

# Render

## Mandelbrot Fractal

### Vertex Shader

Pass Out
2d position
texturecoord

### Fragment Shader

Data
Iterations
TextureCoord

[https://en.wikipedia.org/wiki/Mandelbrot\\_set](https://en.wikipedia.org/wiki/Mandelbrot_set)

## Uniforms

uIter  
uZoom  
uTime

a3demostate.h  
a3demostate.c  
a3demostate\_callbacks.c  
a3demostate\_shaderprogram.h

## Newton Fractal

### Vertex Shader

Pass Out
Ramp Color Texture

### Fragment Shader

Z
Ramp Texture
TextureCoord

[https://en.wikipedia.org/wiki/Newton\\_fractal](https://en.wikipedia.org/wiki/Newton_fractal)

Execute  
Algorithm

## Mengersponge Fractal

### Vertex Shader

Pass Out
vPassView
vPassTexcoord

### Fragment Shader

Raymarching  
Recursively sub-dividing cube  
  
Camera  
Zoom  
ModelViewProjection matrix

[https://en.wikipedia.org/wiki/Menger\\_sponge](https://en.wikipedia.org/wiki/Menger_sponge)

Execute Algorithm