

CSC320: Introduction to Visual Computing

Michael Guerzhoy (pronounced guer-JOY, but call me Michael)

Course website: <http://www.cs.toronto.edu/~guerzhoy/320/>



``Impressionist''



``Expressionist''



``Watercolor''



``Pointillist''

Graphics: A. Hertzmann and K. Perlin. Slides from A. Efros

Today

Introductions

Pop quiz

Comparing images to each other

A bit about me

Depicting Our World: The Beginning



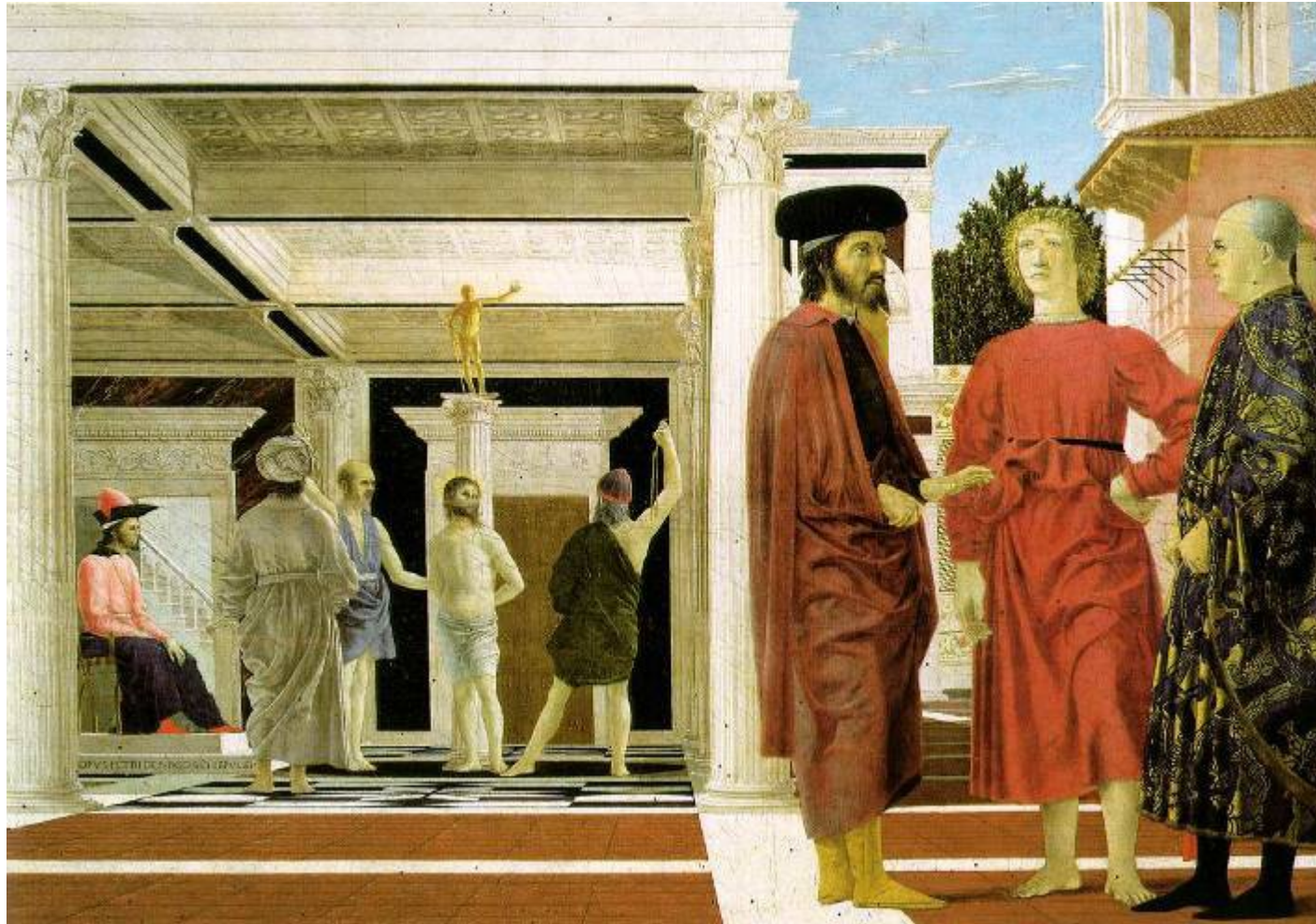
**Prehistoric Painting, Lascaux Cave, France
~ 13,000 -- 15,000 B.C. (Aurochs, dun horses, deer.)**

Depicting Our World: Middle Ages



The Empress Theodora with her court.
Ravenna, St. Vitale 6th c.

Depicting Our World: Renaissance



***Piero della Francesca,
The Flagellation (c.1469)***

Depicting Our World: Toward

~~Perfection~~



Jan van Eyck, *The Arnolfini Marriage* (c.1434)

Depicting Our World: Toward ~~Perfection~~

[http://petapixel.com/2012/12/11/
/Camera-obscura-and-the-paintings-of-old-masters/](http://petapixel.com/2012/12/11/Camera-obscura-and-the-paintings-of-old-masters/)

(Vermeer, (Rembrandt, Cravaggio?))

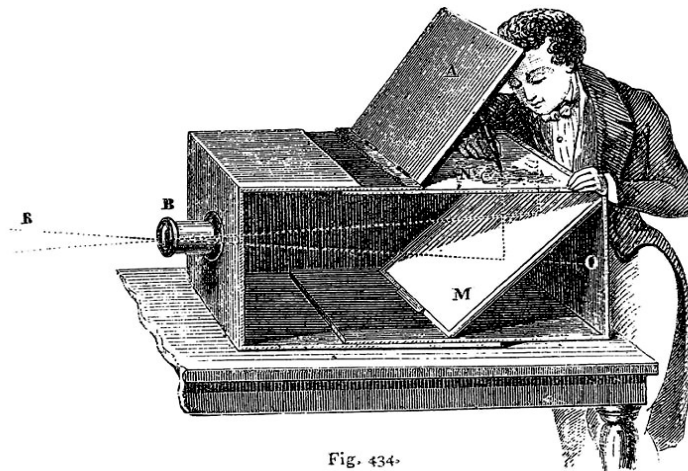


Fig. 434.

Lens Based Camera Obscura, 1568

Depicting Our World: Perfection!



Still Life, Louis Jaques Mande Daguerre, 1837

After realism...

**Monet,
La rue Montorgueil**



Depicting Our World: Ongoing Quest



Pablo Picasso



David Hockney

The Realism Spectrum

Computer Graphics



- + easy to create new worlds
- + easy to manipulate objects/viewpoint
- Very hard to look realistic

Computational Photography

→ **Realism**
Manipulation ←
Ease of capture

Photography



- + instantly realistic
- + easy to acquire
- very hard to manipulate objects/viewpoint

The Science of Art

<http://www.dgp.toronto.edu/~hertzman/ScienceOfArt/>



Course Outline

- Image Processing
- Digital Effects
- Computer Vision/Image Understanding

Project 1

Images of the Russian Empire -- colorizing the Prokudin-Gorskii photo collection



Beyond (TBD)

Painterly rendering



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``Pointillist``

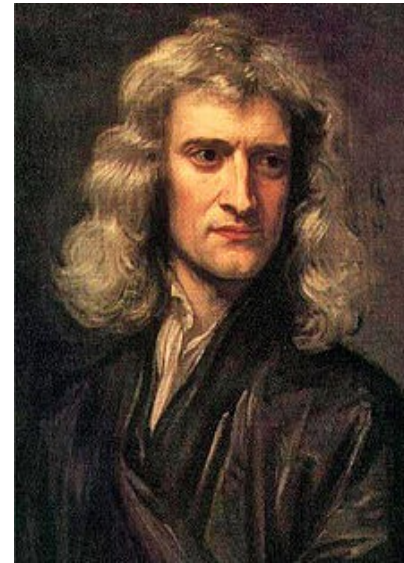
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Prerequisites

Must like Math!

Specifically, Calculus and Linear Algebra



Software

Python 2 with SciPy

Download Anaconda today!

Recommended IDE: IEP (Pyzo)

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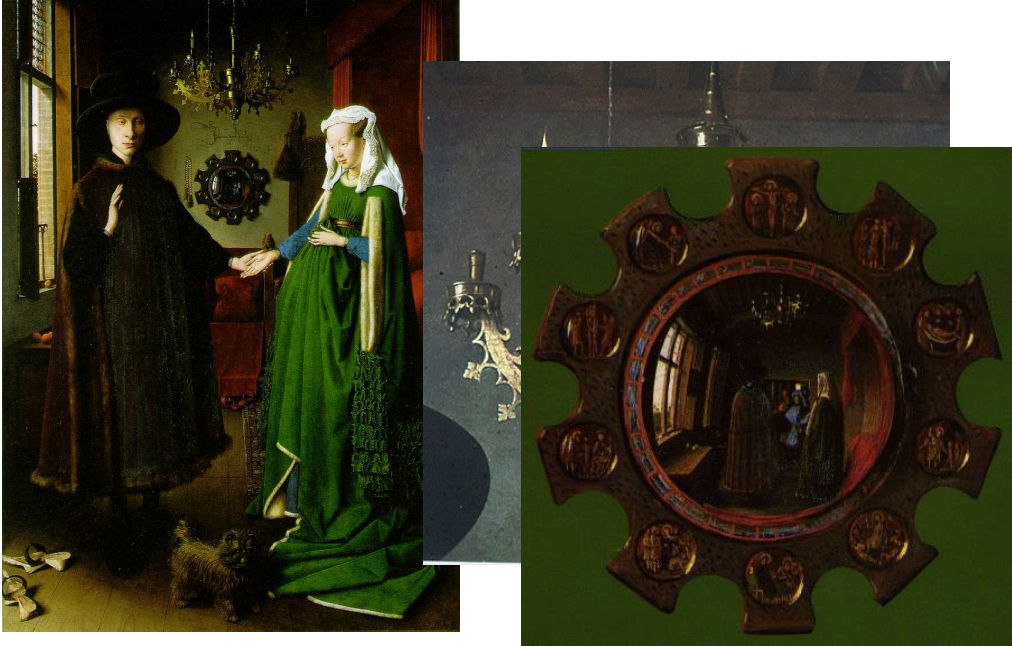
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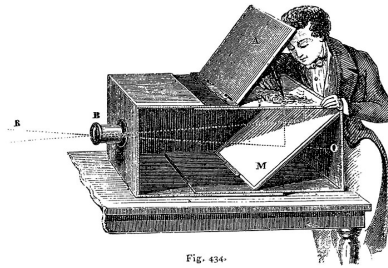


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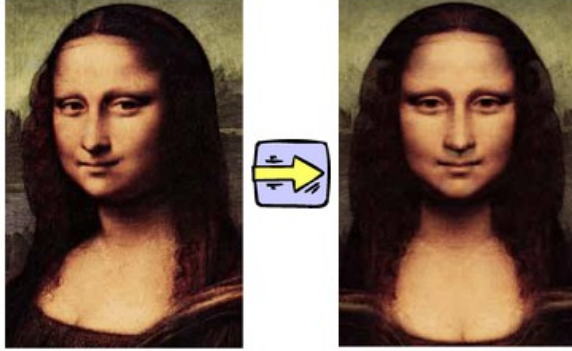


Watercolor



Pointillist

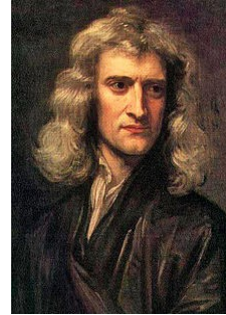
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