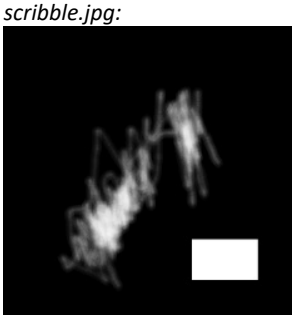
Image-Based Height Maps *(RAGE tessellation)*

```
. . .
public class myGame extends VariableFrameRateGame
{
 . . .
  protected void setupScene(Engine eng, SceneManager sm)
                                          throws IOException
  {  im = new GenericInputManager();

     // make dolphin avatar
      . . .
     // set up lights
      . . .
     // set up camera controller
      . . .
     // 2^patches: min=5, def=7, warnings start at 10
     Tessellation tessE = sm.createTessellation("tessE", 6);

     // subdivisions per patch:  min=0, try up to 32
     tessE.setSubdivisions(8f);

     SceneNode tessN =
                 sm.getRootSceneNode().
                 createChildSceneNode("TessN");
     tessN.attachObject(tessE);

     // to move it, note that X and Z must BOTH be positive OR negative
     // tessN.translate(Vector3f.createFrom(-6.2f, -2.2f, 2.7f));
     // tessN.yaw(Degreef.createFrom(37.2f));

     tessN.scale(10, 20, 10);
     tessE.setHeightMap(this.getEngine(), "scribble.jpg");
     tessE.setTexture(this.getEngine(), "grass.jpg");
     // tessE.setNormalMap(. . .)
  }
```

scribble.jpg:



Adjusting avatar position in Height Maps

```
. . .
public class myGame extends VariableFrameRateGame
{
 . . .
  protected void updateVerticalPosition()
  {  SceneNode dolphinN =
                 this.getEngine().getSceneManager().
                 getSceneNode("dolphinNode");
     SceneNode tessN =
                 this.getEngine().getSceneManager().
                 getSceneNode("tessN");
     Tessellation tessE = ((Tessellation) tessN.getAttachedObject("tessE"));

     // Figure out Avatar's position relative to plane
     Vector3 worldAvatarPosition = dolphinN.getWorldPosition();
     Vector3 localAvatarPosition = dolphinN.getLocalPosition();

     // use avatar World coordinates to get coordinates for height
     Vector3 newAvatarPosition = Vector3f.createFrom(

          // Keep the X coordinate
          localAvatarPosition.x(),

          // The Y coordinate is the varying height
          tessE.getWorldHeight(
               worldAvatarPosition.x(),
               worldAvatarPosition.z()),

          //Keep the Z coordinate
          localAvatarPosition.z()
     );
     // use avatar Local coordinates to set position, including height
     dolphinN.setLocalPosition(newAvatarPosition);
  }
```

MoveForwardAction.java:

```
. . .
public class MoveForwardAction extends AbstractInputAction
{
   private Node avN;
   private MyGame myGame;

   public MoveForwardAction(Node n, MyGame g)
   {  avN = n;
      myGame = g;
   }

   public void performAction(float time, Event e)
   {  avN.moveForward(0.01f);
      myGame.updateVerticalPosition();
   }
}
```