Biometrics - the automated recognition of individuals using physical traits or behavior patterns.

Physical - iris,fingerprint

Behavioral - eye movement, signature

\*Every behavioral trait has a physical aspect to it.

* Biometric recognition - verification and identification
* Verification: 1-1 matching. Is this image the same person? Take two biometric samples and ask if they are from the same individual.
* Identification: Take a face image and run it through a database of face images and find out which one is the best match.
* Biometrics can provide negative identification. (I am not he.) Used in a large-scale application called De-Duplication.
  + Ex: Getting a driver’s license. Check to see if you are already in the database.
* Probe Image: is the input image that you provide to the system when you interact with it.
  + Ex: place finger on scanner. This is the probe fingerprint.
* Gallery database: the database of biometric data.
  + Gallery sample - a sample that is in the database which was provided at the time of enrollment.

Real Word Comparison

* Compute the similarity or dissimilarity between two instances of biometric data corrupted by noise.
* Compute the ratio between the likelihood of the two images originated from the same individual to the likelihood that they originate from different individuals.
* Forensic comparison: humans will be involved.
* Biometric comparison: automated by machines,algorithms.
* What happens when you turn off the lights and are using biometric recognition?
  + System can use infrared light.
  + Near infrared
* Confidence of the match score.
  + Match score is an assigned number based on algorithm success.

Biometric Traits/Modality: fingerprint, palm print, vasculature(hand vein pattern), hand geometry, signature, face, dna, eye white(scholera) - blood vessel patterns, ear, typing pattern, dental/teeth map, walking gait, sound/voice, iris, heartbeat(electro cardiogram).