

# EECS 290T-Lecture 1

Date: August 27, 1999

# Multi-Media

- Multi – from Latin. *Mults* means “numerous”
- Media – from Latin. *Media* is the plural form of the Latin word “medium”, meaning “middle,center”. More recently “intermediary”.

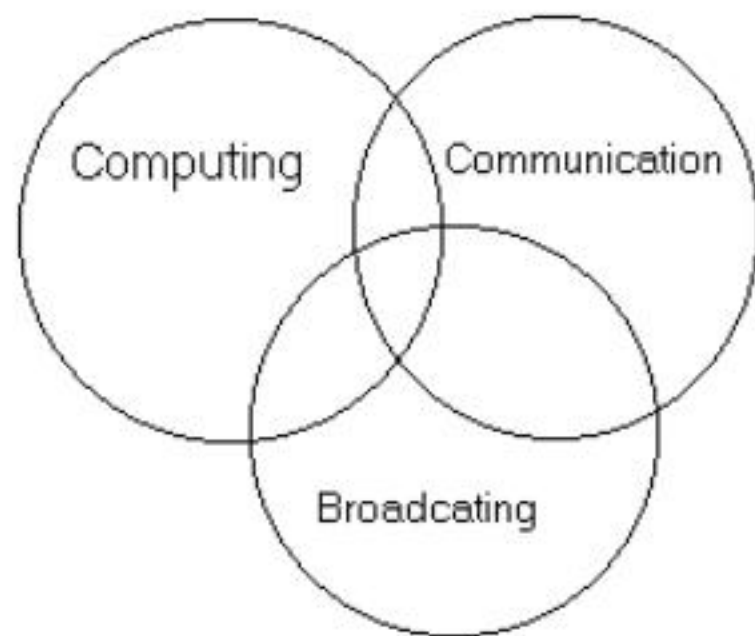
# Digital Multimedia

- Field concerned with the integration of
  - Text
  - Graphics
  - Still and moving images
  - Animation
  - Sounds
    - +any other medium where every piece of info can be represented, stored, transmitted, or processed digitally.

# Digital Multimedia (part 2)

- Types of MM info:
  - 1.Text
  - 2.graphics
  - 3.images (still)
  - 4.moving graphics-> animation
  - 5.moving images (motion video)
  - 6.Sound

The intersection of:



# Conventional Classification of MM Types

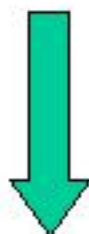
Time Based:	SOUND, MOVING IMAGES	ANIMATION
Space Based:	STILL IMAGES	TEXT, GRAPHICS
	Captured from the real world.	Synthesized by computer.

# Digital Representation

- Digitization
  - Analog
  - Discrete Time
  - Digital
- Why Digitize?
  - Universality of representation
  - Robustness to error, aging, distortion, noise.

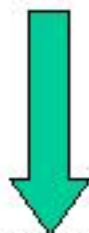
# Digital Representation (part 2)

- Analog Signal



» Sample in Time

- Discrete Time Signal



» Quantize Amplitude


- Digital Signal

# Advantages of Digital Representation

- Storage of different information types on the same device
- Transmission of various information types over a single digital network
- Processing and manipulation of various information by computer programs for editing, quality improvement, or recognition of meaningful info.



# Disadvantages of Digital Representation

- Quantization distortion
- Sampling distortion (aliasing)
- Need for large amounts of digital storage capacity  need for compression.

# Interactivity: Two Types of Presentation

- Passive, or Linear
  - User has no control
  - Ex: TV Program
  - Ex: Movie
  - Ex: Broadcast
- Interactive, or Non-Linear
  - User controls time, order, speed, and form of presentation
  - User input can be recorded to annotate, modify, or enrich contents of the info.
  - Active processing of user inputs and computer generation of genuine replies.