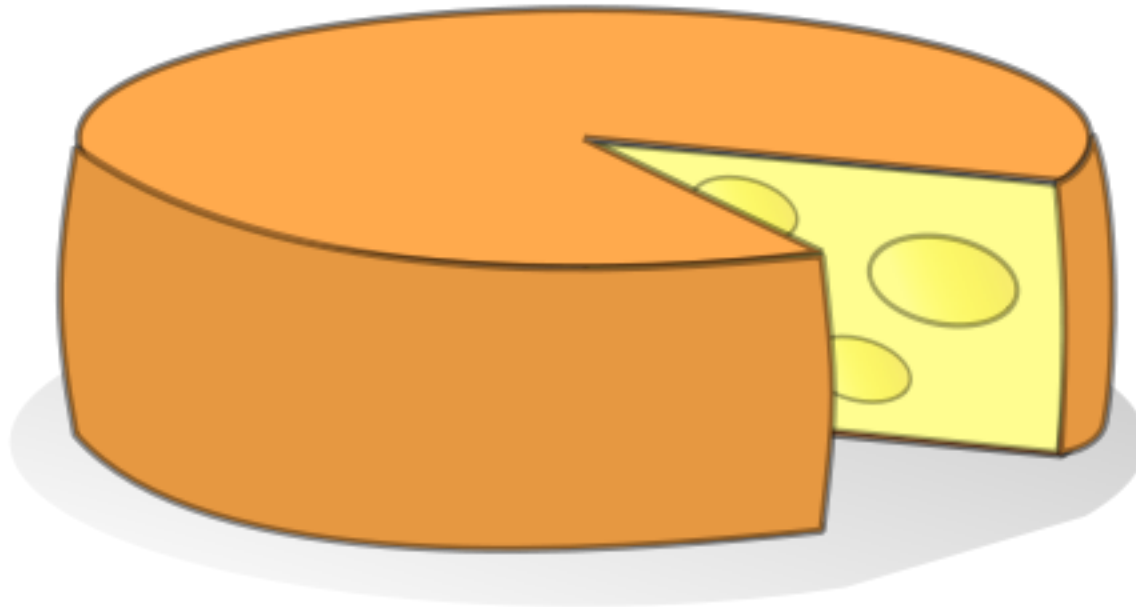# Computer Science E-7
Exposing Digital Photography

Lecture 1: Welcome!
August 31, 2009

danallan@mit.edu

Cameras | Pinhole Cameras

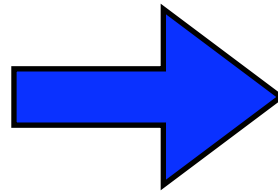# Cameras | Pinhole cameras

Cameras | Single Lens Reflex (SLR)

Cameras | Non-SLRs

Cameras | Film Plane

Cameras | Location of the Focal Plane

Image from Digital Photography Review, http://www.dpreview.com

Cameras | Exposing SLRs

Photo by Dan Armendariz, 2007

Cameras | Exposing Dust

Cameras | Exposing Dust

Image from Digital Photography Review, http://www.dpreview.com
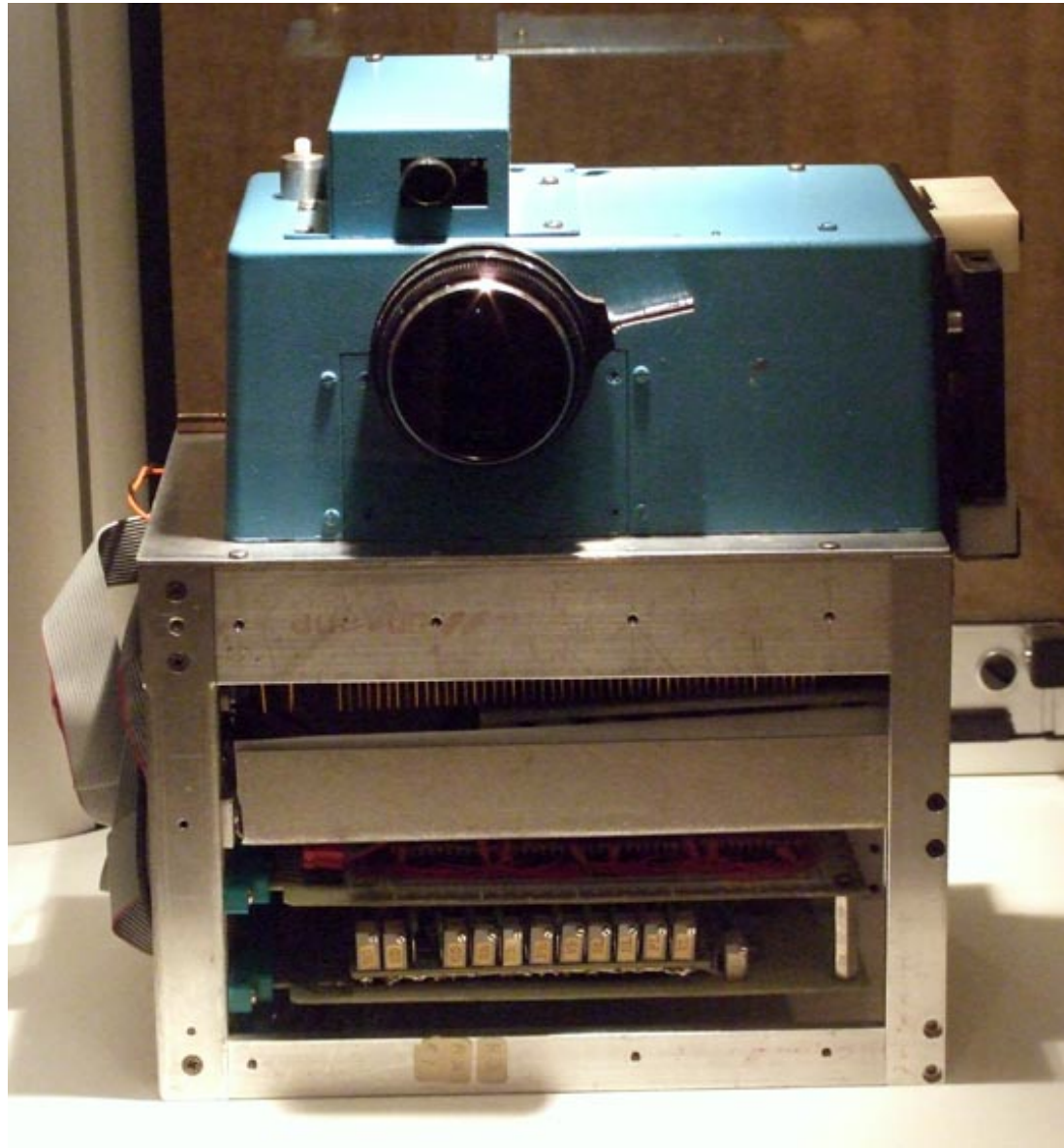
Cameras | Exposing SLRs

Image from CNET.co.uk: http://crave.cnet.co.uk/digitalcameras/0,39029429,49293172-1,00.htm

Cameras | Exposing SLRs

Cameras | Exposing SLRs

Bit	0 or 1
Byte	8 bits

Bits and Bytes | Refresher

Kilo-	1024 bytes
Mega-	1024 kilobytes (1,048,576 bytes)
Giga-	1024 megabytes (1,073,741,824 bytes)

Bits and Bytes | Refresher

Photo by Dan Armendariz, 2007

Bits and Bytes | Photos

Photo by Dan Armendariz, 2007

Bits and Bytes | Photos

JPEG

Red	Green	Blue
8-bit	8-bit	8-bit

Bits and Bytes | Colors

16-bit TIFF

Red	Green	Blue
16-bit	16-bit	16-bit

Bits and Bytes | Colors
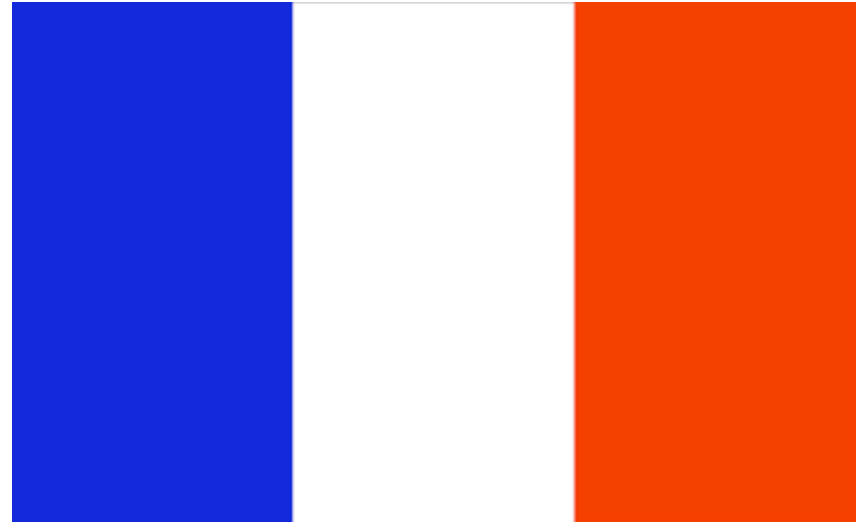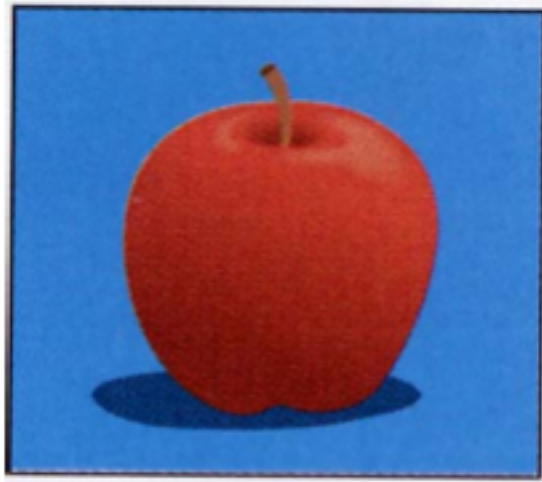
Bits & Bytes | Compression

Bits & Bytes | Compression
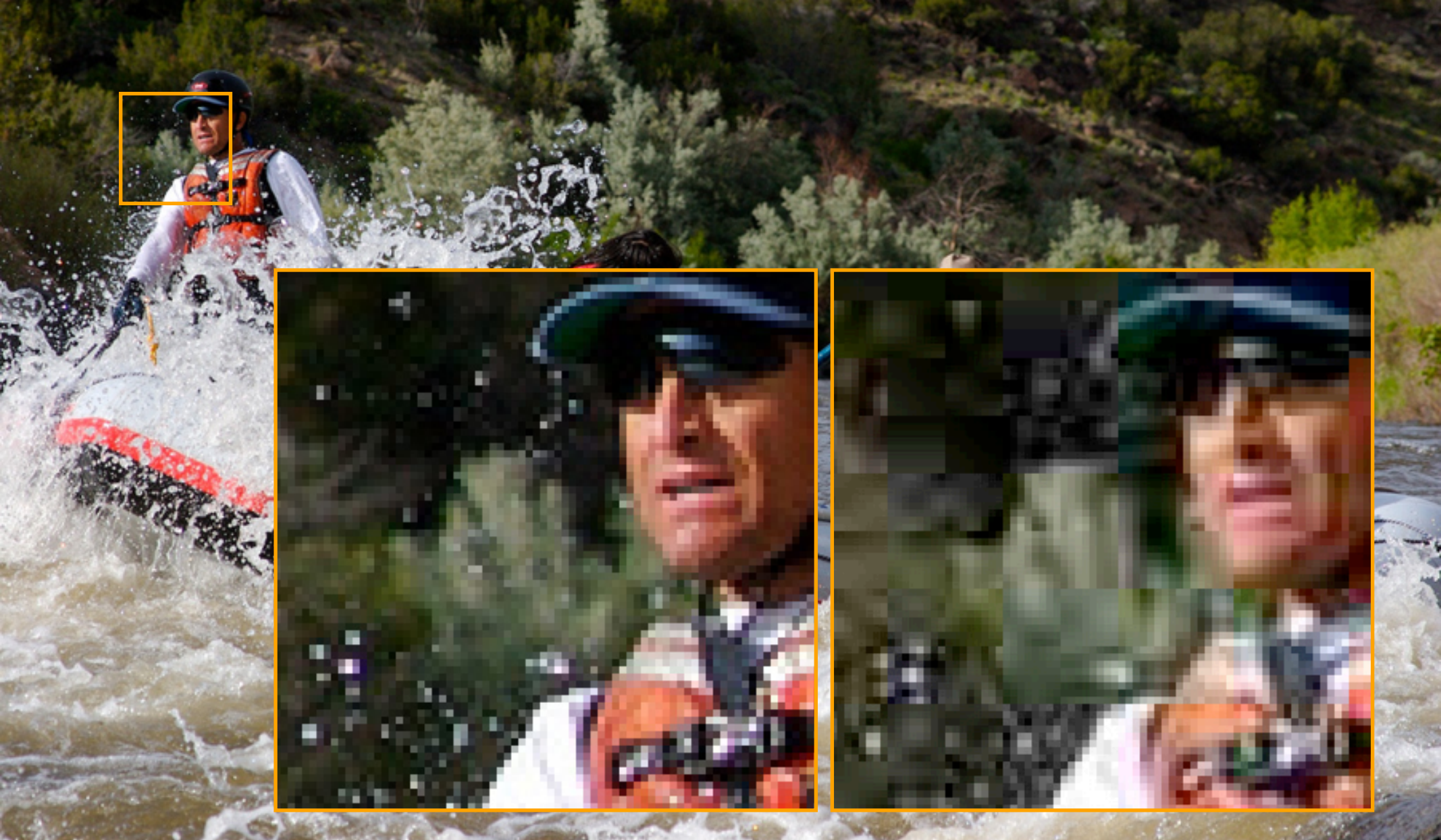
Photo by Dan Armendariz, 2007

Bits & Bytes | Lossless vs Lossy Compression

Name	Compression	Color	Alpha
JPG	Lossy	24-bit	No
GIF	Lossless	8-bit*	Yes
PNG	Lossless	24-bit	Yes**
PSD	Unknown (lossless)	48-bit	Yes
TIFF	Lossless	48-bit	No

* GIF contains an 8-bit palette (or subset of colors) from a 24-bit set of colors
** Some software does not properly display transparency in PNG files

Bits & Bytes | File Types

Lecture 1: Welcome!

Lecture 2: Software Tools & Light

Lecture 3: Exposure

Lecture 4: Exposure (continued)

Lecture 5: Optics

Lecture 6: The Histogram

Lecture 7: Software Tools (continued)

Lecture 8: Assignment Slideshow

Lecture 9: Digital Cameras

Lecture 10: Digital Cameras (continued)

Lecture 11: Color

Lecture 12: Artifacts

Lecture 13: Even More Software Tools

Lecture 14: Assignment Slideshow II

Computer Science E-7 | Lectures

Lectures
4 Assignments
1 Final Project
0 Exams

Computer Science E-7 | Expectations

http://cse7.org/

Computer Science E-7 | Website

staff@cse7.org

Computer Science E-7 | Staff Email address

http://www.flickr.com/

http://www.flickr.com/groups/e7_2009

Computer Science E-7 | Flickr

Image from http://www.dpreview.com/reviews/panasonicfz8/

Computer Science E-7 | Cameras
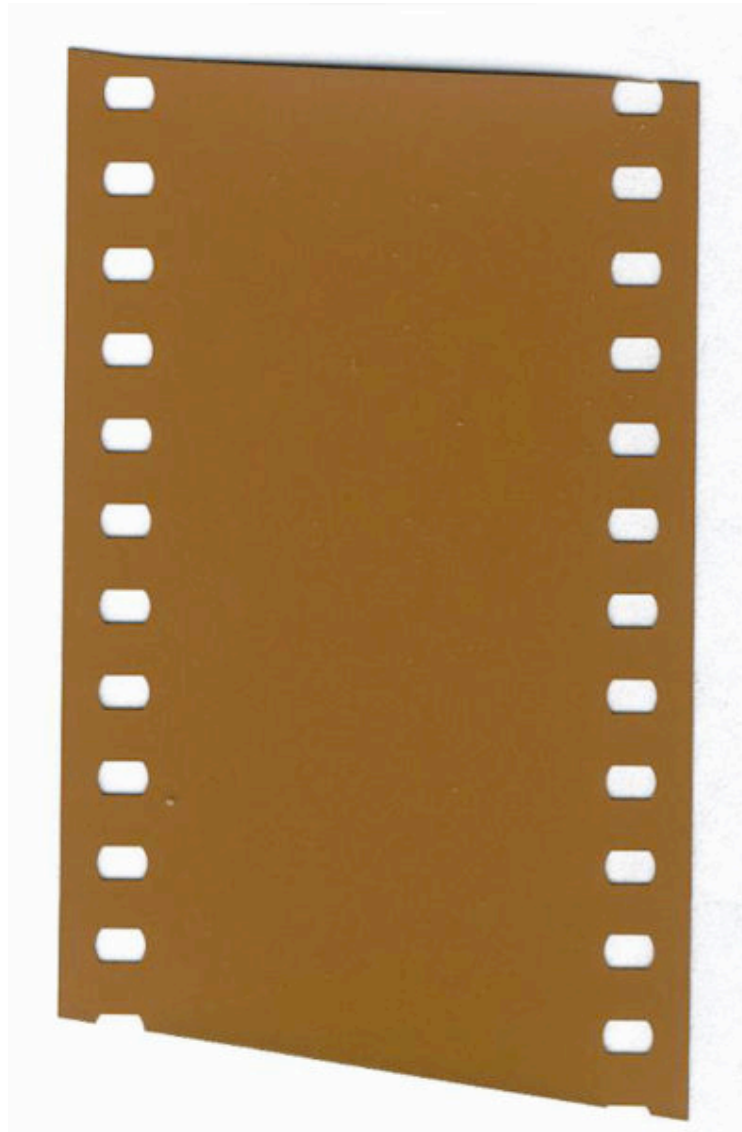
Image from http://en.wikipedia.org/wiki/35mm_film

Computer Science E-7 | Similarity to Film

Photo by Dan Armendariz, 2007

Photographs

What makes a photo interesting?

Photo by Dan Armendariz, 2007

Composition | Rule of Thirds

Digital Photography | An Expensive Hobby

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