The Art and Science of Depiction

Limitations of the Medium, compensation or accentuation

Fredo Durand
MIT- Lab for Computer Science

Plan of the next sessions

• The picture is flat
• The viewpoint is unique
• The image is finite, it has a frame
• The picture is static
• The contrast is limited
• The gamut (palette) is limited
The image is flat

Surface-based

- Visible surfaces, organization
- Distance, orientation
Depth cues

- Binocular
- Monocular
- Dynamic
- Pictorial
- Unconscious inference
**Convergence**

- Few meters

**Stereovision**

- Different image
  - left/right eye
**Panum fusion**

- Double Images (Uncrossed Disparity)
- Double Images (Crossed Disparity)
- Panum's Area
- Horopter
- Left Eye
- Right Eye

**Stereopsis**

- Both Eyes
- Left Eye Only
- Neither Eye
- Right Eye Only
- Both Eyes

- Occluded in Right Image
- Occluded in Left Image

Limitations: Flatness
Stereo

Random dot stereogram
**Pseudoscope**

- Pictorial cues are stronger than stereo

**Accommodation**

- Close distance (< 3 meters)
Accommodation

- Blurriness
- But no proprioceptive information
- Related to aerial perspective

Accommodation

- Cartier Bresson
Parallax

- Movement

Pictorial cues

- Occlusion
- Size
- Position relative to the horizon
- Convergence of parallels, linear perspective
- Shading, shadow
- Texture gradient
- Aerial perspective
Occlusion

Limitations: Flatness

Occlusion

Limitations: Flatness
Occlusion

- Figure-ground…
Relative size

Limitations: Flatness
Familiar size – dissonance

- Magritte
Position relative to the horizon

$$d = h \cot A$$

Limitations: Flatness
Position relative to the horizon

- Bruegel
Convergence of parallels

- Caillebotte

Linear perspective
Linear perspective

Limitations: Flatness

Linear perspective

Limitations: Flatness
Shading

- Chiaroscuro
- Da Vinci
Limitations: Flatness

Lighting assumption & reversal

- We assume that the light is above

Limitations: Flatness
Lighting assumption & reversal

- faces

Lucien Clergue, *Camargue*, 1940
Shadow

Limitations: Flatness

- David
Shadow

- Caravaggio

Texture gradient

Limitations: Flatness
Texture gradient

• Constable

Aerial perspective

• Leonardo Da Vinci
Aerial perspective

Limitations: Flatness

Aerial perspective

• Constable

Limitations: Flatness
Aerial perspective

- Delacroix
- Saturation

Aerial perspective

- Pissaro
**Inverted Aerial perspective**

- Nash

**Aerial perspective**

- Darker colors tend to recede
- Rembrandt
Planes of light

• Goya
• Darker colors usually recede
• Makes picture dynamic

Planes of light

• Lighting
**Planes of light**

- Vermeer

**Grouping**

- Aerial perspective
- Depth of field
- Relative size

- Grouping with respect to one property results in grouping by distance
Perspective

Monet
Occlusion & horizon

Counter-example
Counter-example

- De Chirico

Depth cues and art history

<table>
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<th>Relative size</th>
<th>Occluded objects</th>
<th>Shadow</th>
<th>Elevation</th>
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