038  -0.00843882 0 1 1.59972
sphere = -0.548523 -1.18987    0 1 1.45752
sphere =  0.700422 -1.20675    0 1 1.4348
sphere =  1.49367  -0.548523   0 1 0.983246
sphere =  1.72996   0.109705   0 1 0.747382
sphere =  1.79747   0.683544   0 1 0.683805
sphere =  1.82278   1.21519    0 1 0.676372
sphere =  0.759494  0.911392   0 1 0.714533
sphere =  0.742616  1.50211    0 1 0.676372
sphere =  0.691983  2.16034    0 1 0.749914
sphere =  0.599156  2.79325    0 1 0.708316
sphere =  0.43038   3.50211    0 1 0.718941
sphere = -0.21097   1.08861    0 1 0.679169
sphere = -0.312236  1.74684    0 1 0.714533
sphere = -0.464135  2.42194    0 1 0.629936
sphere = -0.666667  3.09705    0 1 0.698434
sphere = -0.919831  3.80591    0 1 0.715417
sphere = -1.0211    1.0211     0 1 0.640875
sphere = -1.30802   1.64557    0 1 0.621859
sphere = -1.57806   2.23629    0 1 0.670744
sphere = -1.86498   2.84388    0 1 0.620842
sphere = -1.4346   -0.151899   0 1 1.21077
sphere = -1.33333  -1.26582    0 1 1.24168
sphere = -2.04219   0.691983   0 1 0.670743
sphere = -2.4135    1.29958    0 1 0.674501
sphere =  1.80591   1.90717    0 1 0.78531
sphere = -2.75105   1.77215    0 1 0.555298
```

    // This file creates a 3D hand.

CREATE (F, T, S)
This command creates a blob component in any of the 3 principal
views. After selecting this command, click the LMB to define the
center of the component. Next, move the mouse to define the
radius. Finally, press the LMB to accept or the RMB to CANCEL.

To manually create blob components at specific coordinates, you
may press the key combination ALT-C to bring up an input panel
for the coordinate values. After entering coordinate values,

press ENTER (or click on OK) to accept, or press ESC (or click the RMB) to cancel.

MOVE   (F, T, S)

You may move a component to another location at anytime by selecting the MOVE command. To select the component to be moved, click on any part of the circle to be moved. The circle will be highlighted (yellow color). Now, move the mouse to the view where you want to perform the move operation and press the LMB. A ghost image will appear in case you want to locate it in it's original place. Press the LBM to accept the new location or RMB to CANCEL.

This command is different from most others because sometimes it's easier to select a component in a view different from the one where the move will be performed.

COPY (F, T, S)

The COPY command behaves the same as the MOVE command but doesn't delete the original component.

RESIZE (F, T, S)

You may resize a component at anytime by selecting the RESIZE command. To select the component to be resized, click on any part of the circle. The circle will be highlighted and a beep will indicate that you may resize the component. A ghost image will appear in case you want resize it to it's original size. Press LBM to accept the new location or RMB to CANCEL.

REDRAW

This command refreshes ALL the views. Negative components are drawn in red.

ZOOM (F, T, S, Iso)

To zoom In or Out, click on any of the views. The mouse button will determine the zooming operation:
    LMB   Zoom In
    RMB   Zoom Out

To control the rate of zoom, click on the ZFACTOR button. This will bring up a panel where you may input a value for the zoom factor. Higher values produce faster zooms. The maximum zoom factor is 10.

DELETE (F, T, S)
To delete a component, click the LMB on any part of the circle.
You'll be asked if you want to continue. To delete the object
click on [OK].

MIRROR, MIRROR AXIS (F, T, S)
The Mirror command mirrors the selected component, depending on
the status of the Mirror Axis button. Components are mirrorred
about the origin. If a selected component already has a mirror
copy, you will be presented with a message stating such. Simply
click on [OK] and try another component.

PAN (F, T, S)
You may perform panning by clicking on the PAN command. By
clicking on any of the 3 principal views, the point will become
the center of that scene. If the view gets out of limits and
you can't return it back, reset it using the ORIGIN command.

ORIGIN (F, T, S)
This command puts the origin back in the center of the selected
view. Click on the ORIGIN icon then click on one of the
principal views....the 3D axis will appear in the center.

CAMERA (Iso)
Changes the From, At and Up vectors for the Iso view.

PREVIEW (Iso)
NOTE: Be sure that you have saved your data before
       previewing it! This is an experimental program.

Generates a wireframe representation of the current scene. BSFW
tries to display a hidden line representation, but some
triangles may not show up. This doesn't affect the scene if it
is saved as RAW data. When saved as RAW data all the triangles
will be written.

DENSITY (F, T, S)
Select a component to change it's strength(density) value. The
value can be positive or negative. To accept the default value
press [Enter].
NOTE: Math errors may occur if the density selected is less
       than or equal to the threshold value. BS has been
       programmed to reset itself if a fatal math error

occurs. In most cases, the reset procedure should
preserve your data. If a reset occurs, save your data
immediately, exit and restart the program.

DETAIL
This value, between 20 and 50 determines the resolution in the
algorithm used to evaluate the blob surfaces. The values affect
the program in this way:

    20   fastest, least resolution, uses less memory
    :
    :
    50   slowest, best resolution, uses more memory

For PREVIEWing, it's good to have a small number, between 20 and
30. For the final image generation, 30 and up is good (unless
you like the resolution given by lower numbers).

Needless to say, the higher the number, the greater the number
of triangles that will be generated when creating RAW data
output.

THRESHOLD
Changes the Threshold value for the blobs.
See NOTE pertaining to Density above.

SNAP
Turns On/Off the SNAP feature.

GRID & ROW/COL
The GRID command enables the grid. The grid is redrawn with
every redraw.
The ROW/COL command sets the number of divisions (# of rows = #
columns) in the grid.

QUIT
Exit the program.

ABOUT
Tells you who the authors are!

_____

ADDITIONAL INFO:

* THRESHOLD   default value 0.6

```
* STRENGTH (DENSITY) default value 1.0
* Maximum number of components is 500          (INCREASED)
* ROW/COL value       default value 20
```

What is Blob Sculptor
This package is a multifaceted application. You can use it as:

Menu