

CLAIMS

What is claimed is:

1. A method that combines 2D and 3D modeling for rendering shapes, the method comprising:
 - providing a user interface for selecting parameters of a ~~3D~~ shape, wherein the user interface provides:
 - one or more controls to select one or more corresponding 2D parameters for the ~~3D~~ shape; wherein the user interface comprises an ordering user-selectable control to control the ordering of shapes being rendered in a 3D space, wherein the ordering user-selectable control causes an ordering of a selected 3D shape to change a relative position ordering 3D shapes such that a selected 3D shape appears to be in front of at least one other 3D shape when the selected 3D shape is positioned in front of the at least one other 3D shape using the ordering user-selectable control and wherein the selected 3D shape appears to be in back of the at least one other 3D shape when the selected 3D shape is positioned in back of the at least one other 3D shape using the ordering user-selectable control; wherein the user interface comprises a grouping control for grouping 3D shapes and when grouped the 3D shapes appear to have a common vanishing point and when ungrouped the 3D shapes appear to have a separate vanishing point;
 - applying 2D shape effects using a 2D rendering engine to the shape;
 - applying 2D surface effects using the 2D rendering engine to the shape;
 - creating a texture map from 2D text that includes applied 2D text effects and 2D surface effects; wherein the 2D text effects comprise at least one of: shadow, glow, and reflection; and wherein the 2D surface effects comprise at least one of fill, gradient fill, and image;
 - obtaining a 2D geometry from the shape;
 - generating a first ground plane for the 2D shape effects; generating and rendering the 2D text effects on a second ground plane when 3D effects are applied to the 2D text;
 - generating a 3D model using the obtained 2D geometry;
 - mapping the texture map onto the 3D model; and

[rendering the 3D model.](#)

2. The method of claim 1 wherein the 2D parameters include a fill color for the ~~3D~~ shape.
3. The method of claim 2 wherein the fill color's appearance remains substantially constant in response to a change in orientation of the 3D [model](#)~~shape~~.
4. The method of claim 2 wherein the fill color's appearance remains substantially constant in response to a change in lighting of the 3D [model](#)~~shape~~.
5. The method of claim 2 wherein the 2D parameters include a gradient in the fill color for the ~~3D~~ shape.
6. The method of claim 1 wherein the 2D parameters include a line color for the ~~3D~~ shape.
7. The method of claim 1 wherein the 2D parameters include a line weight for the ~~3D~~ shape.
8. The method of claim 1 wherein the 2D parameters include an ordering of two or more shapes being rendered on a display.
9. The method of claim 8 wherein the user interface includes a user-selectable control to cause a selected 3D shape to appear to [stack onto](#)~~be in front of~~ at least one other [3D](#) shape.
10. The method of claim 8 wherein the user interface includes a user-selectable control to cause a selected 3D shape to appear [stacked](#)~~to be~~ in back of at least one other [3D](#) shape.
11. The method of claim 1 wherein the user interface includes a user-selectable control to group two or more 3D shapes being rendered on a display.
12. The method of claim 11 further comprising a user-selectable control to ungroup two or more grouped 3D shapes.
13. A system for rendering shapes, the system comprising:
[a 2D/3D rendering engine operating on a processor in a computing](#)

system including that is arranged to render shapes created using both 2D modeling and 3D modeling;

an application that is configured to provide~~means for providing~~ a user interface for selecting parameters of a ~~3D~~ shape, wherein the user interface provides:

means for selecting one or more corresponding 2D parameters for the 3D shape; comprising an ordering user-selectable control to control the ordering of shapes being rendered in a 3D space such that using the control moves a 3D shape to appear in front of at least one other 3D shape using the ordering user-selectable control and wherein the selected 3D shape appears to be in back of the at least one other 3D shape when the selected 3D shape is positioned in back of the at least one other 3D shape using the ordering user-selectable control and a grouping control for grouping 3D shapes and when grouped the 3D shapes appear to have a common vanishing point and when ungrouped the 3D shapes appear to have a separate vanishing point;

a 2D rendering engine comprising means for applying 2D shape effects and 2D surface effects to the shape;

means for creating a texture map from 2D text that includes applied 2D text effects and 2D surface effects;

means for generating a first ground plane for the 2D shape effects;

means for generating and rendering the 2D text effects on a second ground plane when 3D effects are applied to the 2D text;

a 3D modeling factory comprising means for obtaining a 2D geometry from the shape; and means for generating a 3D model using the obtained 2D geometry;

means for mapping the texture map onto the 3D model; and means for rendering the 3D model.

14. The system of claim 13 wherein the 2D parameters include a fill color for the 3D shape.

15. The system of claim 14 wherein the fill color's appearance remains substantially constant in response to a change in orientation of the 3D model~~shape~~ or a change lighting of the 3D model~~shape~~, or both.

16. The system of claim 13 wherein the 2D parameters include one or more parameters selected from a group comprising: a gradient in a fill color for the ~~3D~~ shape; a line color for the ~~3D~~ shape; a line weight for the ~~3D~~ shape; an ordering of two or more shapes being rendered on a display.

17. The system of claim 13 wherein the user interface includes a means for causing a selected 3D shape to appear to be in front of at least one other shape.

18. The system of claim 13 wherein the user interface includes a means for causing a selected 3D shape to appear to be in back of at least one other shape.

19. The system of claim 13 wherein the user interface includes a user-selectable means for grouping two or more 3D shapes being rendered on a display.

20. The system of claim 19 further comprising a user-selectable means for ungrouping two or more grouped 3D shapes.