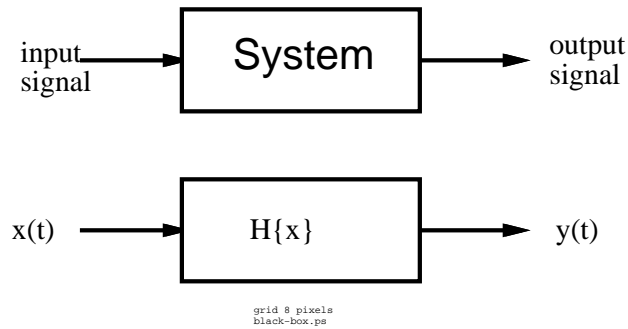


Signals and Systems: Top-Down, the Black Box



Information Storage and Transmission

measure y , find x . $H\{\}$ given or inferred

Examples: radio, TV, compact disk, cellular phone, pager, tape recorder, telephone, satellite communication, computer vision, speech recognition

System Identification

specify x , measure y , find $H\{\}$

Examples: medical imaging such as MRI and CAT scan, geophysics, structural identification

Control

given $H\{\}$ and y , specify x to get desired y

Examples: air plane control, speed regulation, process control, hard drive head control, automobile control

Signal Processing

given x , design $H\{\}$ to get desired y

Examples: filtering, noise cancelling, speech and music synthesis, computer graphics, speech and image compression