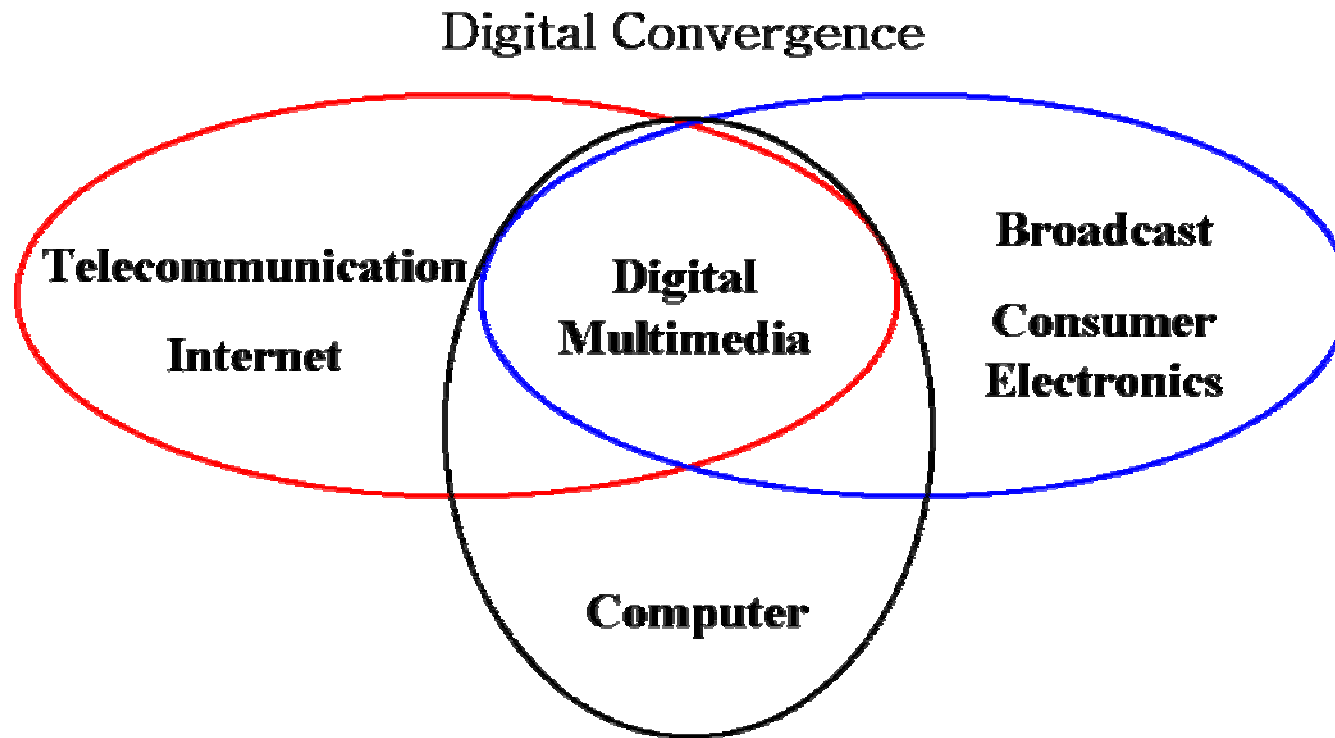


Signals and Noise

 Hoon Yoo, Ph.D.

Introduction

- Multimedia = digital media + digital media + ...
- Digital convergence is in progress.
- Multimedia is a key in the digital convergence.

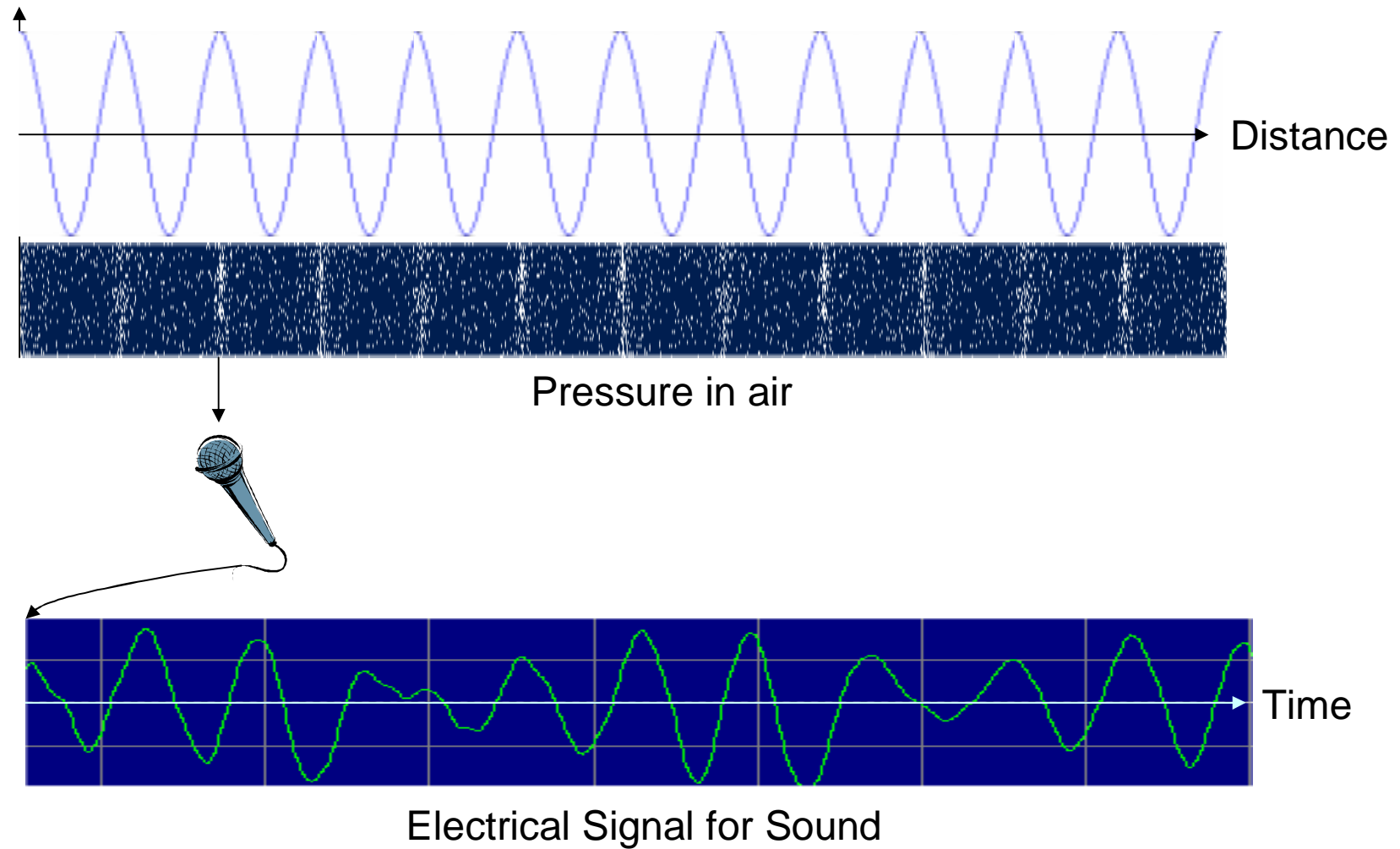


What is media

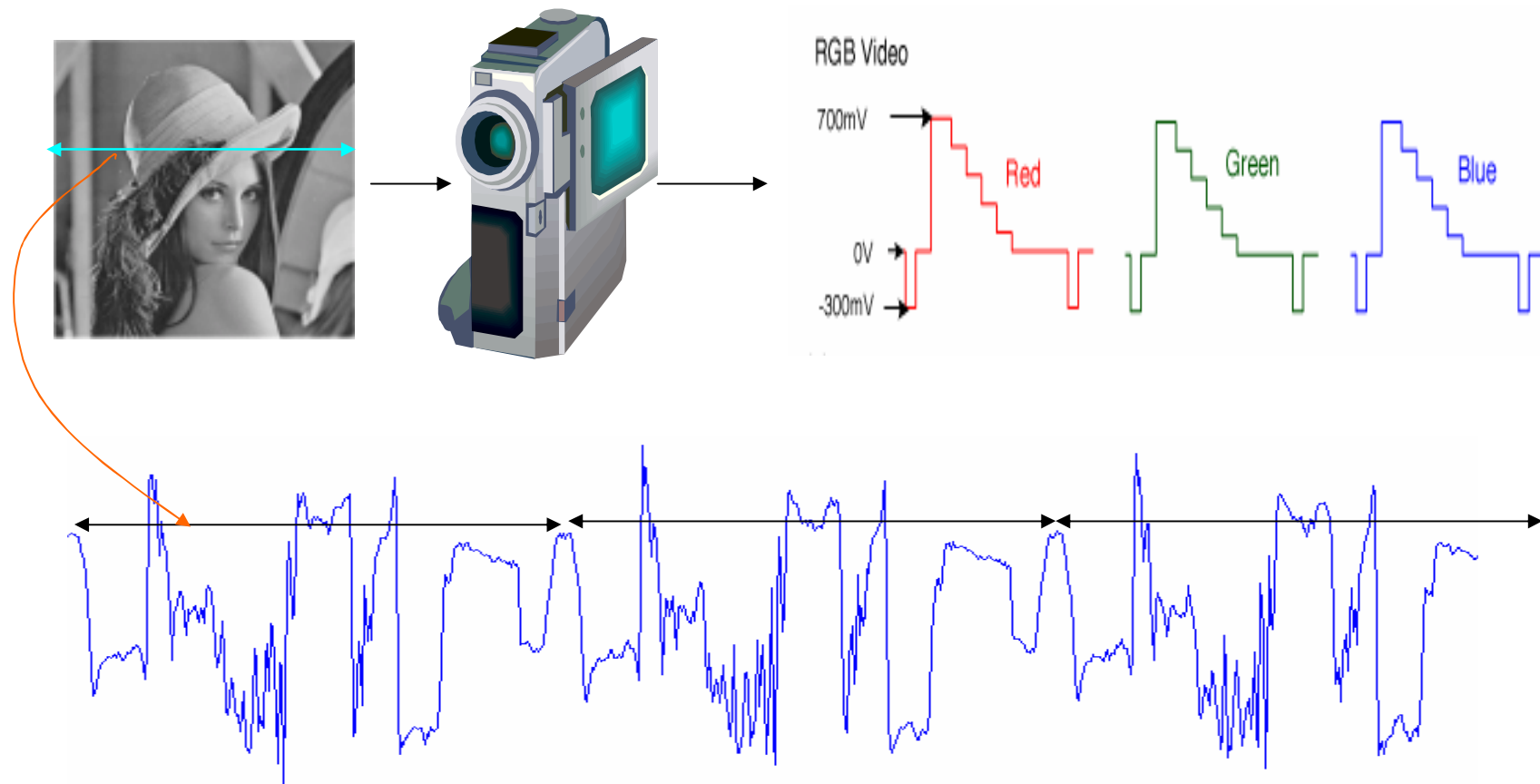
- Analog types of media
 - Sound : vibrations
 - Light : electromagnetic waves
 - Chemical materials : smell, taste, etc
 - Heat : an energy
 - Magnetic
 - Electricity

=> Analog media can be converted to an electric signal

Analog Sound Signals



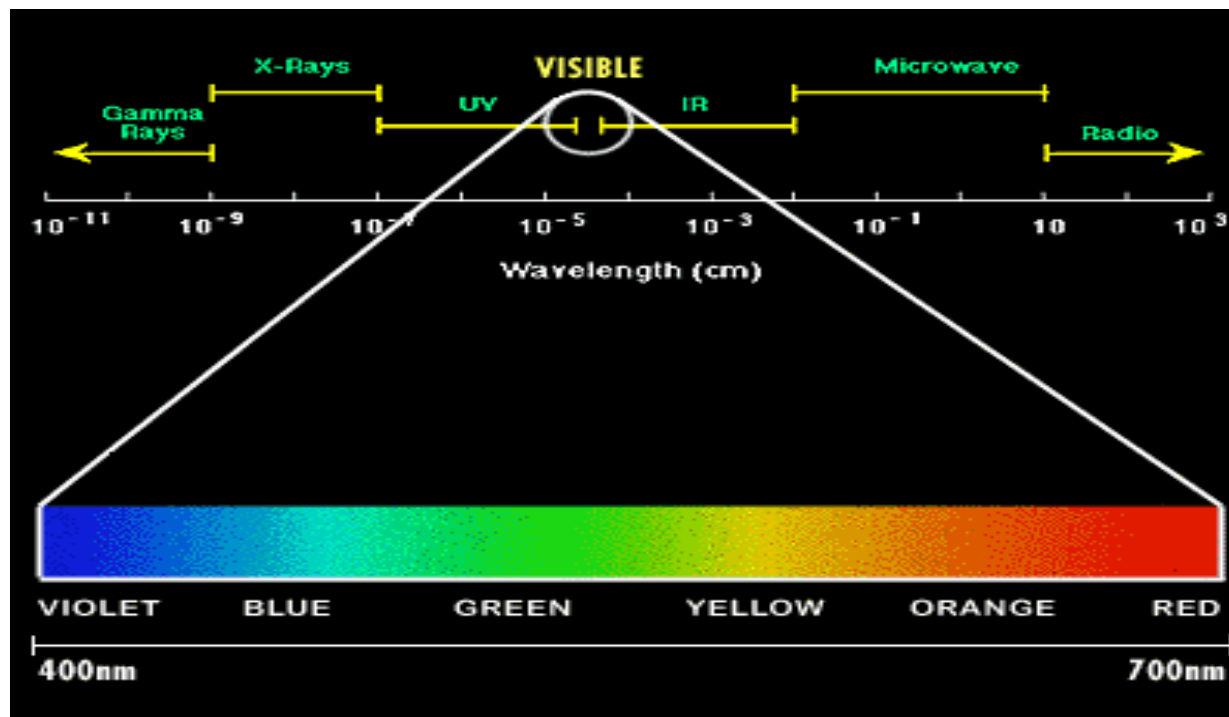
Analog Image Signals



Electrical Signal for Image

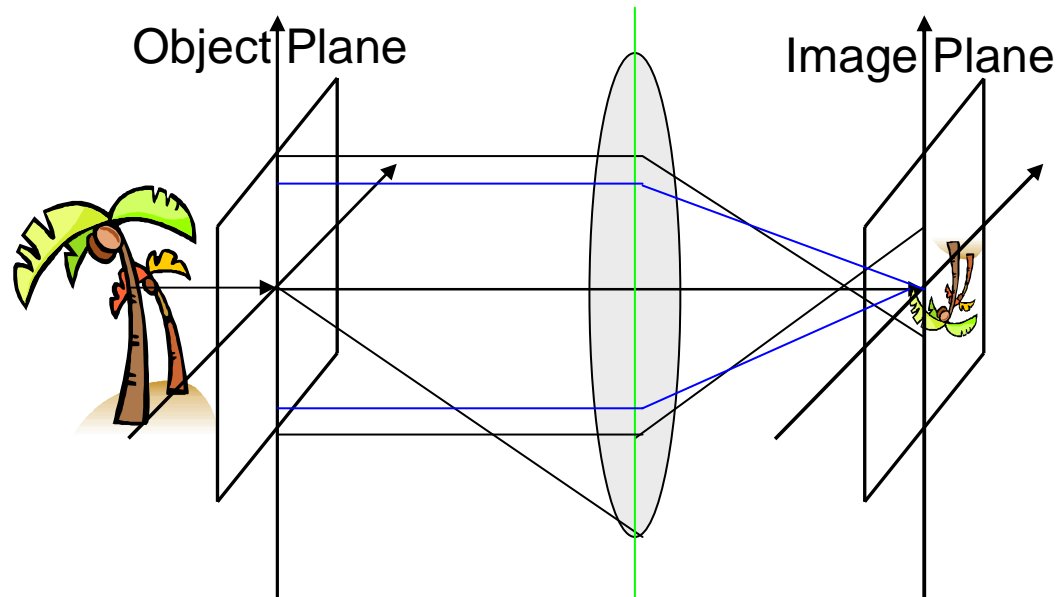
Analog Image Signals

Human can detect the range below



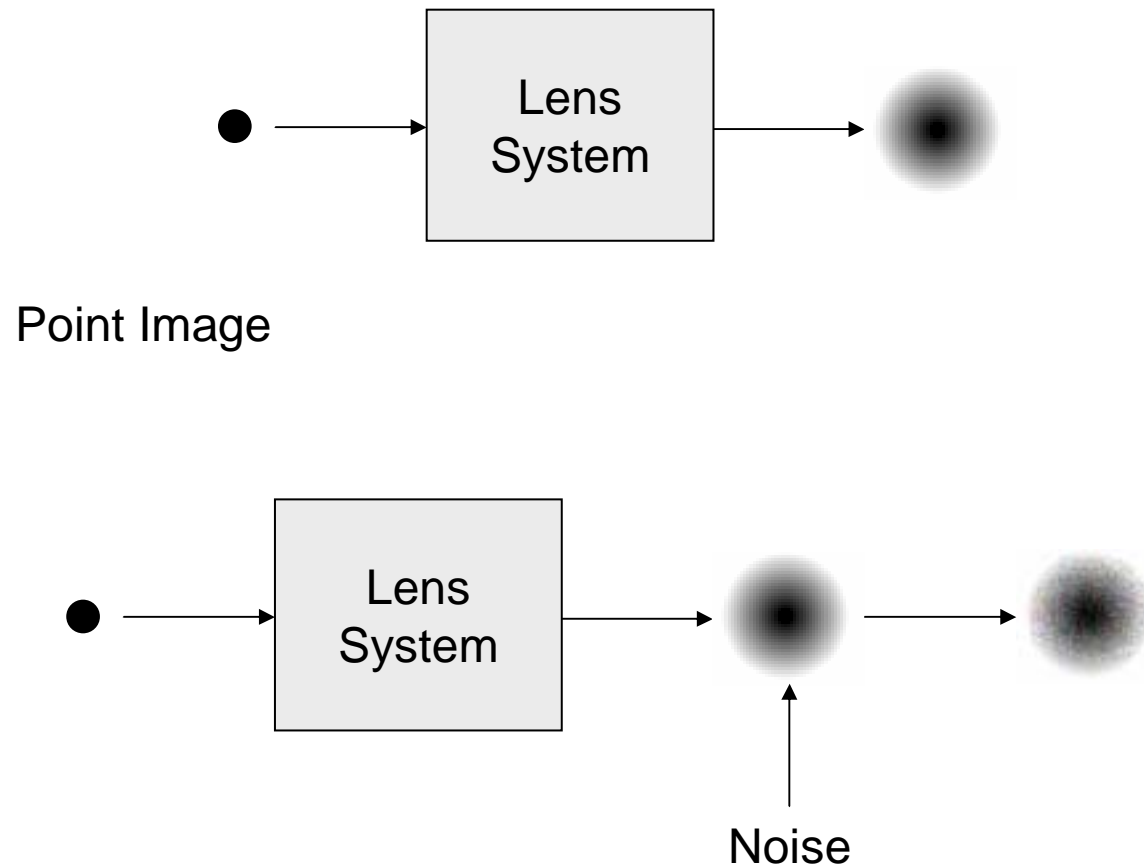
Basics of Optics Systems

- Lens used in both human image system and machine image system



Basics of Optics Systems

- Noise must be in analog systems



Summary

- Digital Convergence
- Analog Signals
 - Sound, Image, etc
 - Electrical devices such as sensors convert physical signals to electrical signals
- Lens system is essential to image systems
- Noise must exist in image systems