THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

Department of
Electronic & Computer
Engineering
電 子 及 計 算 機 工 程 學 系

ELEC 1020

Media Production: Technology and Design

Lecture 3

Prof. James She (*james.she@ust.hk*)

Announcements

1. Mar. 8, Mid-term Exam (2 wks from now)
   - 1-page, open everything, more details coming

2. Out-of-class activity to be announced

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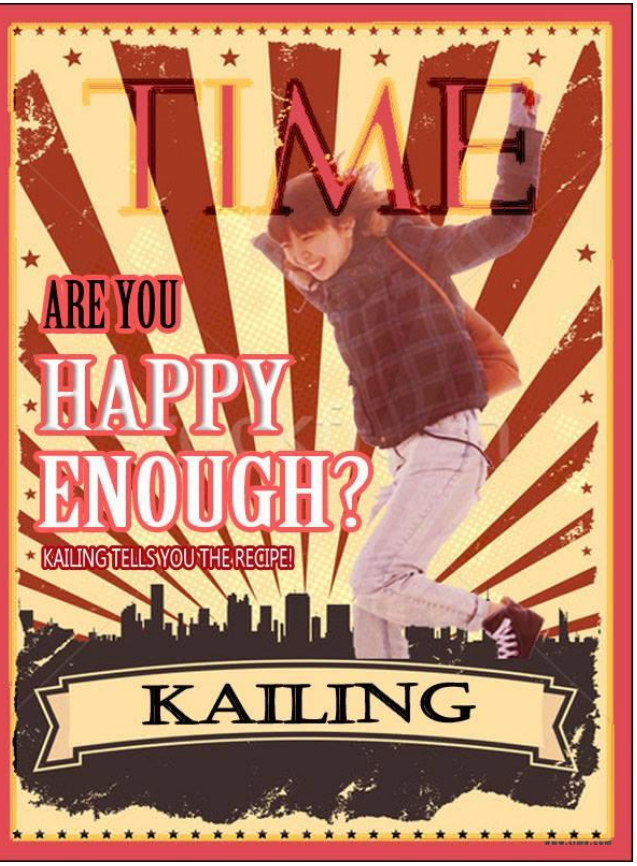
3. Guest Speaker
   - Carmen Ng, Creative Lead, JM Networks

Selected Basic Tasks of Lab 1



Selected Creative Tasks of Lab 1

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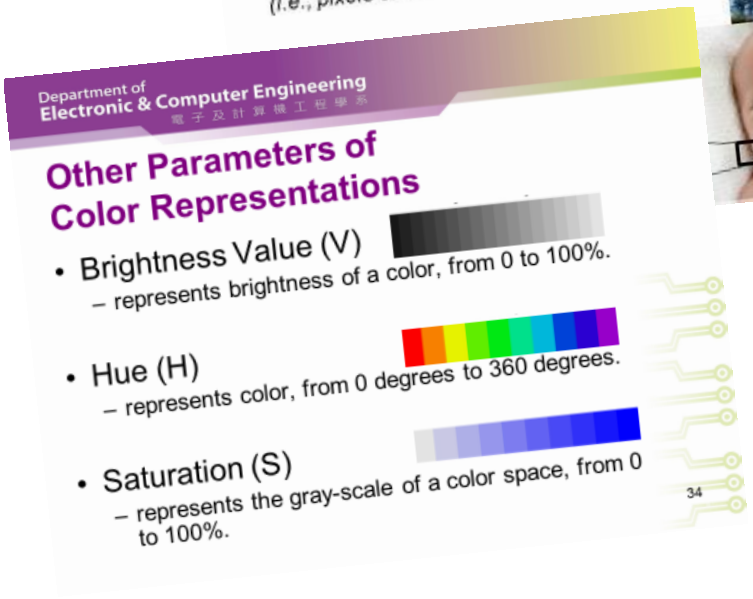
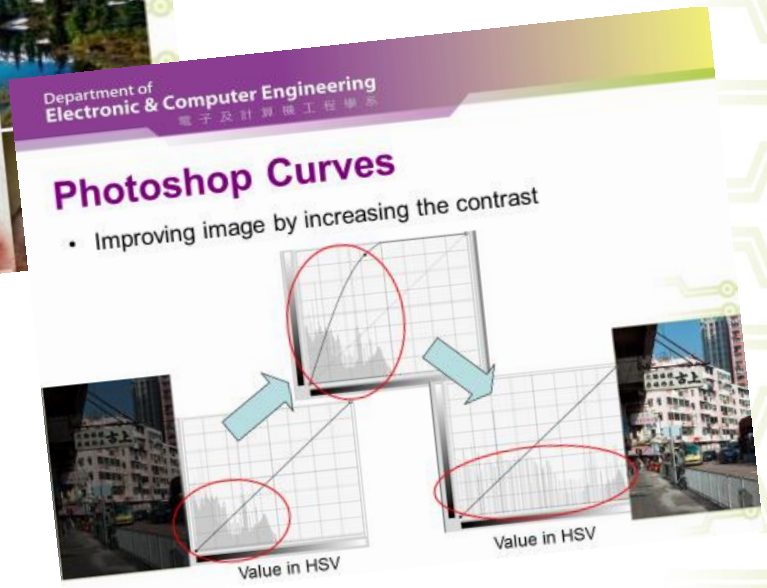
Last lectures





Recall - Digital Image Processing

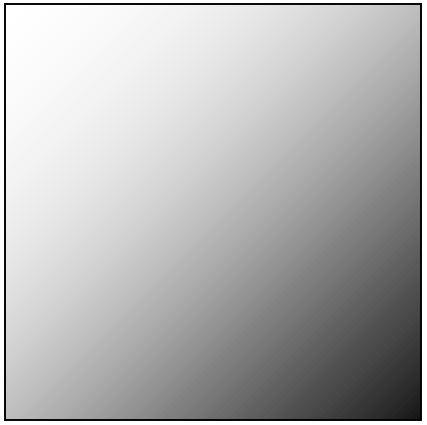
Alpha channel

Image 1

+

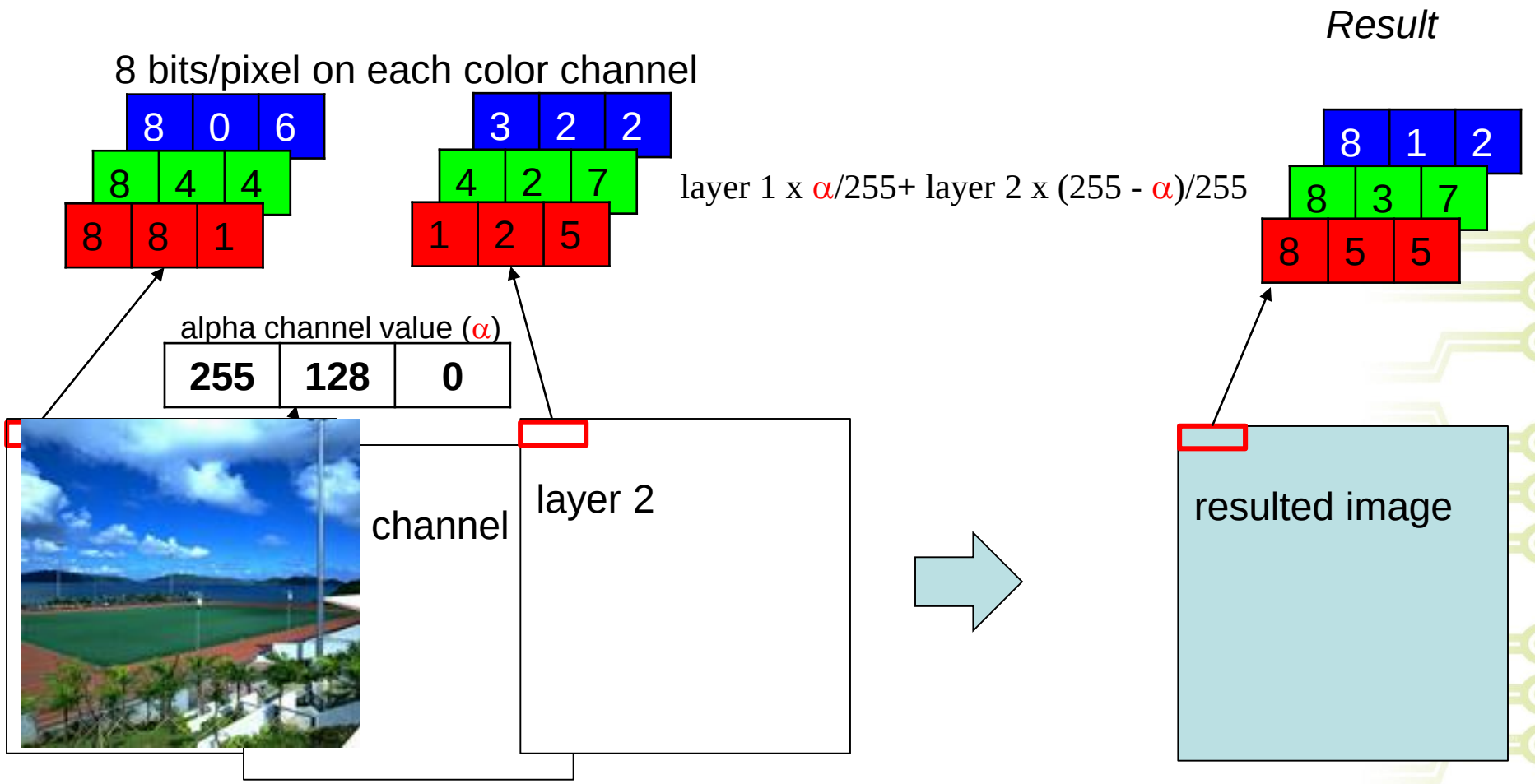
Image 2

α channel



i.e., Image 1 x $\alpha/255$ + Image 2 x $(255 - \alpha)/255$

Recall – inter-layer operation



Outcomes from this lecture

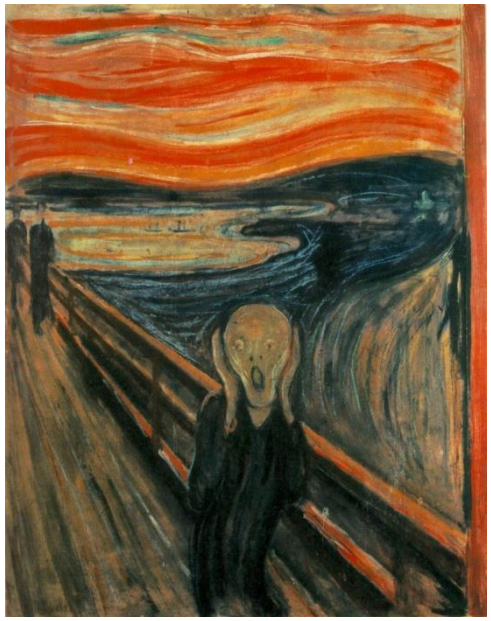
1. Crowd Accelerated Innovation
2. Image Formats and Compression
3. Guest Lecture – Carmen Ng

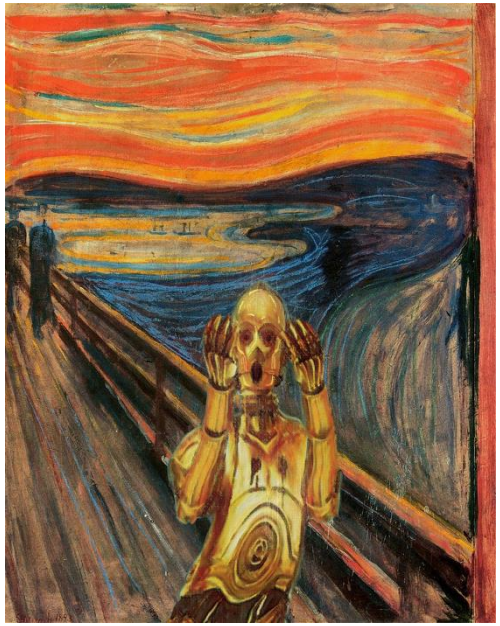
Copyright Issues

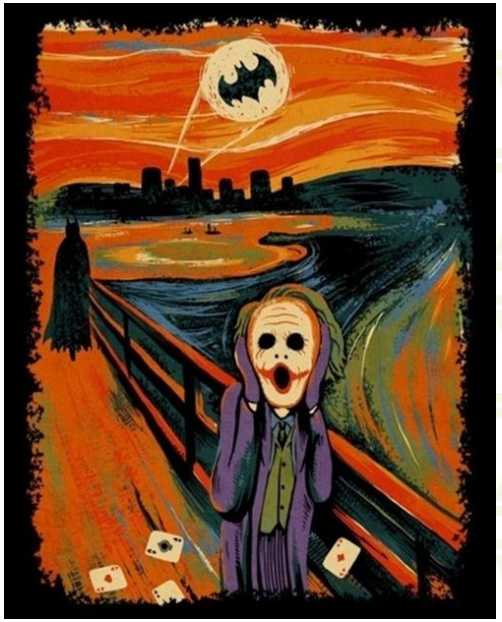
- A legal right created by the law of a country that grants the creator of an original work exclusive rights for its use and distribution.
- Usually only for a limited time.
- Paintings, songs, software source codes, etc.
- What about the production from your lab works?

Infringing Copyright? Innovation?

- Is using others' works always inappropriate?
- Can copying actually innovate a better work?





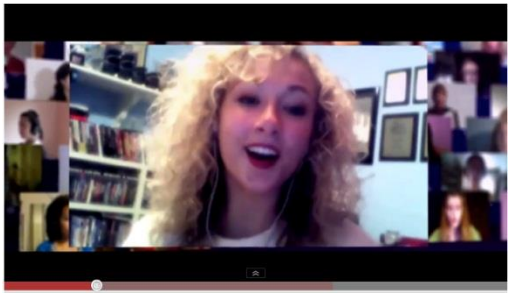


Crowd Accelerated Innovation (for arts, knowledge, designs, etc.)

PS: Check this if time allows: http://www.youtube.com/watch?v=X6Zo53M0lcY

Crowd Accelerated Innovation

a. http://www.youtube.com/watch?v=D7o7BrlbaDs&feature=related



b. http://www.youtube.com/watch?v=zyLX2cke-Lw&feature=relmfu

It also works on images!

Mosaic Arts





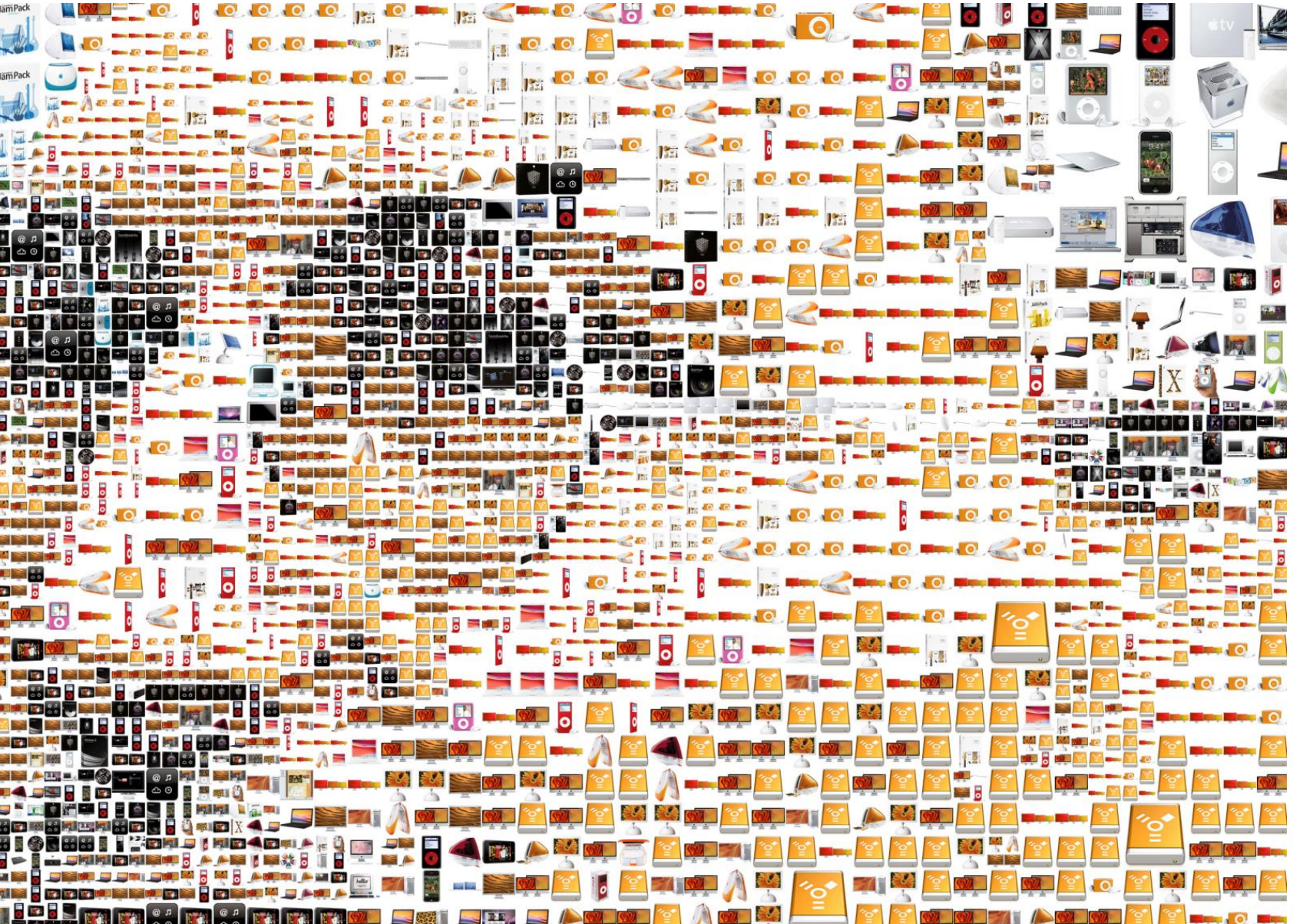


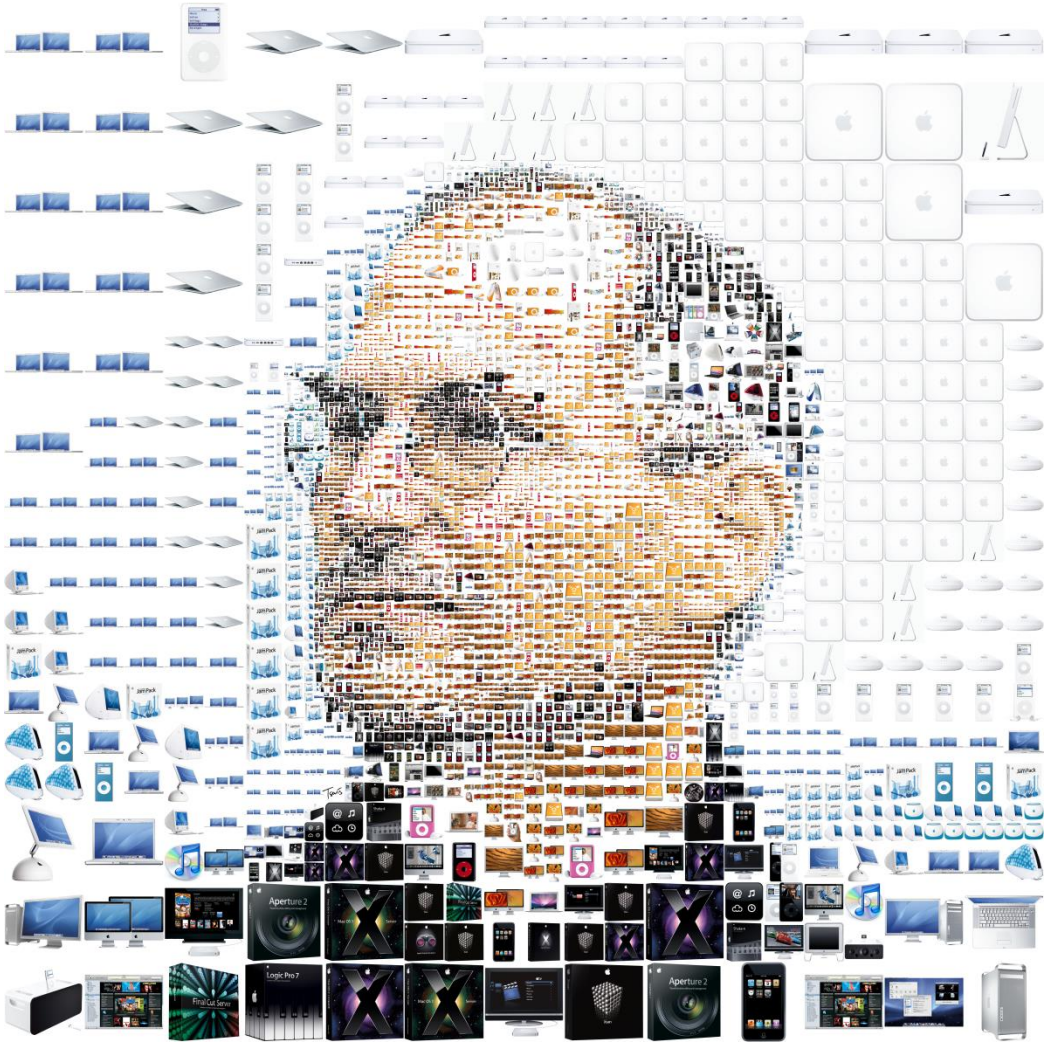
Crowd Accelerated Mosaic Work From Previous Students

Lab2 for this week


Aperture


Aperture
iWork





- All components are related to Apple/ Steve Jobs
- Without any colour adjustments
- All objects are recognizable when zooming in

Crowd Accelerated Mosaic Arts

- Combining existing works from others to form a new one!
- The Lab activity this week

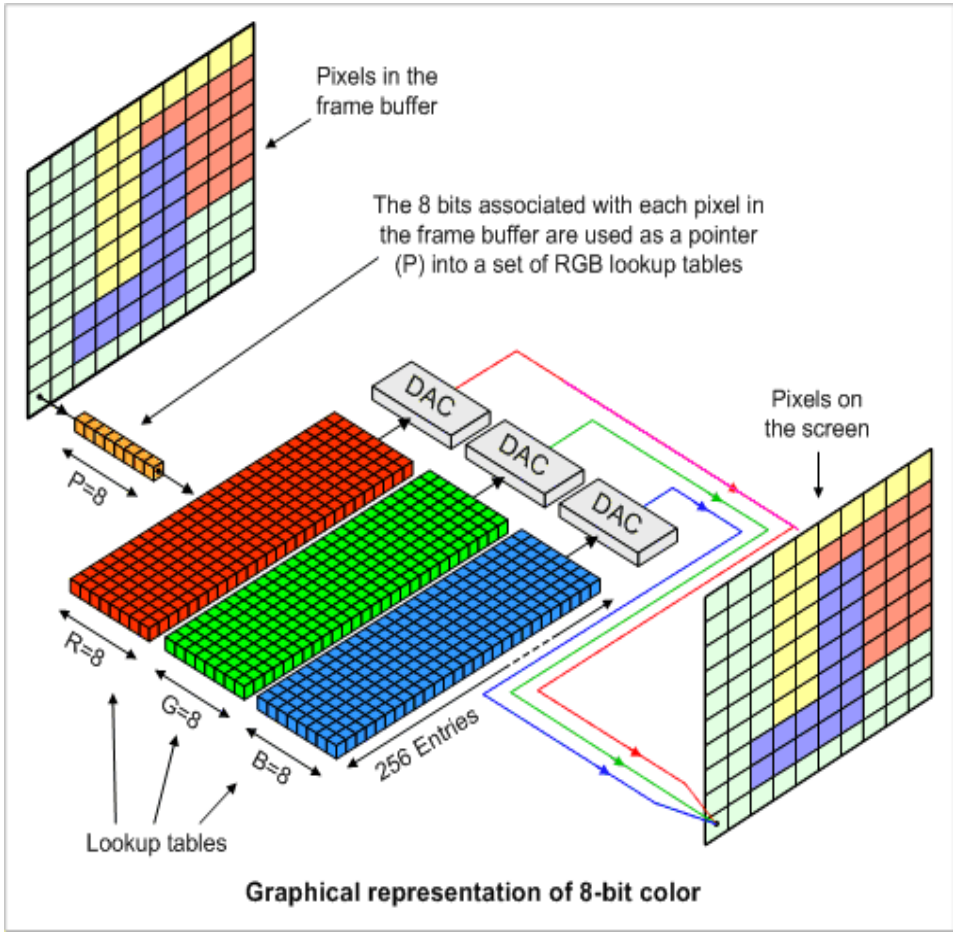
Image Formats and Compression

Recalled - Bitmap - 3

Bitmap representation (color)

For each pixel:

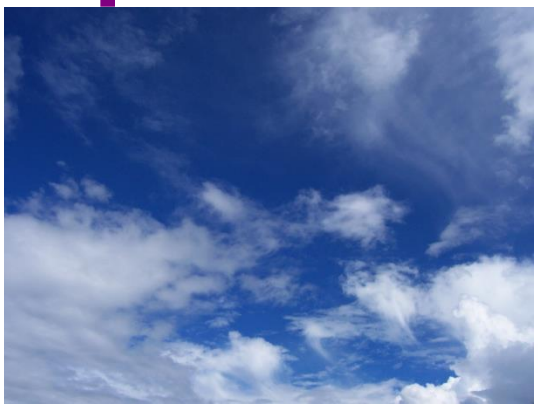
- 3 primary colors: red, green, blue
- 3 color values (3 memory allocations using lookup tables)
- 8 bits for each color value
  - **24 bits or 3 bytes per pixel**
  - **256 x 256 x 256 ➔ 16,777,216 different colors**



Graphical representation of 8-bit color

File Size of a bitmap representation

resolution: 800*600, size: ~1.37MB



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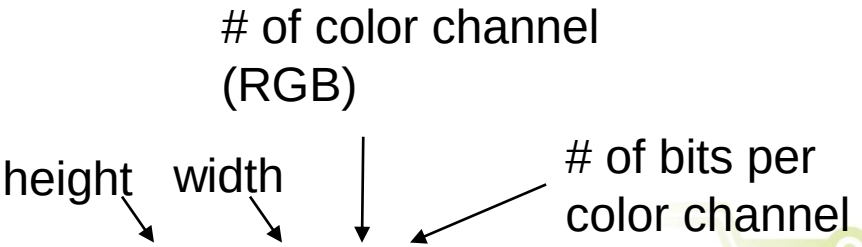
Can you conclude something?

File Size of a bitmap representation



How to calculate the size?

e.g., a 640x480 BMP image, size = 640*480*3*8)

Data size chanllenge, how “big” is a HD image?

Image Compression

Why and how?

- Smaller file size for storage
- Faster transmission

- Compression technologies

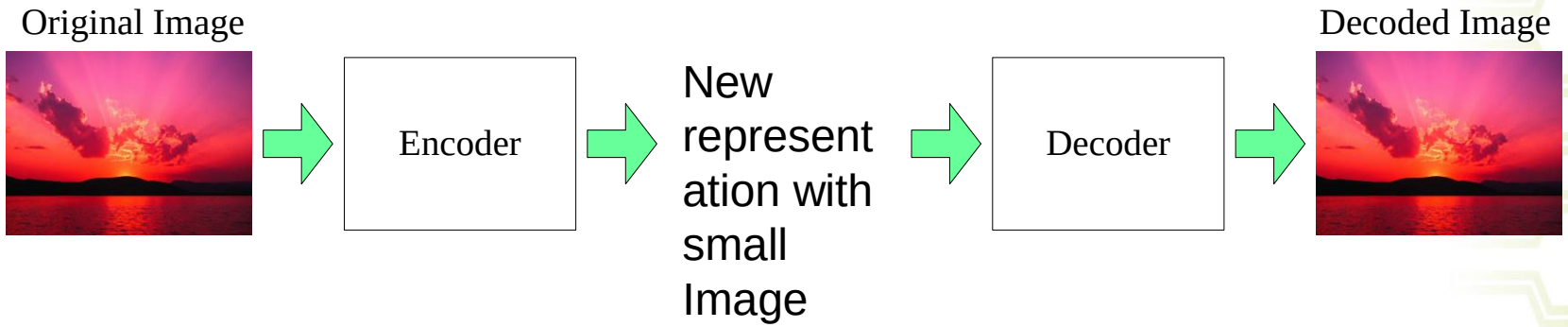


Image Compression

Type of compression:

- Lossless: use less number of bits/pixel but still present required color/content closely in the original image

- Lossy: (e.g., JPEG) give up some info/color not visually important

Guest Speaker

- Carmen Ng, Creative Lead @ JM Network

Design vs. Arts

- Difference between Design and Art
- Outdoor Media Advertising

Out-of-class Activity (Facebook page) – Due tonight 11:59PM

1. **Create** an image with your own content /photo with 640 x 480, and save it as
a) jpeg; b) bmp

2. Find the file sizes, and post in course Facebook page, and compare if any difference to your answer.

Your answer should be in terms of KB (kilobytes)

- End of Lecture 3 -