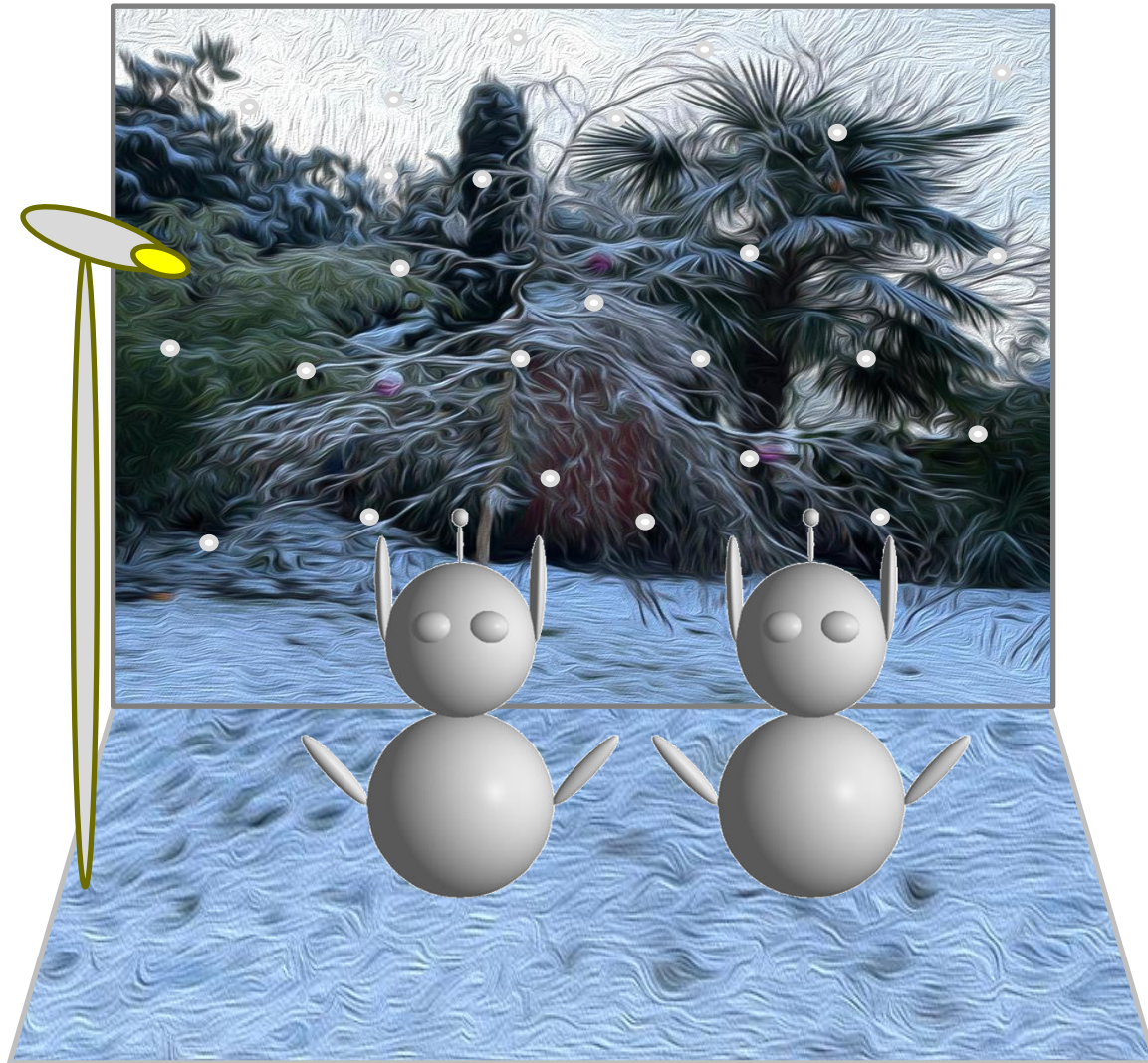COM3503: 3D Computer Graphics: Assignment

COM4503/6503: 3D Computer Graphics: Assignment 1

Deadline: 3pm, Wednesday 6 December

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A scene

The backdrop

- Initial: two planes + snowy-scene textures + animated texture (e.g. snow falling)

Check:

- Copyright of pictures

- (can be a cartoon-like picture)

- Joins at the seams

- Animated texture – not particle systems and no need for ground build up

Improvements to demonstrate further skills:

- multiple vertical planes with textures

- skybox

The hierarchical model of the alien

- Made of 10 transformed spheres
  - A body, two arms, a head, two eyes, two ears, an antenna (made of two spheres)
- Hierarchical model – which piece is the root?
- Two aliens (a Java class?)
- Texture mapping:
  - A few different textures for alien A
  - A few different textures for alien B
  - A textures <> B textures
- Have you considered both diffuse and specular maps?
  - Example: an alien might have a matte and shiny pattern on its body or face.
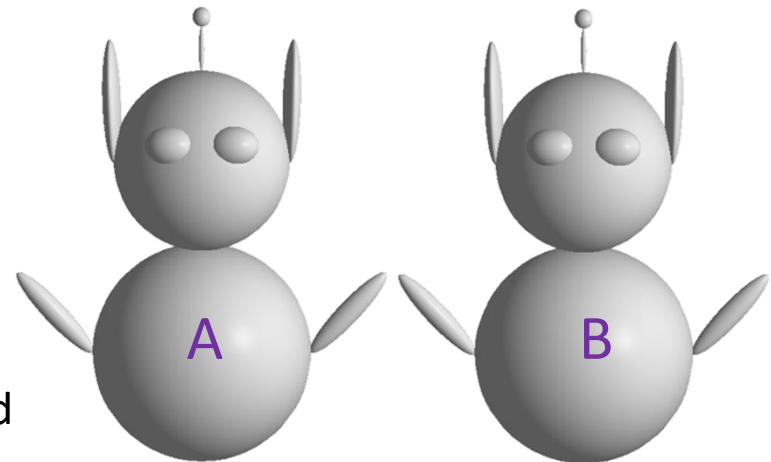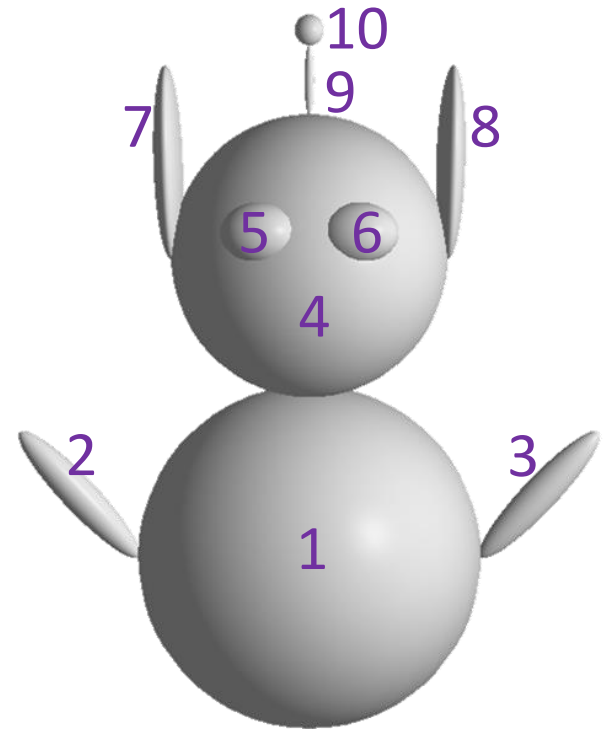
Rock and roll

- Rock whole body from side to side
  - pivot point?
  - arms move too
- Roll the head from side to side or forwards & backwards
  - pivot point?
  - arms don't move
- Animate synchronously or separately or both.
- Animate plausibly and smoothly
  - Base of alien stays on ground
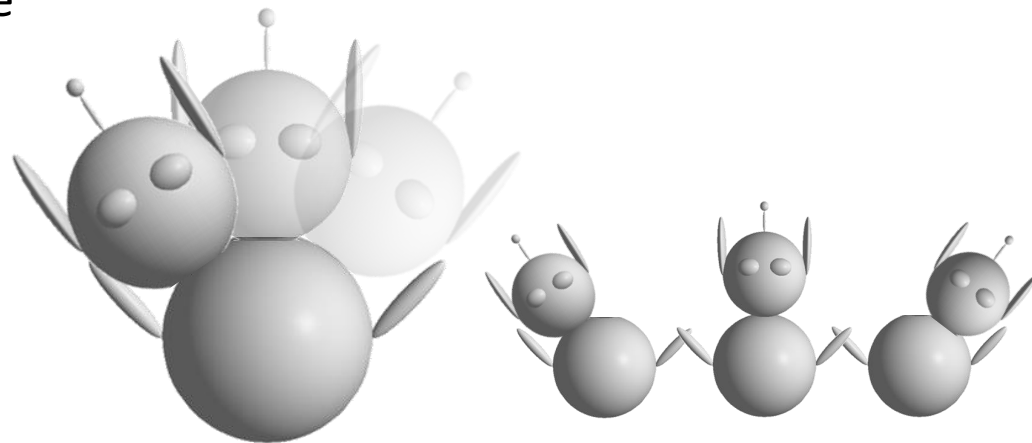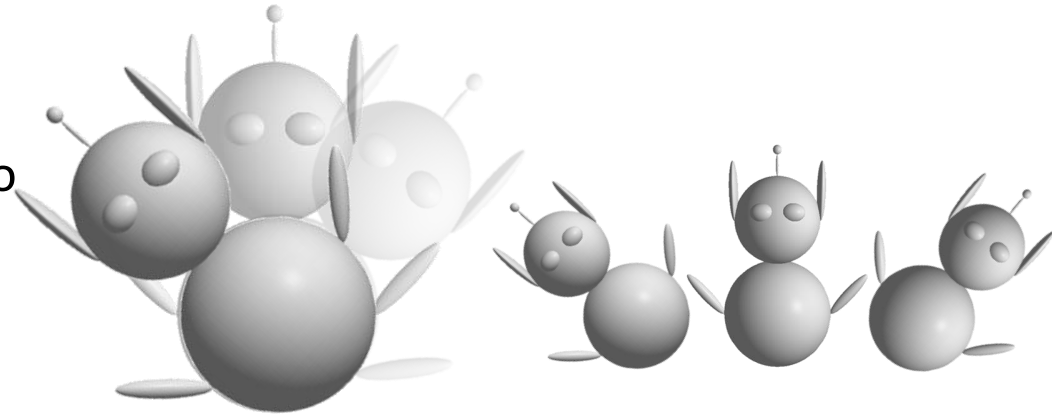
The security spotlight

- Three spheres

- One of the spheres acts like a spotlight (3)
  - Visual appearance? (on/off?)

- The spotlight head (2&3) continuously rotates about the top of the pole
  - You choose if clockwise or anticlockwise

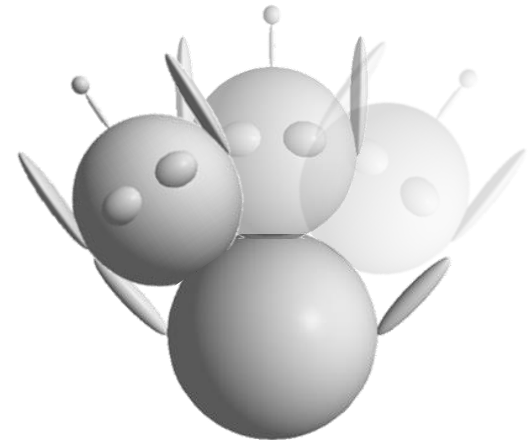- Advanced: You are responsible for working out how to implement a spotlight effect

2

3

1
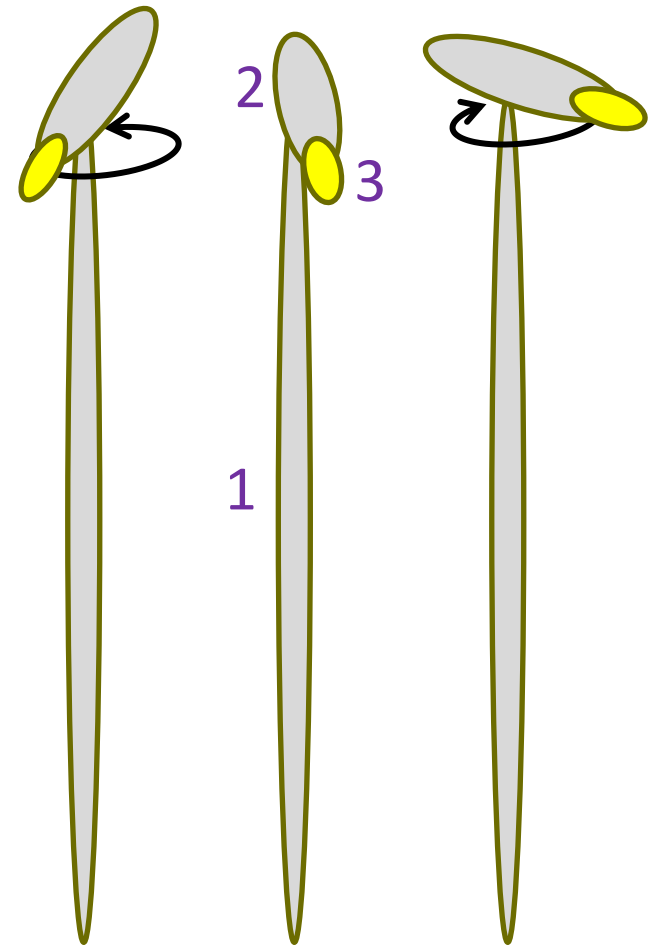
Other

- General illumination:
  - Two world lights
  - Spotlight

- User interface:
  - Moveable camera (given in lab class material)
  - Buttons to separately turn global lights and spotlight on and off
  - Buttons for alien(s) to control animations (how many buttons?)

On/off
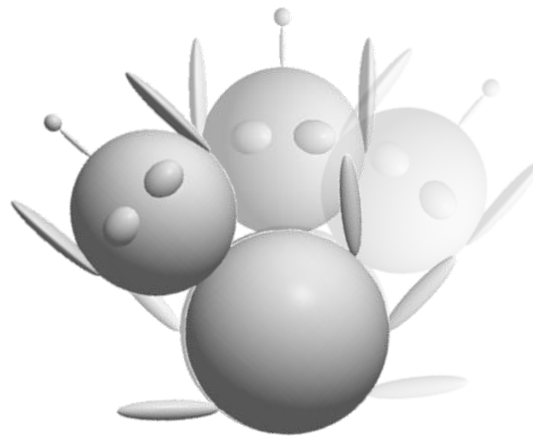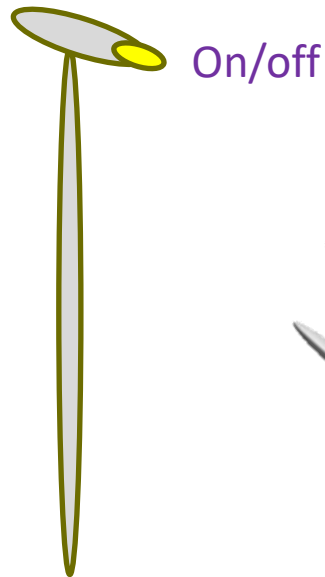
rock

roll

Marking

Marks will be available for:

- (30 marks) Modelling:

  - An alien must be a hierarchical model. How is the backdrop done? Is there a security light? (Consider drawing scene graphs for the scene before starting to program.)

- (27 marks) Texturing:

  - Use of texture mapping in the scene, e.g. basic texture mapping, use of diffuse and specular textures, extra texturing effects for the backdrop.

- (18 marks) Lighting and interface controls:

  - Lights should behave correctly such that their effect is seen on the scene. Necessary interface controls, as described in the above specification, should also be included.

- (25 marks) Animation:

  - Security light animation. Alien animation: rock and roll. Animation for both aliens. Is the animation plausible and smooth?

Any Questions?