The Art and Science of Depiction

What is a Picture?

Frédo Durand and Julie Dorsey
MIT- Lab for Computer Science

Photoshop assignment

- Perspective
  - Converging perspective is OK in the 3D real world
  - It is not in 2D
- Distracting elements
  - Are usually not distracting in "reality"
  - But are harder to "filter out" in the picture
  - The image does not "read" as well

Reading

- Photo-surrealism
  - Unable to detect discrepancy
  - Non realistic physics helps tell story
- Jet Lighter
  - New approach to making images
  - Photos are the new building block to make photos
  - Very different from traditional montage
  - The same may happen to cinema (Lucas)

Discussion

- Visions of Light

Visions of Light

- Intuition, realize afterwards
- Craft, not art
- Dominance of the actor
  - Must be beautiful
  - No shadow on faces
  - Dietrich more luminous, pops out
- Film noir
- Color in The Last Emperor
- Communication Director Photo-director

Visions of Light

- Formal rules / breaking rules
  - The rules are broken, not eliminated
  - Only when necessary
  - The counter-example does prove the rule
- Difficulty with new language
  - Silent to talky, Black and white to color, wide format
- Invention
  - Technological
  - Pictorial, new language
- Importance of fresh eyes
- To be "realistic", do not use formal rules

Relativism of realism

Questions

- What makes a picture a picture
- Would a 100% faithful hologram be a picture?
- Could it be artistic
  - Would it be better than a "normal" picture
  - Would it be inferior?
- Example of cinema
  - Static to dynamic
  - Silent to talkie
  - Black and white to color
  - 3D

What is art

- Craft (Painting, Cinema)
- Religion
- Beauty
- Self expression
- Emotion
- Enhanced experience

Plan
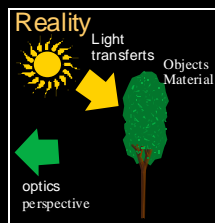
- The chain of representation of reality
- Duality of images 2D/3D

Reality

- Objective, physical
- May be imagination
  - But always references to reality

The Artist
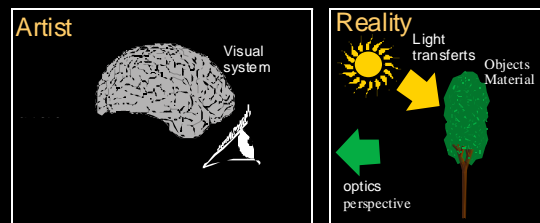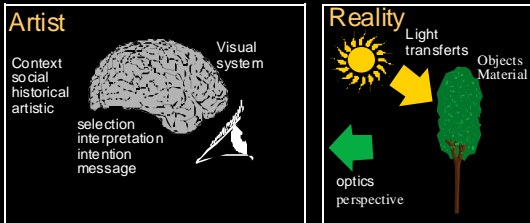
- Visual system
  - Not straightforward!

The Artist

- Visual system
- Intention
- Context

Artist
Context social historical artistic
Visual system
selection interpretation intention message

Reality
Light transferts
Objects Material
optics perspective

What is a picture? 13

The Picture

- Flat, limitations
- Seen in a given environment, conditions

Picture
environnement
limitations
optics perspective
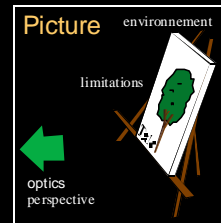
What is a picture? 14

The Beholder

- Visual system
- Interpretation
- Context

Beholder
Context social historical artistic
Visual system
selection interpretation

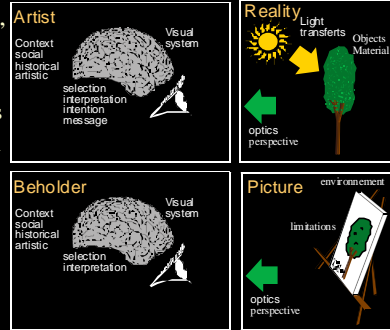**Picture**
environnement
limitations
optics perspective
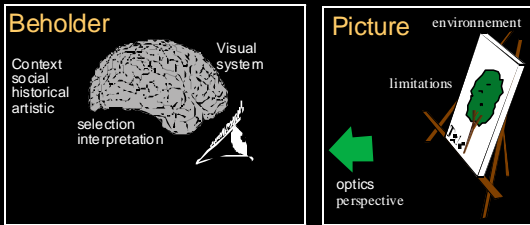
What is a picture? 15

The Chain of Depiction

- Differences, Mismatch
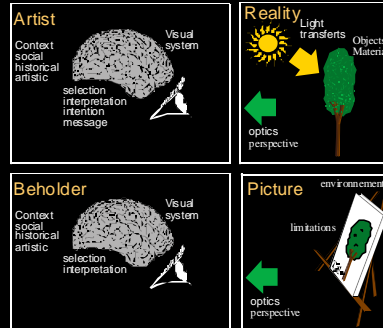 - Context
  - Conditions
  - Perception
  - Message Selection

Artist
Context social historical artistic
Visual system
selection interpretation intention message

Reality
Light transferts
Objects Material
optics perspective

Beholder
Context social historical artistic
Visual system
selection interpretation

Picture
environnement
limitations
optics perspective

What is a picture? 16

Context

- Historical
- Political
- Gender
- Artistic

Artist
Context social historical artistic
Visual system
selection interpretation intention message

Reality
Light transferts
Objects Material
optics perspective

Beholder
Context social historical artistic
Visual system
selection interpretation

Picture
environnement
limitations
optics perspective

What is a picture? 17

Conditions

- Darker
- Distance
- Etc.

Artist
Context social historical artistic
Visual system
selection interpretation intention message

Reality
Light transferts
Objects Material
optics perspective

Beholder
Context social historical artistic
Visual system
selection interpretation

Picture
environnement
limitations
optics perspective
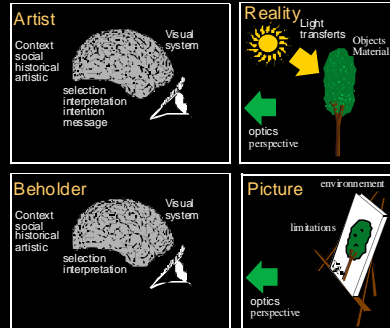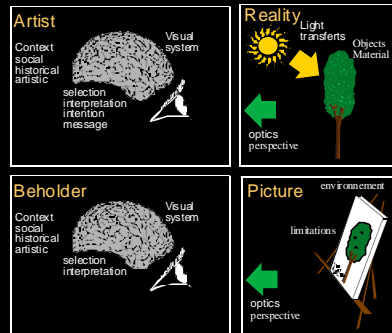
What is a picture? 18

3

Perception

- Is the perception of pictures different from the perception of reality?

Artist
Context social historical artistic
Visual system
selection interpretation intention message

Reality
Light transferts
Objects Material
optics perspective

Beholder
Context social historical artistic
Visual system
selection interpretation

Picture
environnement
limitations
optics perspective

Perception picture/reality

- Photos usually do not look distorted
- Why is the photo of the photo distorted?

Picture vs. Reality

- We see reality the way we see pictures
- Not the other way around

- Make up
- Stage lighting
- Statues as 2D views
- Architecture un-distortion

Message, selection

- How can the artist transmit a message and select what the viewer perceives

Artist
Context social historical artistic
Visual system
selection interpretation intention message

Reality
Light transferts
Objects Material
optics perspective

Beholder
Context social historical artistic
Visual system
selection interpretation

Picture
environnement
limitations
optics perspective
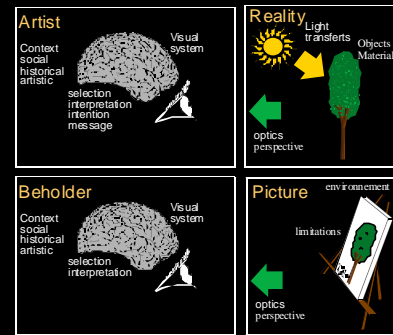
Selection

- Viewpoint selection, framing

Selection

- Depth of field

Selection

- Edge burning

Selection

- Lighting

Selection
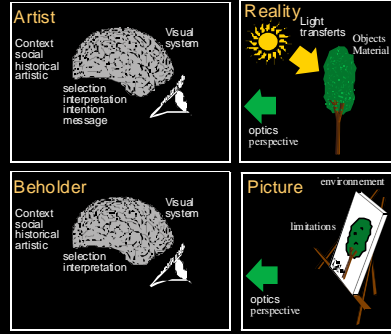
Message, selection

- How can the artist transmit a message and select what the viewer perceives
- Caption

Artist
Context
social
historical
artistic

selection
interpretation
intention
message

Visual system

Reality
Light transferts
Objects
Material

optics
perspective

Beholder
Context
social
historical
artistic

selection
interpretation

Visual system

Picture
environment

limitations

optics
perspective

Caption

DEWEY DEFEATS TRUMAN

Caption, context

- Christina's world, Wyeth

Making pictures

- Simple in principle:
  Draw or paint what you see
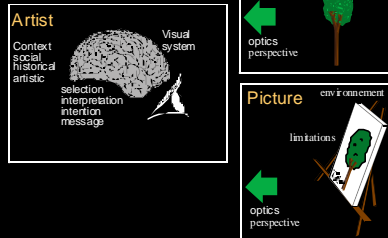
Making pictures

- Simple in principle:
  Draw or paint what you see
- Problem:
  what we
  see is not
  so simple
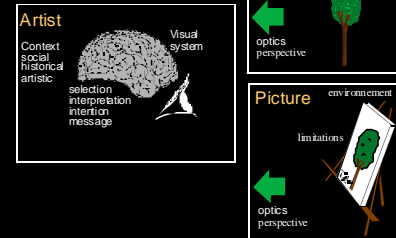
Making pictures

- Previsualization (Adams)
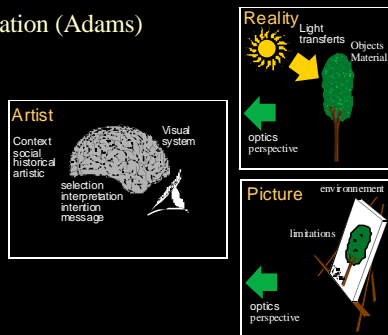
Making vs. analyzing pictures

- Practice
- Feedback

Making vs. analyzing pictures

- Practice
- Feedback
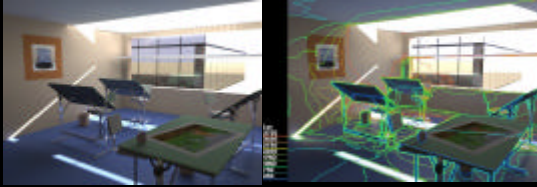- Clouds,
  Constellations
- Rorschach

Goals of pictures

- Optical vs. Haptical
- What we see vs. What we know

- What we feel/mean
- Other "channels"
  – Sound, data, etc.

Do we always need photo-realism?

Plan

- The chain of representation of reality
- Duality of images 2D/3D

Duality of pictures

- Pictures are both
  - Flat 2D objects
  - Depictions of 3D scenes
- The dialectic between these two essences is crucial

Duality of pictures

- Magritte
- Anecdote Matisse

Ceci n'est pas une pipe.

Duality of pictures

- Magritte
- Anecdote Matisse

2D/3D

Is it 2D, is it 3D?

What is a picture? 43

Is it 2D, is it 3D?

What is a picture? 44

Is it 2D, is it 3D?

What is a picture? 45

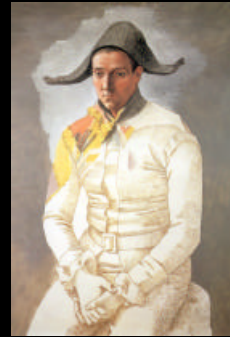## Is it 2D, is it 3D?

What is a picture? 46

Is it 2D, is it 3D?
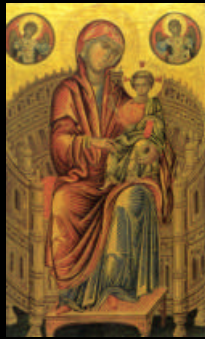
What is a picture? 47

Is it 2D, is it 3D?

What is a picture? 48

Is it 2D, is it 3D?
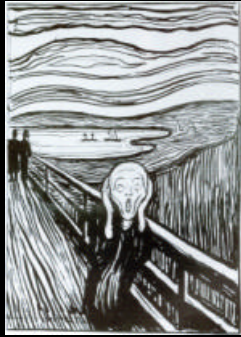
Is it 2D, is it 3D?

Is it 2D, is it 3D?

Is it 2D, is it 3D?

Is it 2D, is it 3D?

Is it 2D, is it 3D?

Is it 2D, is it 3D?

What is a picture? 55

Is it 2D, is it 3D?

What is a picture? 56

Is it 2D, is it 3D?

What is a picture? 57

Is it 2D, is it 3D?

What is a picture? 58

Is it 2D, is it 3D?

What is a picture? 59

Is it 2D, is it 3D?

What is a picture? 60

Is it 2D, is it 3D?

What makes it 2D

- The surface of the picture is visible
- The marks are visible (brush strokes, grain, scratching film…)
- Absence of one visual channel (color, texture…)
- Letters
- Accidental viewpoint
- Absence of shading
- "non-realism"

Interaction 2D/3D

- Celtic knots
- Islamic arabesques

Interaction 2D/3D

Interaction 2D/3D

- The image is 3D
- The message is in the 2D

Do we always need photographs?

- Focusing on the 2D aspect emphasize the "potential" side

Perspective correction

- 3D verticality must be translated as 2D verticality

Perspective distortion

- The 3D symmetric sphere is projected as a 2D asymmetric ellipse

The School of Athens, Raphael
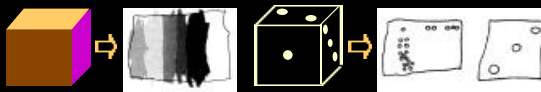
- Sphere should project to an ellipse

3D and 2D attributes

- Show a dice to children (~6-7)
- They usually draw a rectangle
- The rectangle can stand for one face
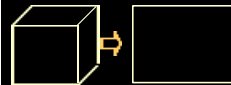
3D and 2D attributes

- Show colored or numbered dice to children (6-7)
- The still draw a rectangle
- But different colors or many points

3D and 2D attributes

- Show colored or numbered dice to children (6-7)
- The still draw a rectangle
- But different colors or many points
- The rectangle stands for the whole dice
- The notion of 3D object with corners is translated as a 2D object with corners
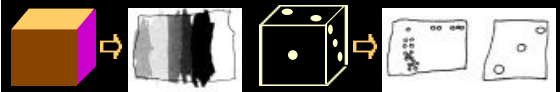
Discussion

- Why is black and white photography considered "more artistic"

Assignments

- Feedback
- Image
- Reading
- Piranesi

Reading

- Do not forget Gombrich
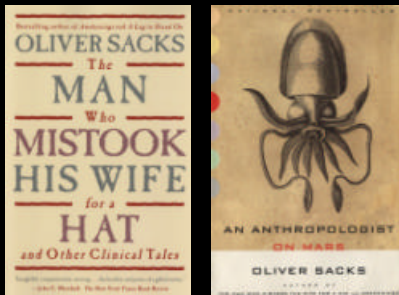
Assignment

- Piranesi tutorial
  - Demo version on the class web page
  - Non-photorealistic rendering
  - Tutorial 1 to 3
  - Skip 2.4

Talk

- Vague decision next week

The End

Degree of realism

- Non-figurative
- Remote
- Realistic
- Recording
- Photojournalism (objective, "neutral")
- Holography

Misc.

- Different techniques for the same goal
- Knots for 2D/3D, posters, trompe-l'œil