an almost factual account of the history of computer graphics

a long long time ago …
before buzz …
before quake …
before microsloth windows …
before most of you were born …
the world existed without computer graphics
excited phosphor demo

instant replay

moving electron beam demo

an even less moving moving electron beam demo

society would reap huge benefits ...

but that is a different story
a fast draw

filled triangle
but wait ... there were lessons to be learned

and it only took
meanwhile
back in cambridge

and a few years later...

meanwhile
back in hollywood

and more

compositing
more compositing

compositing how to

warping

warping how to

warping in action

and more
morphing

steve dierdard

morphing how to

the lowly triangle

meanwhile
back in utah

triangle mesh
triangle mesh

the graphics pipeline

graphics pipeline 1

1. build scene

2. clip

3. project

vertices in view plane

frame buffer

4. rasterize
hidden surface removal

which is right?

shading

what is color here?

illumination

the holy grail

photo-realism

ray tracing

• cast ray through pixel into scene
• find intersection point (if any) that is closest to eye
• compute luminance at intersection

ray tracing

• cast ray through pixel into scene
• find closest intersection (if any)
• compute luminance at intersection
  - direct illumination
  - reflections
  - refraction
<scene>
<cone material="glass">
<sphere color="red">
<box color="purple">
<floor material="marble">
</scene>
global illumination

radiosity

more 3d graphics

• modeling
  – splines
  – subdivision surfaces
• animation