

Paint by Numbers: Abstract Image Representation

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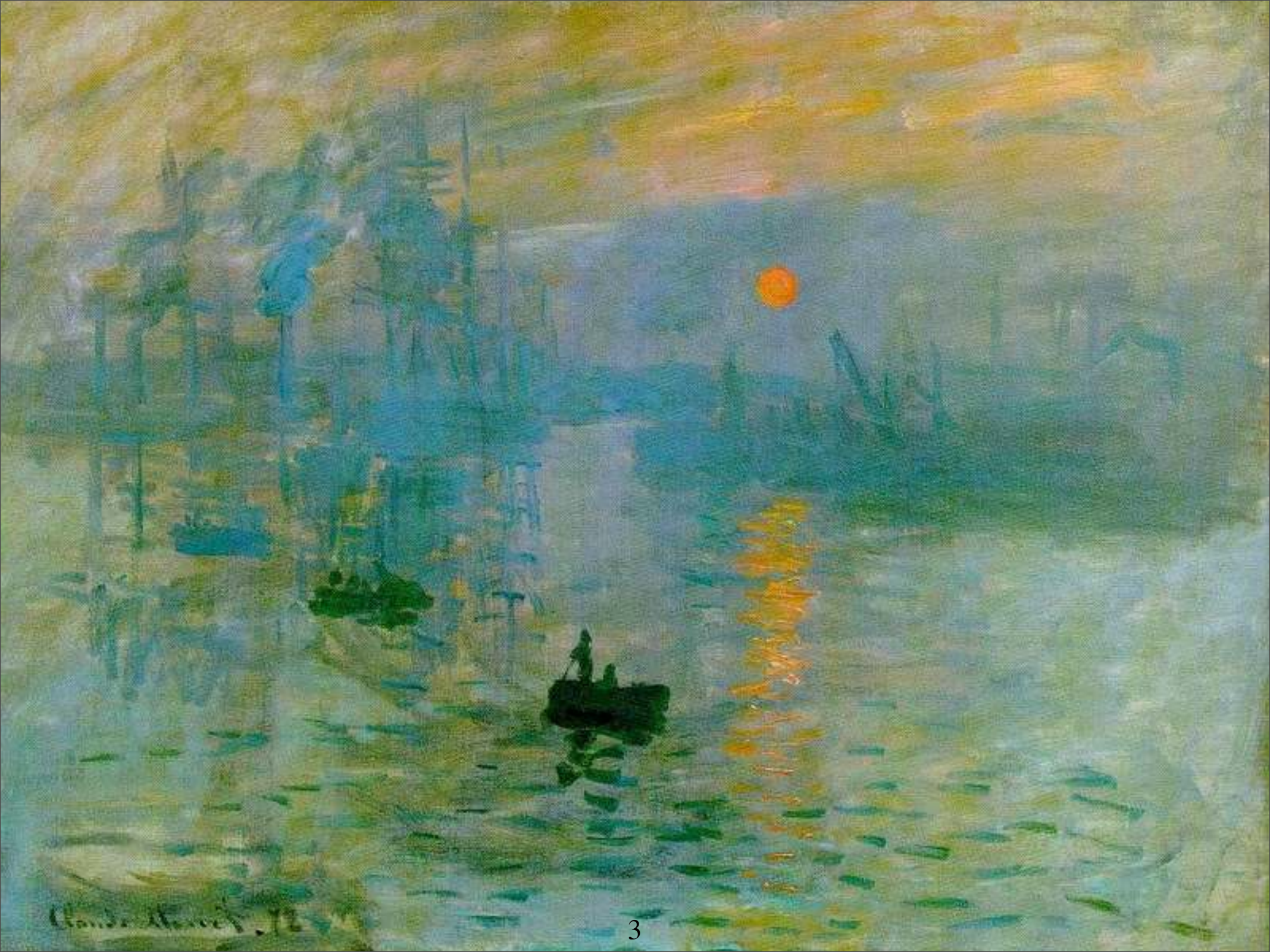
CS 536

Impressionism

Claude Monet
Camille Pissarro

Fewer brush strokes
without modelling object
detail.

- *19th Century art movement*
- *Emphasizes light movement with visible brush strokes*
- *Use of fewer strokes and primary colors, concentrate on “Impression” of a scene*
- *Communicate abstract image scenes to the viewer*



Claude Lorraine . 12

Introduction

- *Computer graphics are photorealistic images of objects*
- *Alternative is to create abstract images which looks like impressionist art*
- *Goal: Take realistic image and create abstract impressionist art.*

Images usually realistic...
what if we want to
create artistic
renditions.

Simple Technique

- *Take a regular photo image and convert into impressionist image*
- *Want to make it easy for the user to create many different representations*
- *Create brush strokes to represent the original image*
- *Art image is an ordered set of strokes.*

Different representations based on the size, color, brush pattern etc.

Our Goal



Creation

Stochastic distribution
of brush strokes
ie randomly

Makes it easy to paint
since it samples the color
under mouse position
automatically

- *Pixel color under mouse pointer continuously sampled*
- *User selects brush shape, direction, size.*
- *Brush size also decided by speed of mouse movement. Fast = larger brush size.*
- *On Mouse click, an image of the brush stroke is drawn*
- *Smaller brush strokes used for detailing*

Detailing

- *Shape and size of brush strokes heavily influences the final image*



Advanced Operations

- *Advanced effects can be applied to paintings*
 - *Map brush strokes to light gradient directions for greater realism*
 - *Create own brush stroke from a real brush stroke*
 - *Ray Painting: Represent Ray Tracing Images using brush strokes*

Using a light gradient



Sampled Brush Stroke



Ray Painting



Conclusions

- *Goal: Not to make photo realistic images, instead abstract art representations*
- *Image programs effects extrapolate upon this basic technique*
- *Techniques also used as filters and tools e.g. Brush Stroke filters in Photoshop® and clone brush tool.*

Photoshop Brush Filters

