



THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

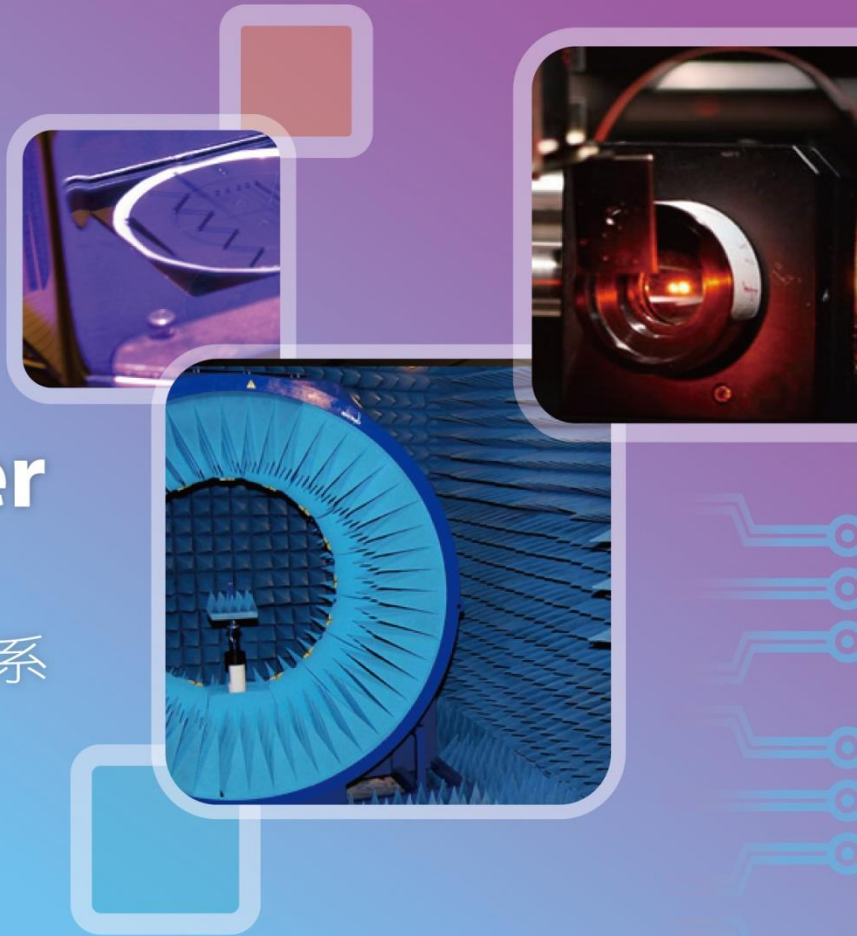
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電子及計算機工程學系

ELEC 1020

Media Production: Technology and Design

Lecture 12 – Last Lecture



Announcements

1. Final Project (**Hard Deadline: May 7, Sat.**)
2. All course marks released. Please contact Ming (cpming@ust.hk) no later than Friday if any question.

Last Lecture – 360 Videos

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Selected Storyboards



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What learnt from the 2nd of this course

Video and Video Production

characters always camera
Storyboard director
Storyboard storyboards
scene story
VideoStyles
CameraAngles
DesignPrinciples

360 video
Opposite the technique of time flow motion



Remote control the camera by App
THETA S

- Designed for Ricoh Theta camera

Reference:
<https://itunes.apple.com/en/app/ricoh-theta/id667238484?mt=8>

Selected works



<https://www.youtube.com/watch?v=0QkxFRZInHQ>



<https://www.youtube.com/watch?v=r6Q92ZrVBII>

Lecture Outcomes

1. Future Media Design and Technology
(by a special guest speaker)
2. Course Summary
3. Interactive In-class Activity
(advises for your FP and bonus points)

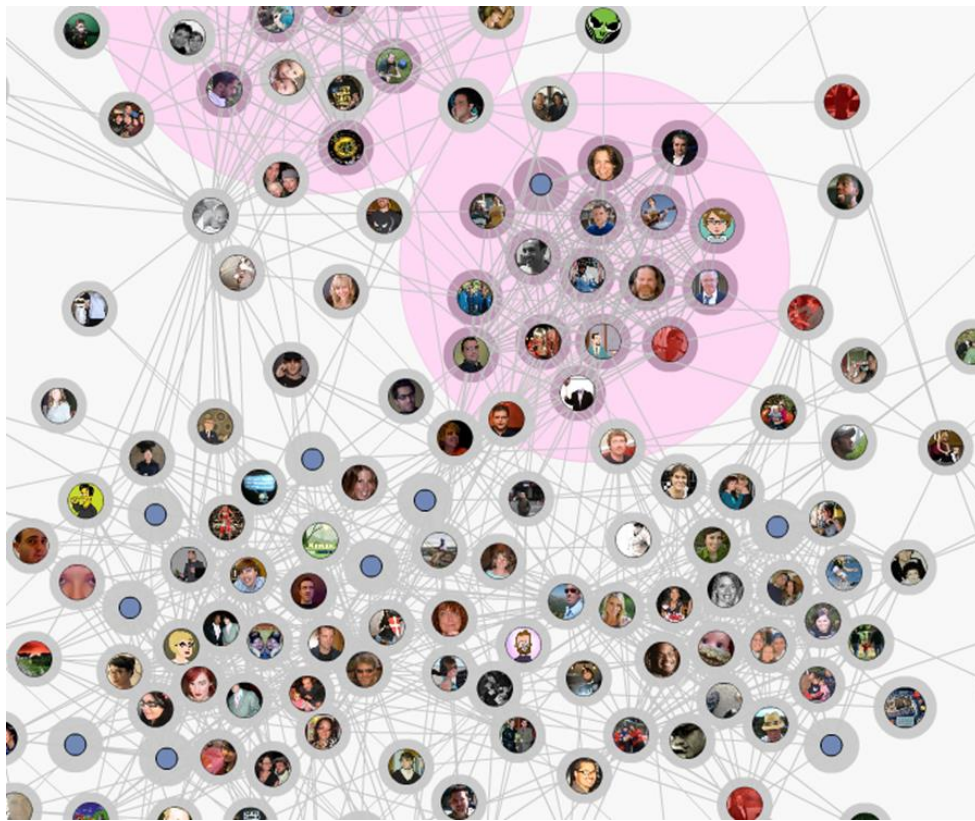
Multimedia Big Data – Analytics for Production

by Ming Cheung



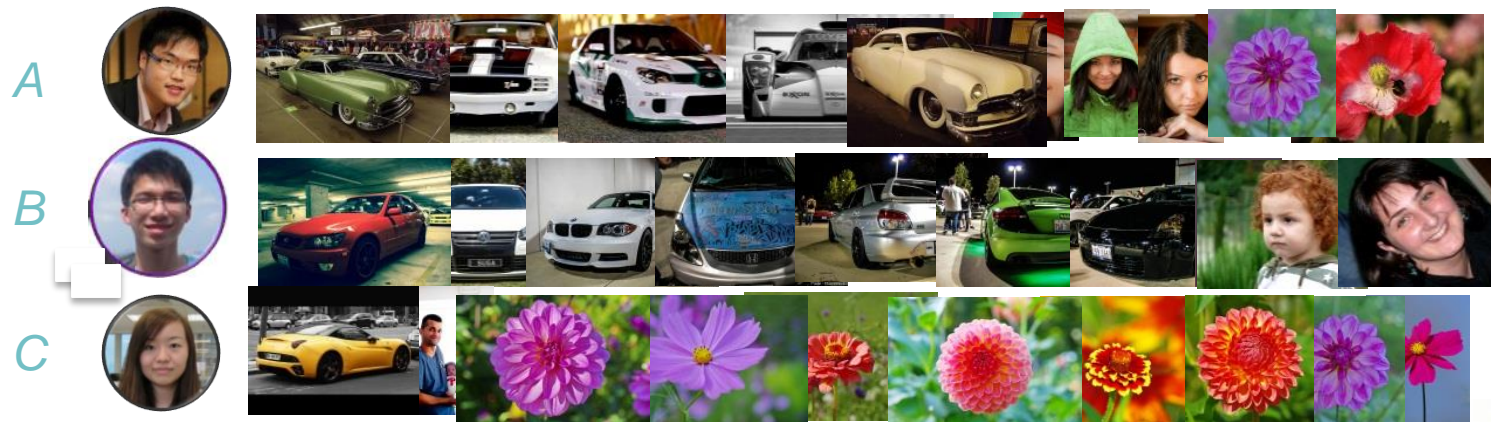
Social Graph

Social Media



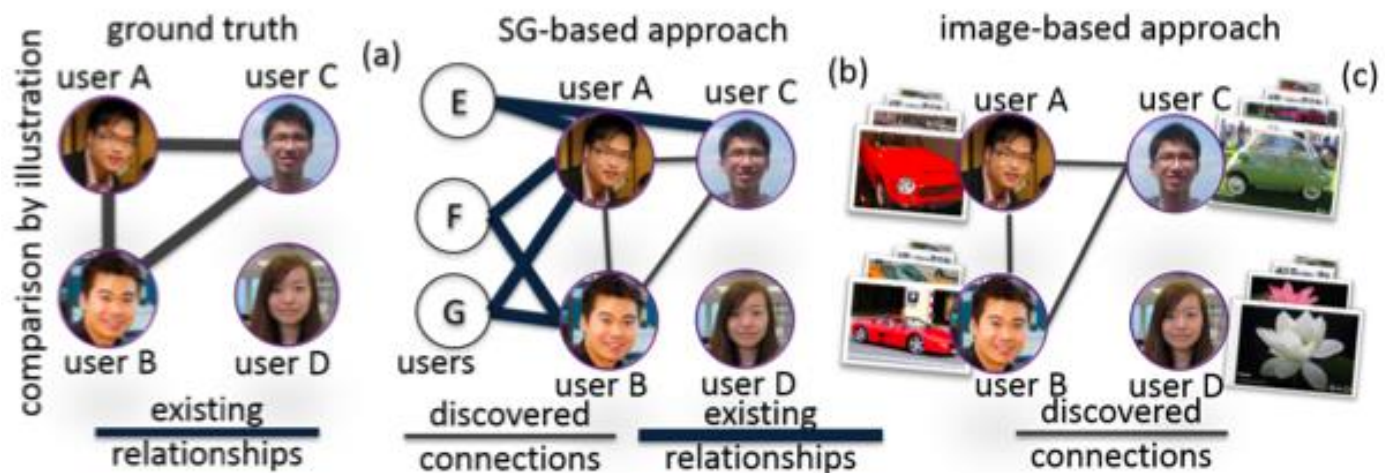
<https://www.youtube.com/watch?v=LeUhVC8xVQI>

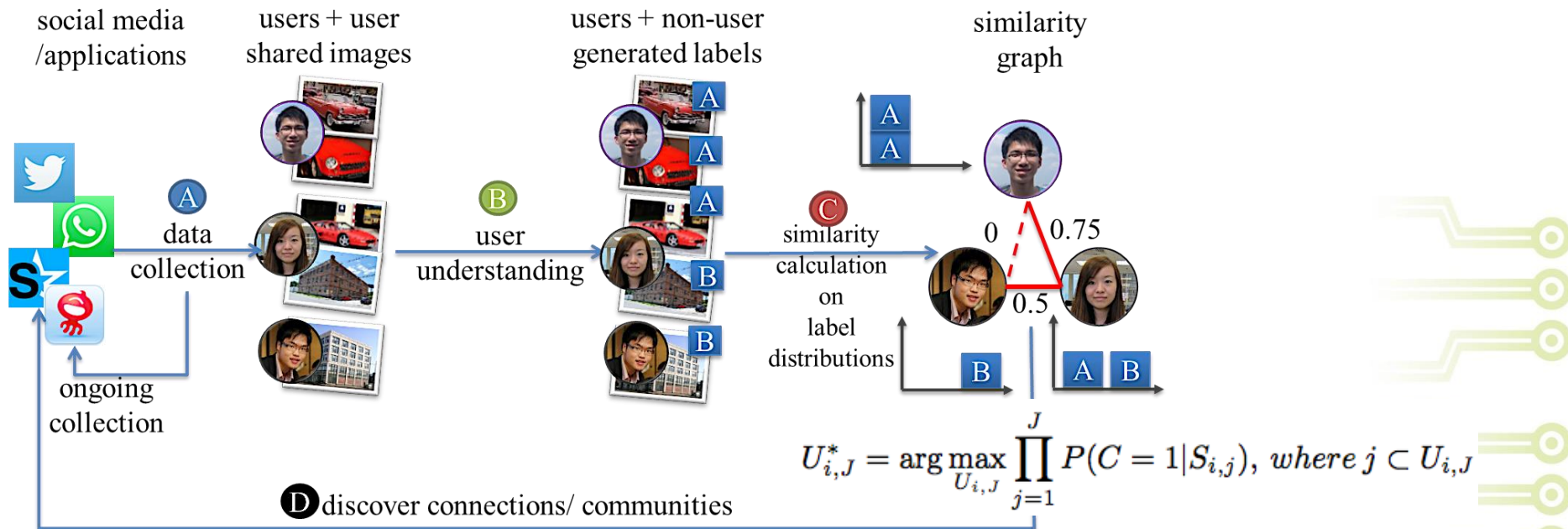
Discover Social Connections and Interests



Low-level visual features

➔ Multimedia big data analytics to discover online connections





Analytics-driven Media Production

Machine Facilitated Storytelling



Analytics-driven Media Production

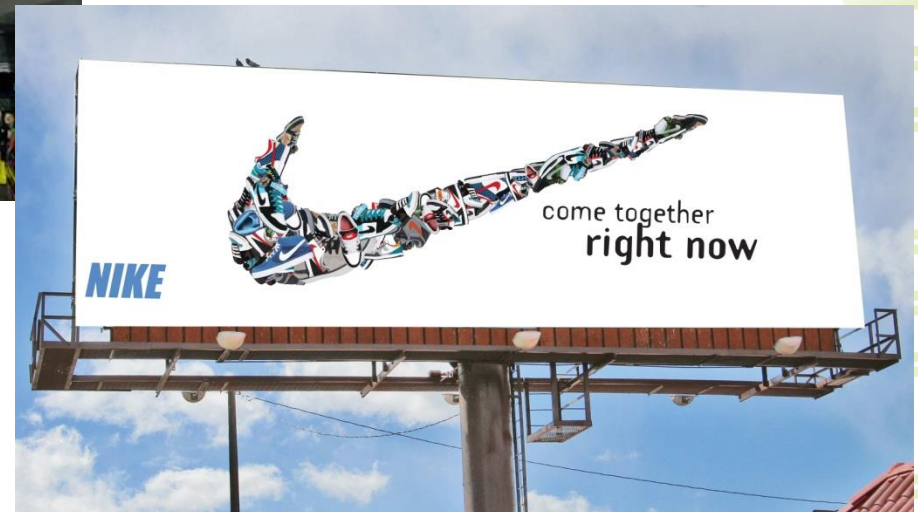
Netflix



<https://www.youtube.com/watch?v=PIXbwxqLCJw>

Analytics-driven Exposures

Right content at right timing



Screen-Smart Device Interactive Technology

Draggable Media Technology - Evolution of Outdoor Media

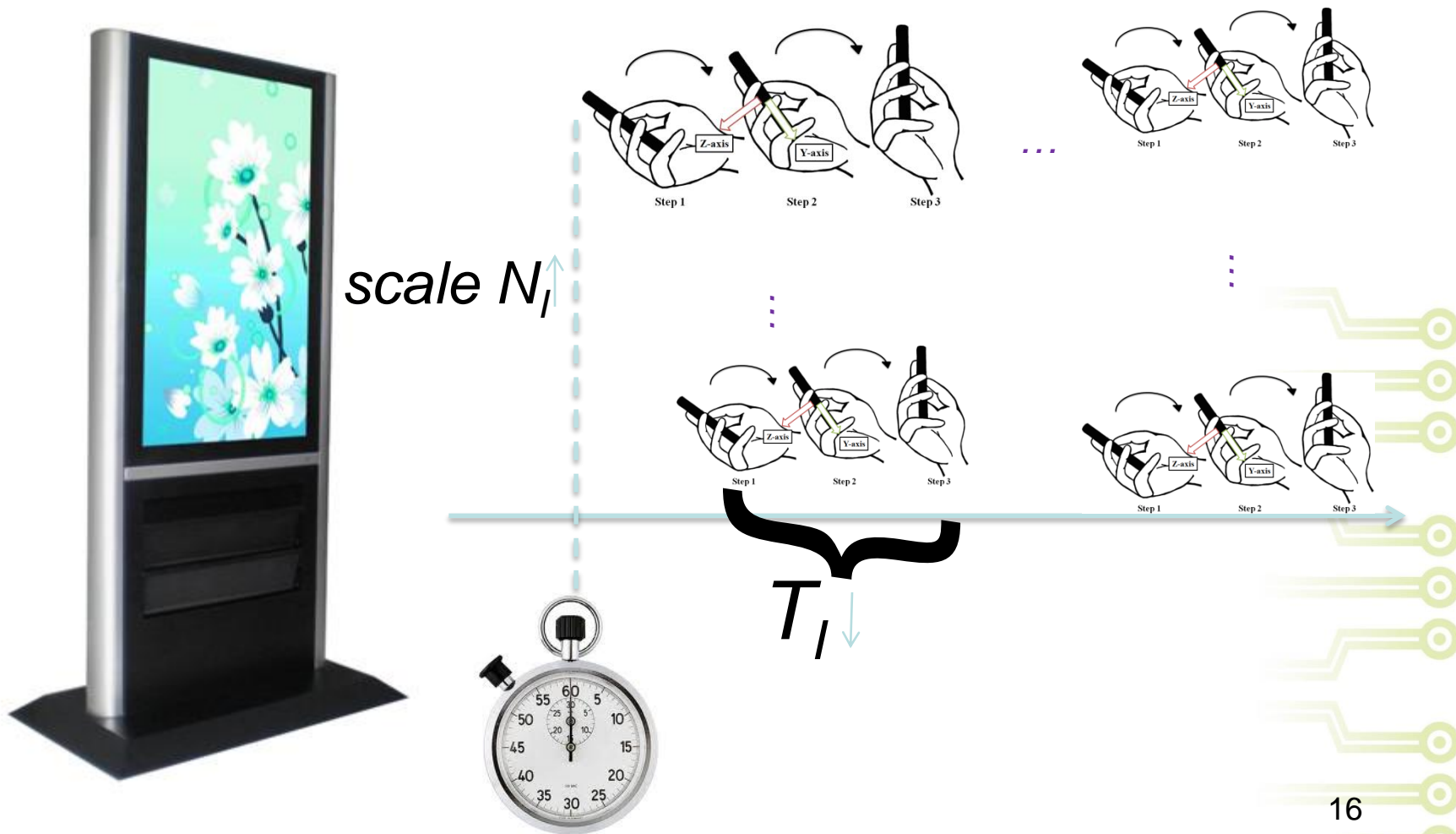


Draggable Media Technology - remember Tear-off Adv?



Rather than QR code, can we have something easy like this?

Draggable Media Technology - idea



Draggable Media Technology



> Patent-pending
“Draggable media
technology”



> Allow multiple users
to simultaneously
collect “draggable
media technology”
onto smartphones
or tablets

App with “Drag” gesture
recogitions

Draggable Media
Technology
(Interactive Wireless
Broadcast)

Draggable Media Technology - Innovation from HKUST

1. *IEEE Trans. ETC, IEEE CPSCoM, etc.*
2. *Joint patents between HKUST, Cambridge and Waterloo*
3. *Tech-transfer to companies for real-world deployments in HK, Beijing, Toronto, London, etc.*
4. *2nd generation R&D in HKUST*

Demo:

<https://www.youtube.com/watch?v=HtbufCNb9M8>



Wearable Device

From Mobile Device to More Personal and Social



PHOTO: MOTOROLA; FITBIT; GETTY IMAGES; NIKE



Wearable Device



<https://www.youtube.com/watch?v=yFVycLOn9vY>

Wearable Device



<https://www.youtube.com/watch?v=8pme3lkHOcg>

Transparent Display and Ambient Interactive Technologies

From others



<http://www.youtube.com/watch?v=xFgvNMN2DiQ>



<http://www.youtube.com/watch?v=MK1Lc88SuP0>

10 mins break

Meanwhile, download “CyPhy” app from
AppStore/Google Play

Course Summary

L1 - Introduction

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ELEC1020 for your future career

More than just an electronic or software engineer...

- Apps or software UI designer
- web-based and mobile gaming developer
- video producer and media engineer
- sound engineer
- theater effect engineer
- performance/stage effect engineer
- cyber-physical actors or artists!



NEXTmedia

PORT

is Lab 18

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Assessment Scheme

(some adjustment to be finalized in this week)

1. In-class activities:
analyzing and evaluating various digital media will be conducted in 6-8 of the lectures 10%
 2. Labs:
6 labs with various hand-on learning experiences 30%
 3. One-page mid-term exam:
open notes, open books, open everything 10%
- 25% 25%

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What's Media? Is it...



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Design Principles

Maximize the marketing impacts



- Is the perceived message
1. correct?
 2. clear and complete?
 3. reaching the right group of audience?
 4. covering enough audience (i.e., people get impressed and remember)?
 5. sticky to the audience (i.e., people get impressed and remember)?
- The more 'Yes' above, the audience have more **perceived impacts**. 36

L2 – Digital Images


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Digital Image Representation

Simulating the physicals


Amplitude domain: the light intensity at a spatial location represented by a number

Spatial domain: a sequence of numbers recorded to represent light intensity at a grid of spatial locations (i.e., pixels on a display)



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Other Parameters of Color Representations

- **Brightness Value (V)**
– represents brightness of a color, from 0 to 100%.

- **Hue (H)**
– represents color, from 0 degrees to 360 degrees.

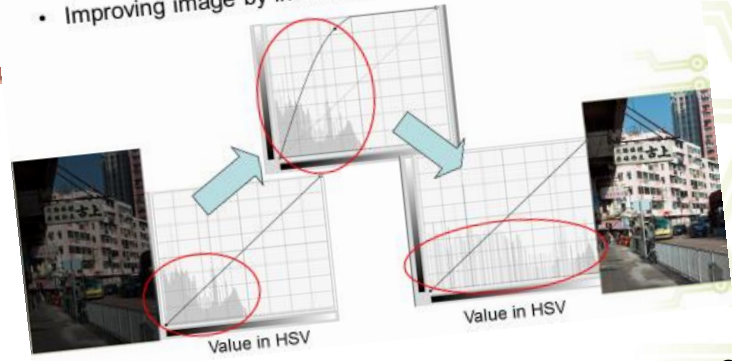
- **Saturation (S)**
– represents the gray-scale of a color space, from 0 to 100%.


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Photoshop Curves

- Improving image by increasing the contrast



Value in HSV

Value in HSV

L3 - Crowd Accelerated Innovation

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

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Image Compression

Why and how?

- Smaller file size for storage
- Faster transmission
- Compression technologies



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Guest Speaker

- Carmen Ng, Creative Lead @ JM Network

Design vs. Arts

- Difference between Design and Art
- Outdoor Media Advertising



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L4 - Animation

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Art, design and Technology

```
graph TD; Design([Design]) --> Art([Art]); Design --> Technology([Technology]); Art --> Technology;
```

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Comparison of file formats

16
JPG: 6.55KB

17
GIF: 15.8KB

20
JPG: 6.55KB

21
JPG: 6.55KB

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Basic of Animation

Concept of Keyframe

- Keyframes define the end points of an animation sequence
- Scene and objects within a pair of keyframes are usually strongly related
- Animations are only performed between a pair of keyframes, but not inter-keyframes

keyframe in-between frames keyframe

time → 28

L5 - Sound

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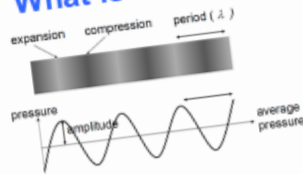
1-page Mid-Term Exam

15:10 – 16:10
*lecture after exam

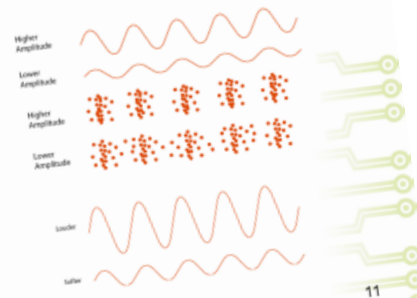
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Basic physics of waveform

What is a wave?

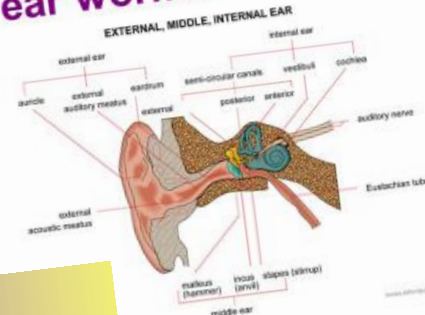


- Amplitude → Loudness



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How ear works?



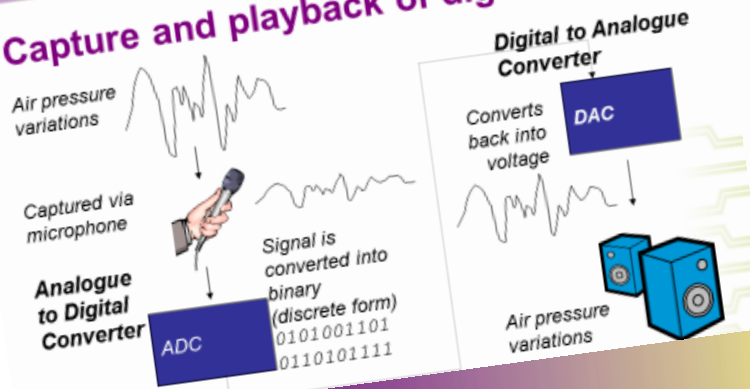
z..z...Z

utilizes the multimedia...
www.youtube.com/watch?v=qgdqp-oPb1Q

L6 - Interactivity

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Capture and playback of digital audio



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Animation vs. Interactive Media



<http://m.theatlantic.com/magazine/archive/2013/the-touch-screen-generation/309250/>

<https://www.youtube.com/watch?v=v3hN6PBDSxU>

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Audio Formats

- Similar to compressing image, use some compression techniques to reduce the file size

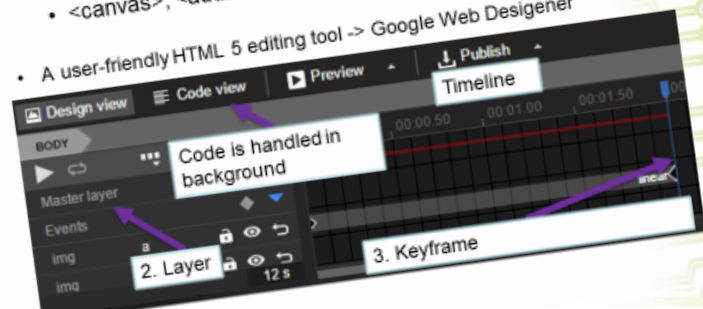
Audio Format	File Extension	Advantages	Disadvantages	Applications
Wave	.wav	<ul style="list-style-type: none"> Best sound quality Supported without a plug-in 	Uncompressed	<ul style="list-style-type: none"> Background music Musical E-greeting card
MP3	.mp3	<ul style="list-style-type: none"> Good sound quality even though compressed Can be streamed over the Web 	<ul style="list-style-type: none"> Requires standalone player or browser plug-in 	<ul style="list-style-type: none"> Short voice greetings Music Streaming

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What's New in HTML5?

- 5th version of HTML
- lots of new features for interactive media without plug-ins
 - <canvas>, <audio>, <video> and other new media features

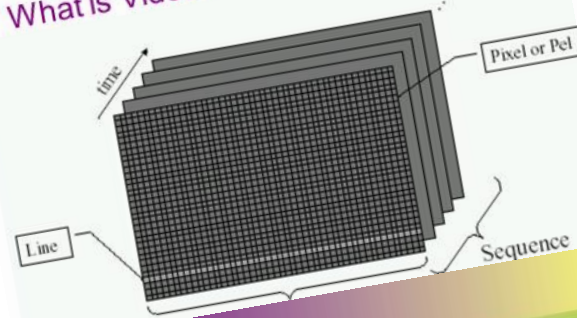
- A user-friendly HTML 5 editing tool -> Google Web Designer



L7 - Video

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What is Video in terms of technology?



The diagram shows a stack of frames, with a single frame labeled 'Pixel or Pel'. A horizontal line across the frames is labeled 'Line'. The entire stack is labeled 'Sequence'.

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Perception of Video

persistence of Vision

- Ability of viewer to retain the image impression after the image is withdrawn from view
- Normal human vision persists for ~0.1s
 - 10 images/s is enough to create motion
- Varies with color, size of the picture, brightness etc.
- Video standards: 25-30 frames/s

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Storytelling by video

Storyboard



1. Flow through your story for your production (editing, shooting, transition)
2. Important shots to capture the key messages of the video story
2. Design principles

Image from (<http://cg.tutplus.com/articles/step-by-step-how-to-make-an-animated-movie/>)

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Welcome our guest speaker

Victor Kam New Sight (目養計劃)

Technology & Media Contributor

- The story of New Sight
- Get the message of the story for your coming lab activity



new sight

L8 – Style and Shooting

Styles of Video 6 major styles...

1. Humor
2. Documentary
3. Informational/Instructional
4. Performance
5. Artistic
6. Inspirational

In-class Activity – Vote (5 mins)

Your best selected creative video with
some reasons based on:

- design principles;
- visual impression

Camera Position

- When describing camera positions/locations:
 - How far away the camera is from the subject
 - The perspective of the viewer



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Camera Angles

- The angle between the camera and the object being shot
 - add emotional visual to an audience
- Guides their judgment about the character or object in shot.



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L9 - Time Flow Motions

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Roles & Responsibilities in a Production Team

https://www.youtube.com/watch?v=asc-_idD5WA

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Camera Technologies iPhone vs Nikon



<https://www.youtube.com/watch?v=q0NyPW-BjpA>

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A Special Shooting Technique • Time Flow Motion Effect



1. <https://www.youtube.com/watch?v=WhxbYTMNMxo>

2. <https://www.youtube.com/watch?v=Kjcv-JtUOgA>

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After Effects Making Impossible Possible



L10 - Chroma Key

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Chroma Keying Video

Background

- Unrealistic background + effects on actors/objects



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Chroma Keying Video

3 Simple Steps to Chroma Key

- Overlay the foreground with designed background in the software



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Chroma Keying Video

Benefits of Green Screen & Blue Screen?

The Difference Between Green Screen & Blue Screen [ReelRebel #13] w/Stephen ...



GREEN SCREEN VS. BLUE SCREEN

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Chroma Keying Video

Popular programs

- Adobe Premiere
- After Effects
- Final Cut Pro
- etc...



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Course Website

(course.ee.ust.hk/elec1020)

ELEC 1020 [2-0-3:3]
Media Production: Technology and Design

Course Description


The course focuses on both the high level design concepts for creative multimedia marketing, as well as equipping the students with the necessary tools to manipulate digital media. The course covers design principles, human perceptions, evaluations of digital media as well as fundamental implementation skills such as audio data processing, special image effects, and video handling techniques.

Learning Outcomes

At the end of the course, you should be able to:

- come up with design concepts of a digital media presentation for selected target audiences or purposes;
- analyze and evaluate digital media from artistic, business and technical perspectives;
- create digital media (e.g., web, image, animation, video) using multimedia tools;
- Adopt online multimedia systems/ networks with their prepared digital media to convey for themselves, companies and organizations.

Instructor



Prof. James She: eejames@ust.hk

Information

Lectures

Labs

References

Course Works

Scores





Service Learning

Last update:
Aug 13, 2014

In- and Out-of-Class Activity	8 %
One-page Midterm Exam	10 %
Mid-term Project	25 %
Final Project	25 %
Laboratory	32 %

Our Teaching Team

TAs

	Ming CHEUNG: cpming@ust.hk
	Ng Pai Chet: pcng@connect.ust.hk
	XiaoPeng Li: xlibo@connect.ust.hk
	Jeon Kang Eun: kejeon@connect.ust.hk

	Prasanta Saikia: psaikia@connect.ust.hk
	Alessandro Calo: acalo@connect.ust.hk
	Qian Yu: qyuac@connect.ust.hk

Remember to give us feedback!



Interactive In-class Activity (10 mins)



In-class Activity (10 mins)

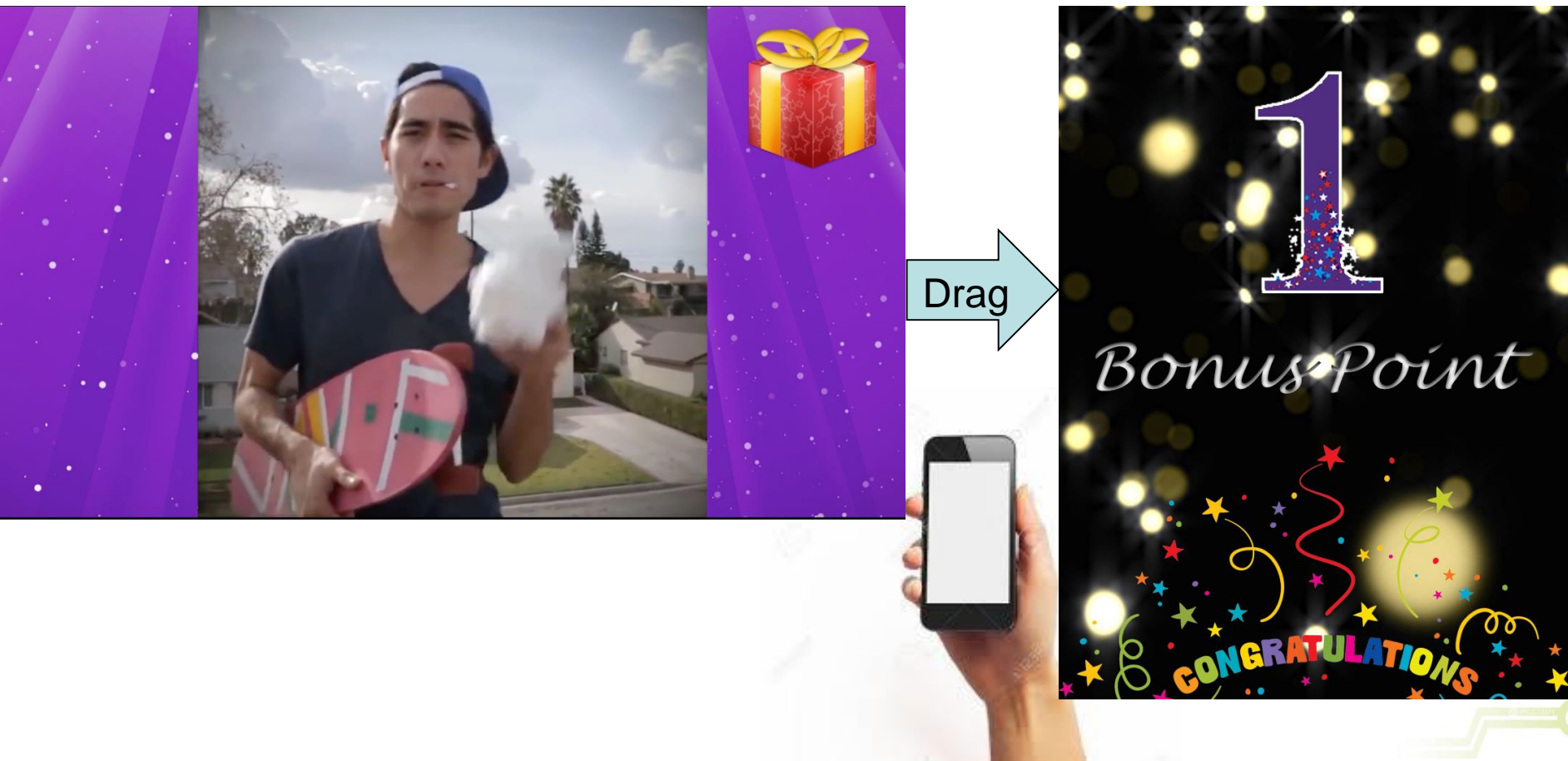
Drag Bonus Point

1. Form your final project group
2. Download “CyPhy” app from AppStore/Google Play
3. Location Services/Bluetooth: **ON**
4. Drag gift boxes on a video
5. Successful Drag for bonus points (check the dragged image)



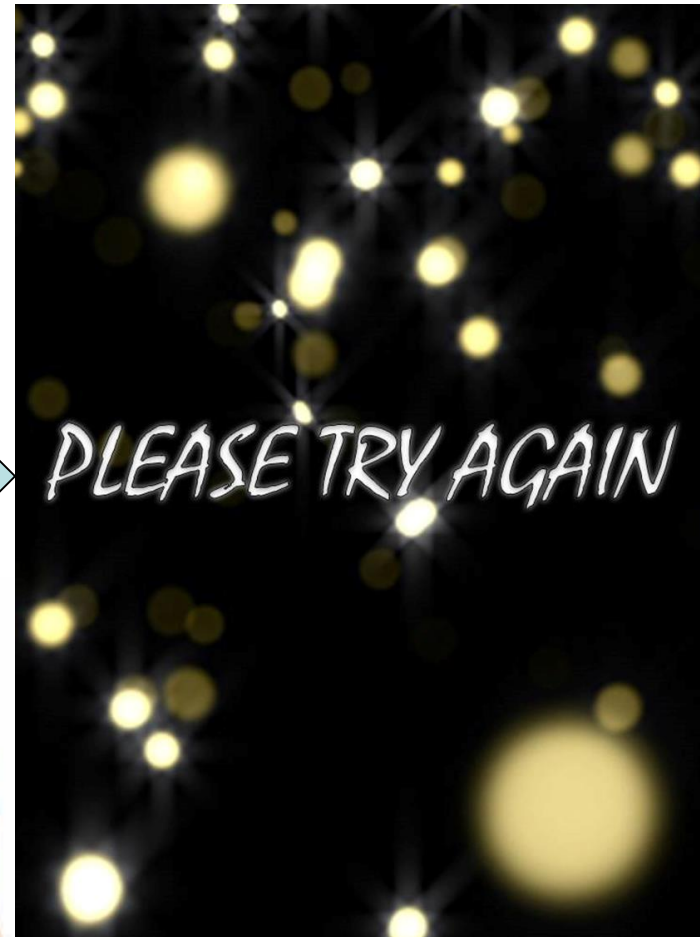
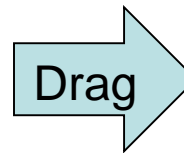
In-class Activity (10 mins)

Example – Drag!!



In-class Activity (10 mins)

Example – wait!



In-class Activity (10 mins)

1. **Capture** a screenshot of your successful drag of bonus point;
2. Show to TA **before** you leave the class;
3. **Only the best bonus points** per group needed;

PS: You don't want to share your results to other groups.



- End of Last Lecture -

Hope you enjoyed this course and learnt something here!

Remember - to feedback for course evaluations

