Graphics - Rendered Samples

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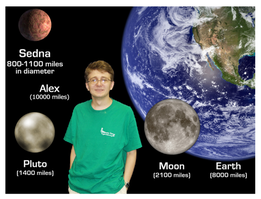
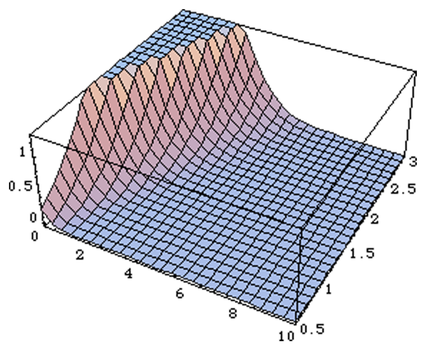
Blue-Screening

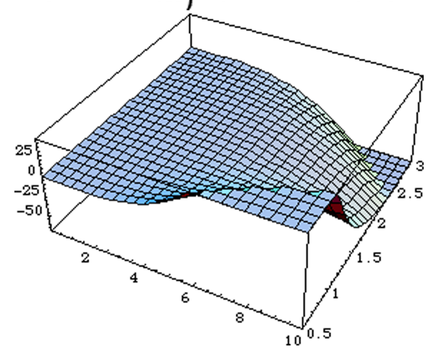


The Mathematics of Anti-Aliasing

$$\frac{1}{4}\pi s^2 \mathrm{Erfc}\left[\frac{r}{s}\right]$$

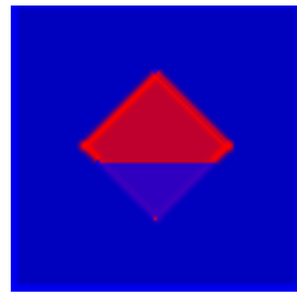
```
Plot3D[
  (1/4 π s^2 Erfc[r/s] -
    Normal[π/4 * s^2 * Series[Erfc[r/s], {r, 1, 3},
      {s, 1.5, 3}]]), {r, 0.05, 10}, {s, .5, 3}]
```





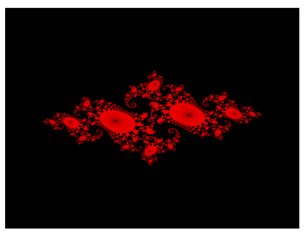
A-Buffering

Depth interpolation across a non-planar transparent polygon.

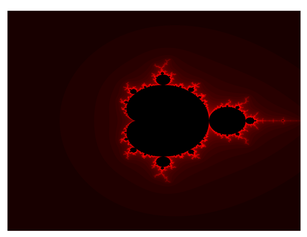


A transparent planar polygon.

Fractals

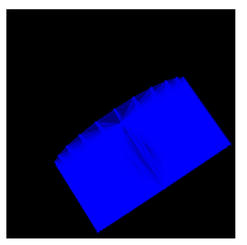


The Julia Set

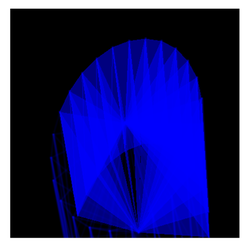


The Mandelbrot Set

Surfaces of Revolution

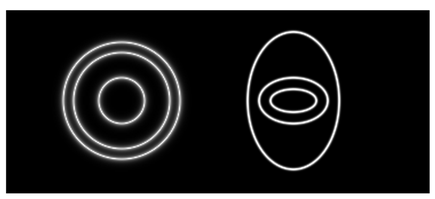


Thus turbine was generated by creating a scene-graph representation which was then translated into a textual format.

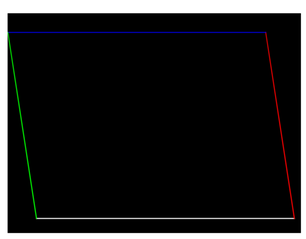


The same turbine under deformation.

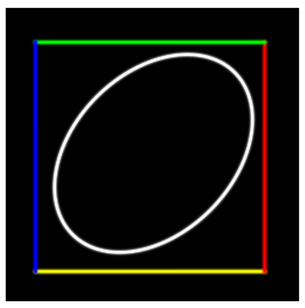
Outline Rendering



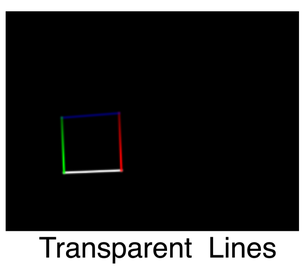
Circles Ellipses



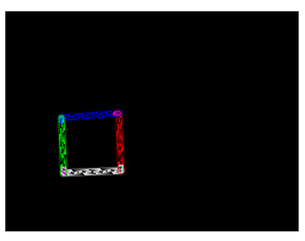
Colored Lines



Arbitrarily Oriented Ellipse with increased line width.



Transparent Lines

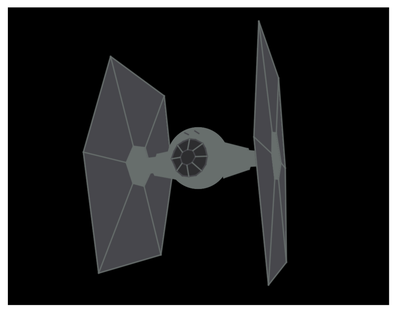


Buggy Lines!
(Caused by incorrect implementation of pixel channels.)

Scanline-Fill Rendering

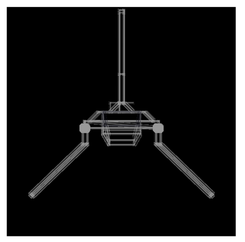
Rendering an compact, non-convex polygon.

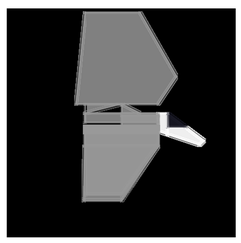
2-D Modeling with Filled Polygons

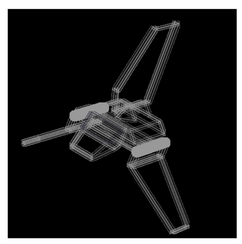


A fill-colored faux-3D TIE Fighter, generated from the same point list as the previous (faux-wireframe) version. Note the anti-aliasing, which is accomplished by running our outline renderer over the polygon edges.

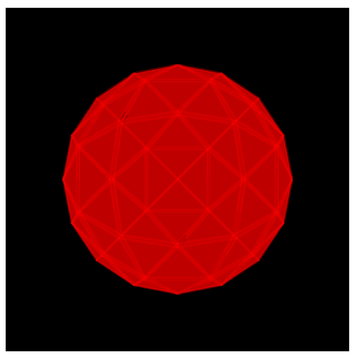
3-D Depth-Buffered Hierarchical Modeling



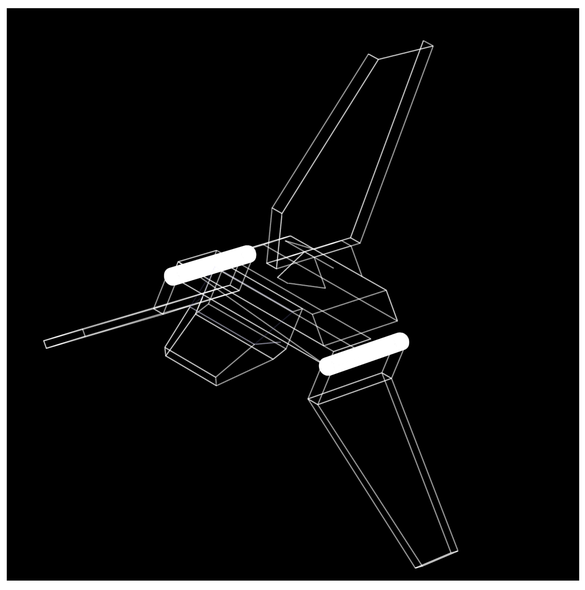




Triangularization of a Sphere

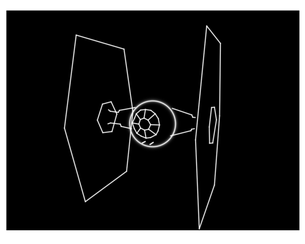


The low-polygon-count version of a sphere, created using the tesselation program.



A wireframe version of the Imperial Shuttle.
Note the triangulized cylinders generated by our tesselation program (see also: surfaces of revolution, above).

2-D Modeling with Outline Rendering



TIE Fighter - Initial Prototype

These samples can be accessed at http://www.sccs.swarthmore.edu/~mstone/cs40/