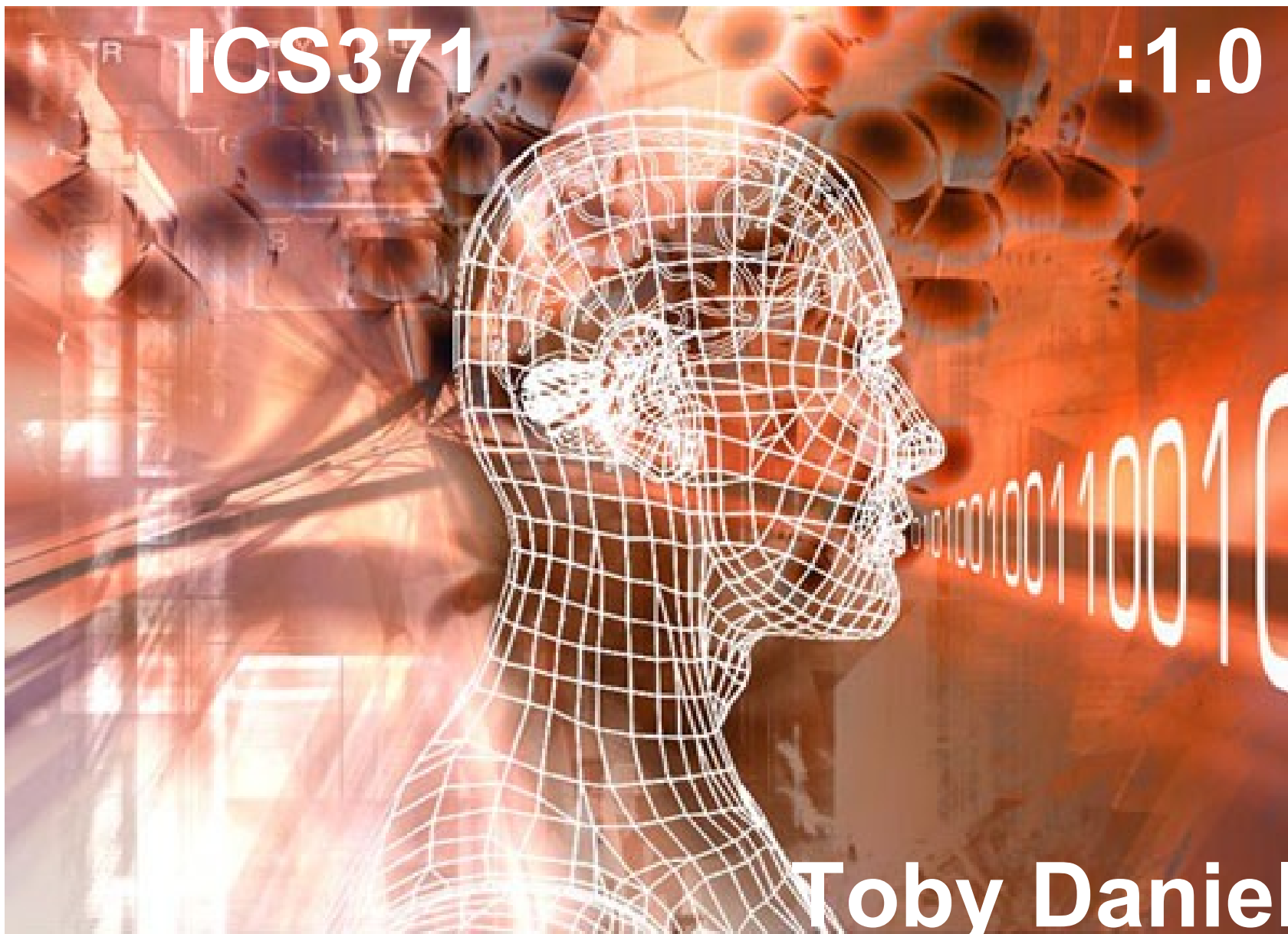


**ICS371**

**:1.0**

**Toby Daniel**



# ICS371

## **Course Description:**

- Study of introduction to the tools and methods of multimedia application development including multimedia hardware and software. This course focuses on how to integrate texts, graphics, animation, video, and sound to create interactive multimedia applications.

# ICS371

## Assessment:

- Lab participation 10%
- Individual Project 20%
- Mid-term exam 30%
- Final exam 40%

# Intro to Multimedia Systems

Q. What are Multimedia systems?

# Multimedia Systems

- Systems that support the interactive use of text, audio, still images, video, and graphics.
  - Each of these elements must be converted in some way from analog form to digital form before they can be used and displayed in a computer system
- Hardware and software are required that merge video, computer graphics and Multi-channel sound in one interactive session.

# Multimedia Systems

- Therefore we can loosely define a multimedia system as requiring the following:
  - two or more media types
  - single session
  - single system
  - interactivity

# Multimedia Systems

- Long touted as the future revolution in computing, multimedia applications were, until the mid-90s, uncommon due to the expensive hardware required and the processing power to deliver video and audio on demand.

Moore's Law and increasing miniaturisation bring the hardware within our grasp.



“Before you become too entranced with gorgeous gadgets and mesmerizing video displays, let me remind you that information is not knowledge, knowledge is not wisdom and wisdom is not foresight. Each grow out of the other and we need them all.”

Arthur C. Clark (1997)

# Multimedia Timeline

- 1972—Atari introduces Pong, the first coin-operated video game.
- 1974—MITS releases the first successful personal computer. The Altair uses Intel Corporation's 8080 microprocessor, also developed in 1974.
- 1975—Bill Gates and Paul Allen adapt BASIC to run on the Altair 8800, and sell the interpreter to MITS. It's the first computer language program written for the PC. By the end of November, the duo's new company has a name: Micro-soft.
- 1976—Steve Wozniak and Steve Jobs form Apple.
- 1977—The Apple II is the first PC to use color graphics.
- 1977—Beatlemania opens on Broadway. This multimedia show juxtaposes the music of the Beatles (played by four impersonators) with film clips, photographs, and news headlines from the 1960s.
- 1979—The first commercial cellular phone system begins operation in Tokyo.
- 1980—Pink Floyd performs The Wall. The shows (limited to only four cities) incorporate music, animations, giant puppets, a 35-foot wall, and the obligatory inflatable pig.
- 1981—MTV debuts.
- 1981—IBM releases its first PC.
- 1982—Star Trek II: The Wrath of Khan becomes the first film to utilize an all-digital computer graphic sequence (used to depict the “Genesis Effect”).
- 1982—Ridley Scott releases Blade Runner.

# Multimedia Timeline

- 1983—The Compact Disc is introduced.
- 1983—The Internet as we know it is created on January 1st when a standard networking protocol (TCP/IP) is adopted by all ARPANET users.
- 1984—William Gibson coins the term “cyberspace” in his novel Neuromancer.
- 1984—Apple unveils the Macintosh and introduces the general public to the mouse.
- 1985—Microsoft Windows version 1.0 hits the streets.
- 1985—The Commodore Amiga combines advanced graphics, sound and video capabilities to create the first true multimedia computer.
- 1986—The Academic American Encyclopedia becomes the first CD-ROM encyclopedia.
- 1988—Macromind (now Macromedia) releases Director, a multimedia authoring tool.
- 1989—British physicist Tim Berners-Lee proposes a global hypertext system, the World Wide Web. During the next few years, he will develop the standards for URL, HTML, and HTTP.
- 1991—The World Wide Web makes its debut on the Internet.
- 1991—James Cameron releases Terminator 2: Judgment Day. The film sets a new standard for the use of computer-generated special effects.
- 1991—The MP3 digital audio compression format is invented at the Fraunhofer Institute, a German research lab.
- 1992—MS Windows version 3.1 is released.
- 1992—Hypertext markup language (HTML), debuts, giving anyone with an interest the tools to build their own Web page.

# Multimedia Timeline

- 1993—Mosaic, the first graphical Web browser, is released.
- 1993—The Internet's first radio station (imaginatively named Internet Talk Radio) begins broadcasting.
- 1993—Wired debuts. The magazine, which chronicles the growing cyberculture, bends many traditional graphic design rules.
- 1994—The Rolling Stones become the first major band to broadcast a live performance over the Internet.
- 1995—Xing Technologies releases StreamWorks, the first 24-hour live streaming audio and video broadcast system for the Internet. Xing is bought by RealNetworks in 1999.
- 1995—Disney releases Toy Story, the first feature-length movie totally comprised by computer graphics. The 77-minute film takes four years to make, and 800,000 machine hours to render.
- 1996—Affordable digital cameras become widely available.
- 1996—DVD video is introduced.
- 1998—Saehan-Eiger Labs releases the MPMan F10/F20, the first portable MP3 player.
- 1999—SETI@home is set up by the University of California at Berkeley to search for signs of extraterrestrial communication, the project uses millions of volunteer computers to create a low-cost supercomputer.

# Multimedia Timeline

- 1999—Napster debuts, allowing users to download (and share) their favorite MP3s. The service puts peer-to-peer computing on the map, enabling individual computers to interact with each other, instead of downloading from a centralized server. Napster also becomes the focal point in a battle royal over copyright and intellectual property in the wired age.
- 1999—RSS (Really Simple Syndication) is officially introduced. The format allows instant syndication of news and other content, and will pave the way for the rapid rise of blogs and podcasts.
- 2001—Apple introduces iTunes (January) and the iPod (October).
- 2003—Rapid adoption of flat screen monitors and TVs due to their falling price.
- 2004—Korea updates phone network to 3G.
- 2006—Japan updates phone network to 3G.
- 2006—First town to offer free citywide WiFi in USA.
- 2007—The iPhone is released.
- 2008...We live on the edge of the future

# What is Multimedia

- We can subdivide the field of multimedia into the following areas:
  - Multimedia Content
  - Multimedia Computing
  - Multimedia Communications
  - Multimedia Applications

# Multimedia Content

- Multimedia content can be divided into **linear** and **non-linear** categories.
  - Linear content progresses without any navigation control for the viewer such as a cinema presentation.
  - Non-linear content offers user interactivity to control progress as used with a computer game or used in self-paced computer based training.

# Multimedia Computing

- Multimedia computing refers to the hardware and software and includes:
  - I/O devices
  - OS
  - storage systems
  - streaming media middleware
  - continuous media representations
  - media coding
  - media processing

# Multimedia Communications

- Multimedia communications refers to the transmission of the content through the system and includes:
  - real-time protocols
  - end-to-end streaming
  - resource allocation
  - multicast protocols

# Multimedia Applications

- Multimedia applications refer to the software to create and control the multimedia system and includes:
  - content creation
  - content management
  - content publishing
  - media players

# Uses of Multimedia

- What are the uses of multimedia?
- What examples can you think of?

# Categories of Multimedia

- Prototype multimedia systems and platforms
  - Demo of computer programs for user testing and interface design
- Education and training
  - Computer aided instruction
  - Distance and interactive training
  - Multimedia Encyclopedias

# Categories of Multimedia (2)

- Operations
  - Command and control
  - Process control
  - CAD/CAM
  - Air traffic control
  - On-line monitoring
  - Multimedia security systems

# Categories of Multimedia (3)

- Public
  - Digital libraries
  - Electronic museums/archives
  - Network kiosk systems
    - medical
    - legal
    - banking
    - shopping
    - tourist

# Categories of Multimedia (4)

- Home
  - Video on demand
  - Interactive TV
  - Home shopping
  - Remote home care
  - Electronic album
  - Personalized electronic journals

# Categories of Multimedia (5)

- Business/Office
  - Executive information systems
  - Remote consulting systems
  - Video conferencing
  - Multimedia mail
  - Multimedia documents
  - Advertising
  - Collaborative work
  - Electronic publishing

“It's as large as life, and twice as natural!”

Lewis Carroll, Through the Looking-Glass

