Fake News

Professor Donald Greenberg

Lecture #

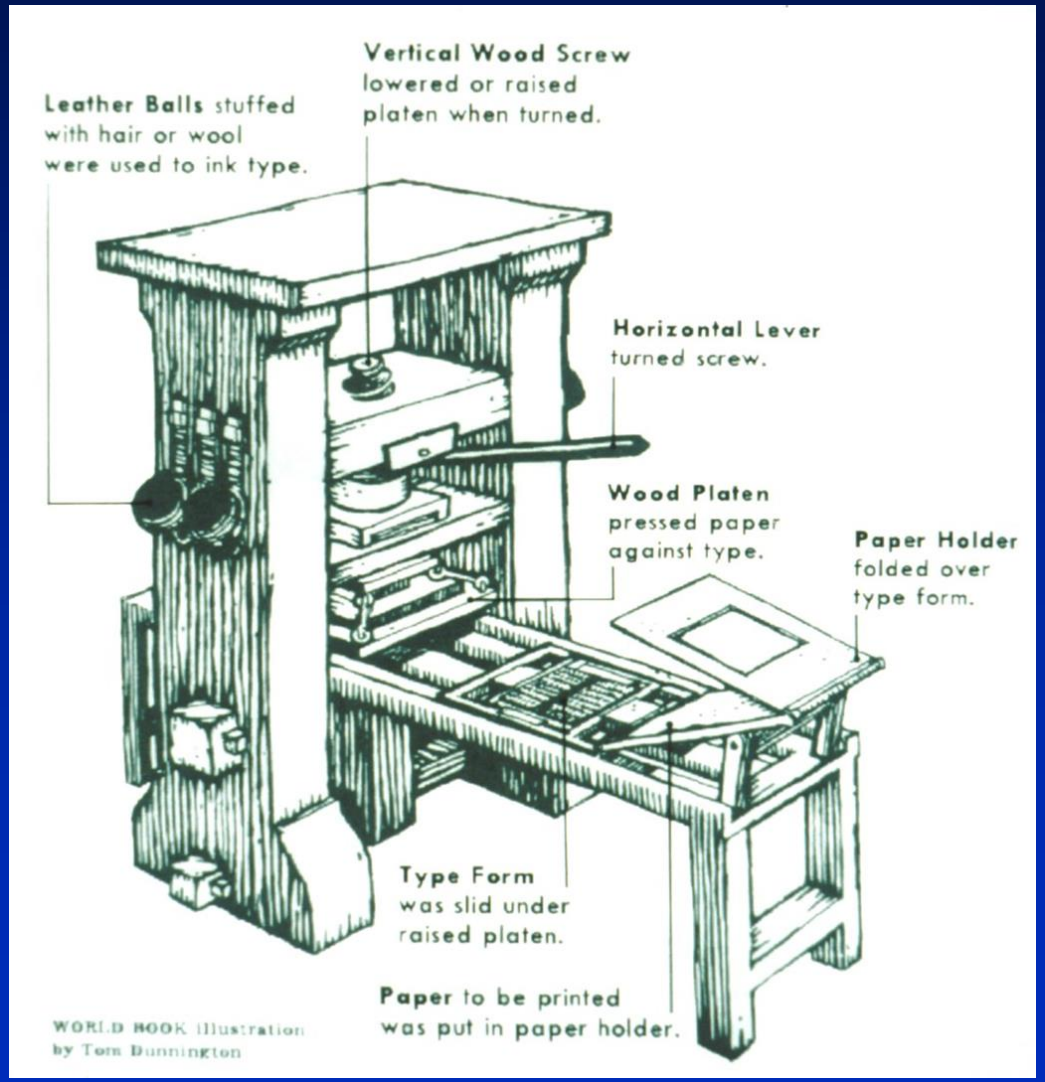
December 10, 2020

Seeing is Believing
OR IS IT?

Law of Unintended Consequences

A key characteristic that is often neglected is time from event occurrence to receipt of news

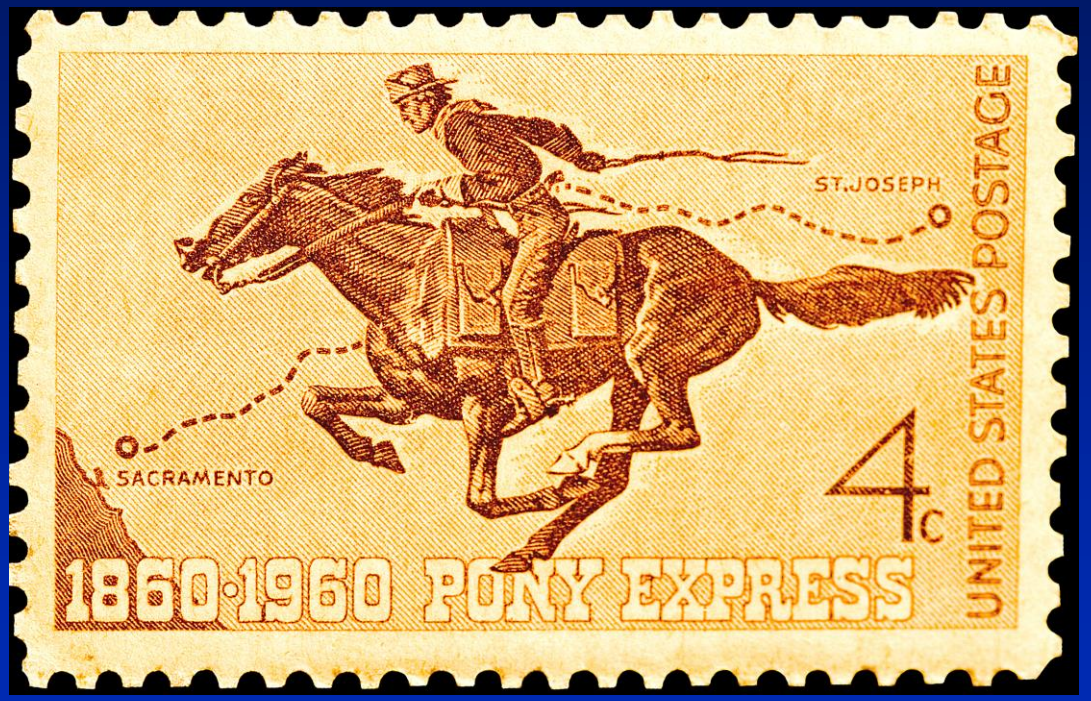
Gutenberg Press 1440-1450



Clipper Ship ~1850s

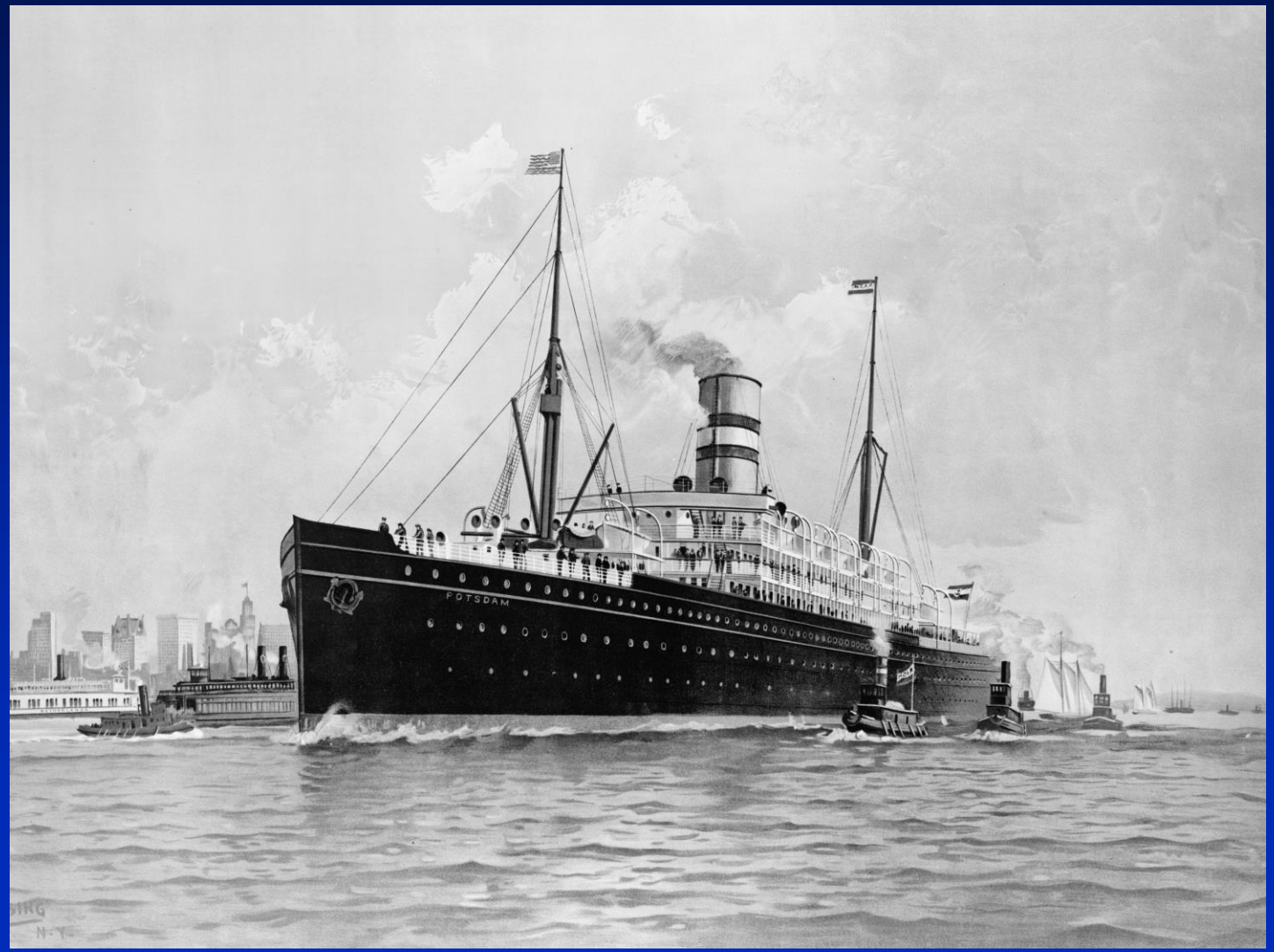
Pony Express

1860

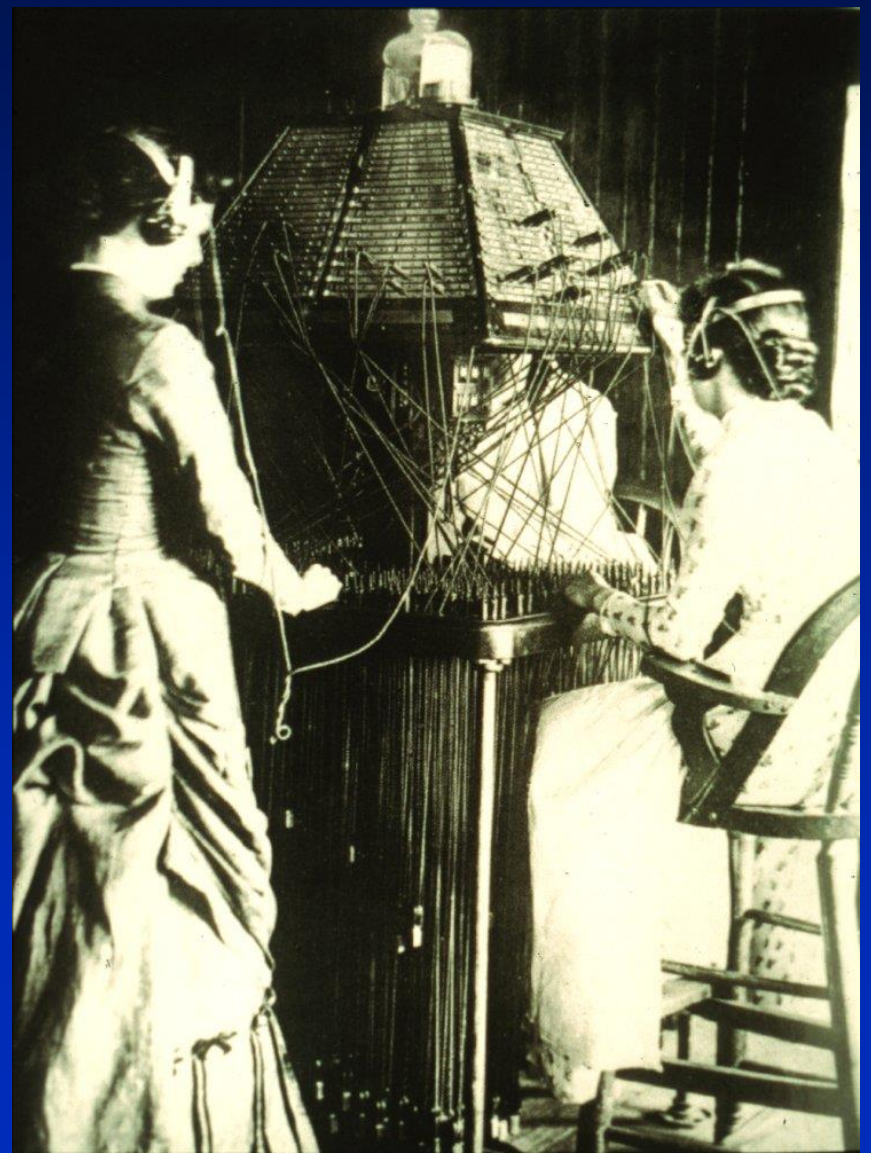


Steamship

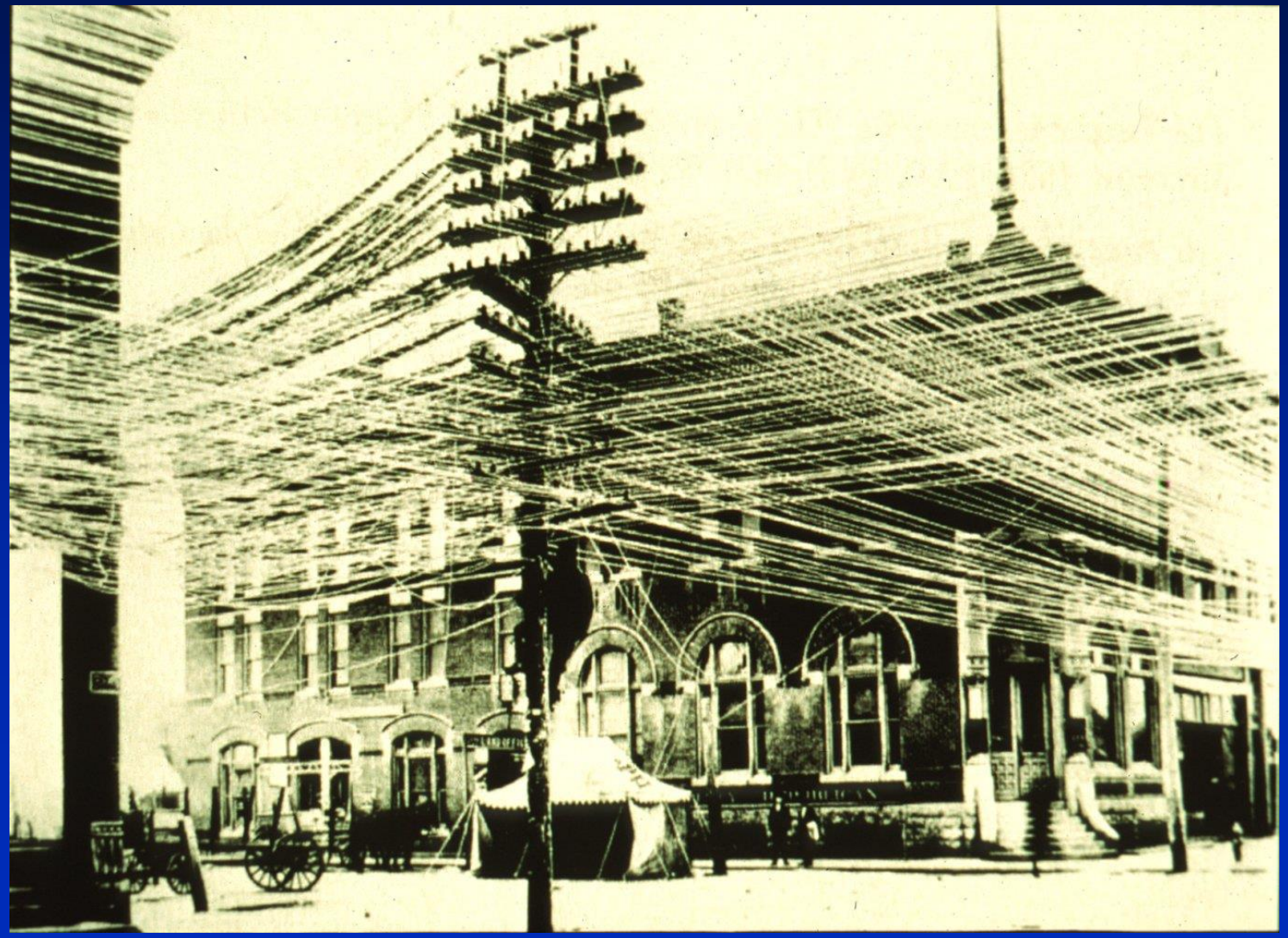
Late 1800s



Telephone Switches Early 1900's



Telephone Switched Networks Early 1900's



BW TV

Color TV 1954

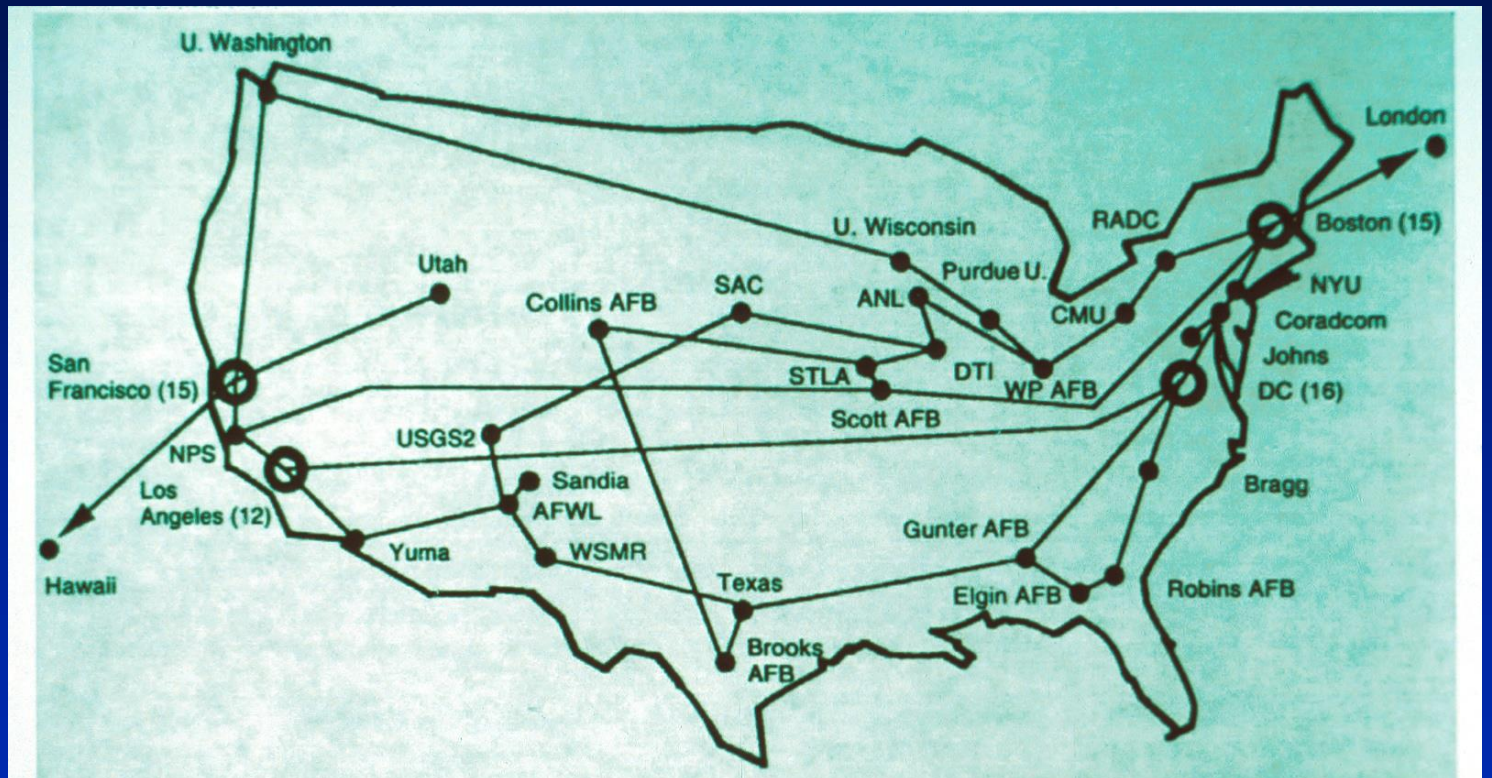
David Sarnoff, April 20, 1939

Rose Bowl, January 1, 1954

History Of The Internet ARPA Team 1969

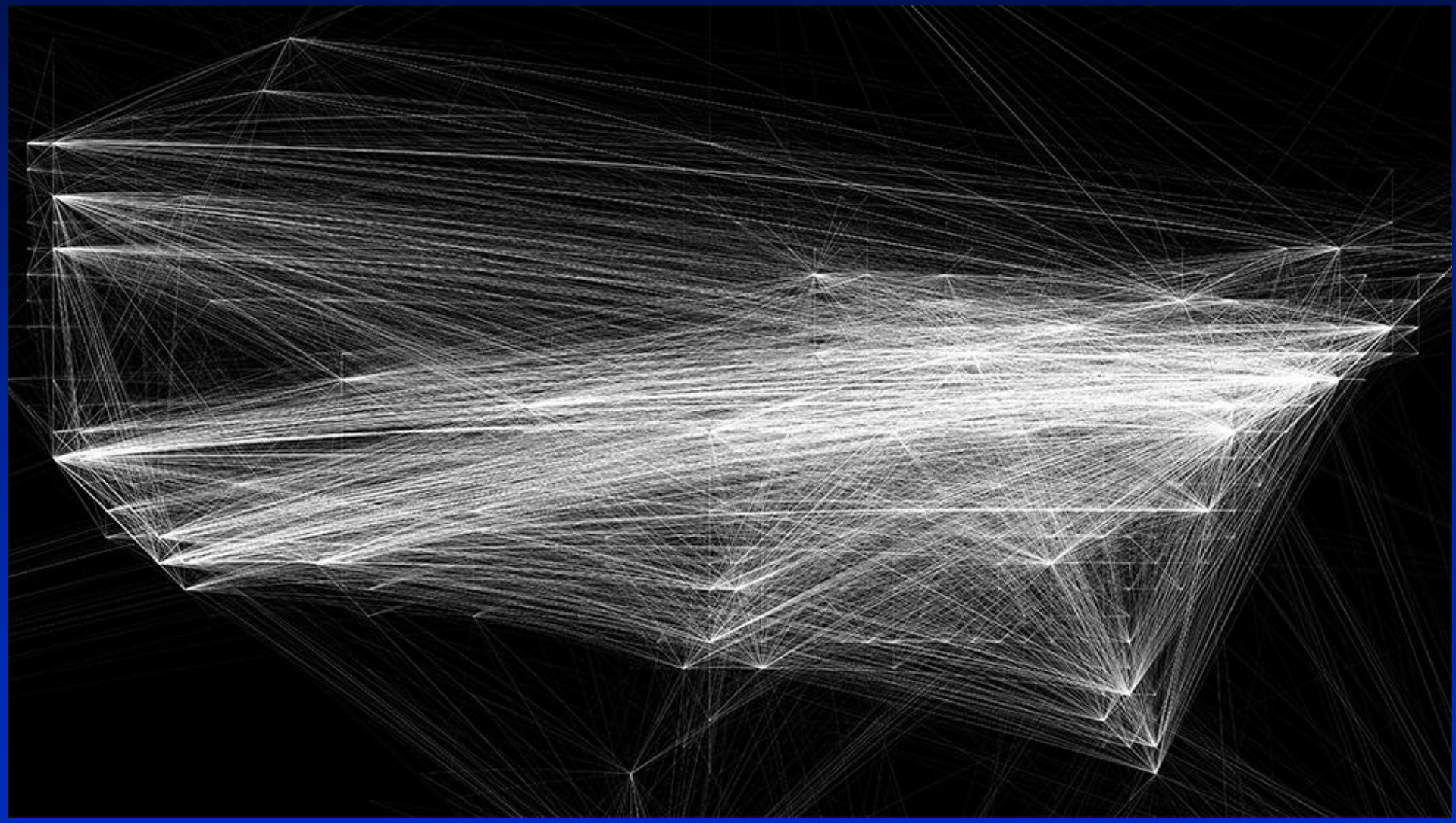
ARPAnet

Circa 1980



AFB = Air Force Base
AFWL = Air Force Weapons Lab
ANL = Argonne Nat'l Lab
Bragg = Fort Bragg
Coradcom = Communication Command, Fort Monmouth
CMU = Carnegie Mellon University
DC = District of Columbia
Johns = Johns Hopkins University
NYU = New York University
NPS = Naval Postgraduate School
RADC = Rome Air Development Center
SAC = Strategic Air Command
Sandia = Sandia Nat'l Lab
USGS2 = US Gov't Service 2
WP = Wright Patterson
WSMR = White Sands Missile Range

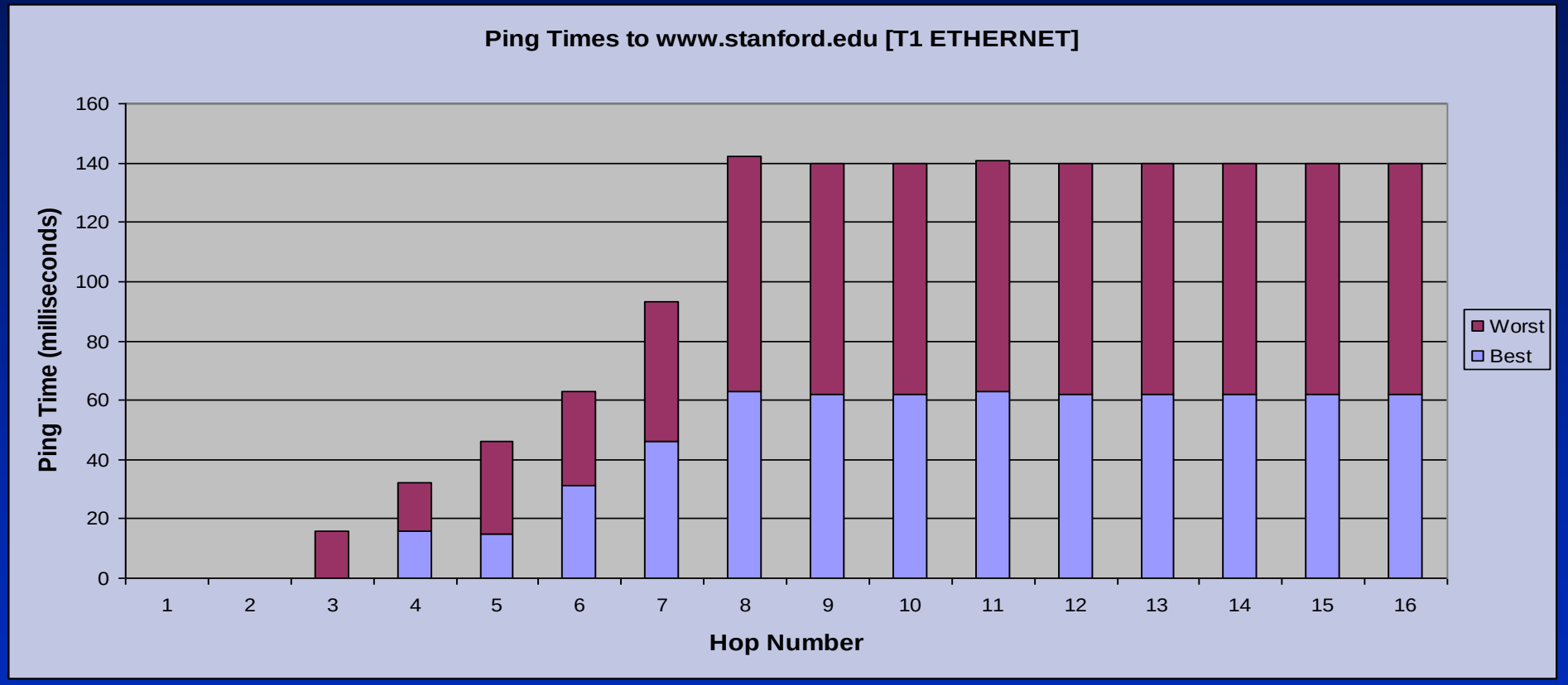
North American City to City Connections 2010



http://chrisharrison.net/projects/InternetMap/, September 2010

Internet Ping Times

Stanford - MIT



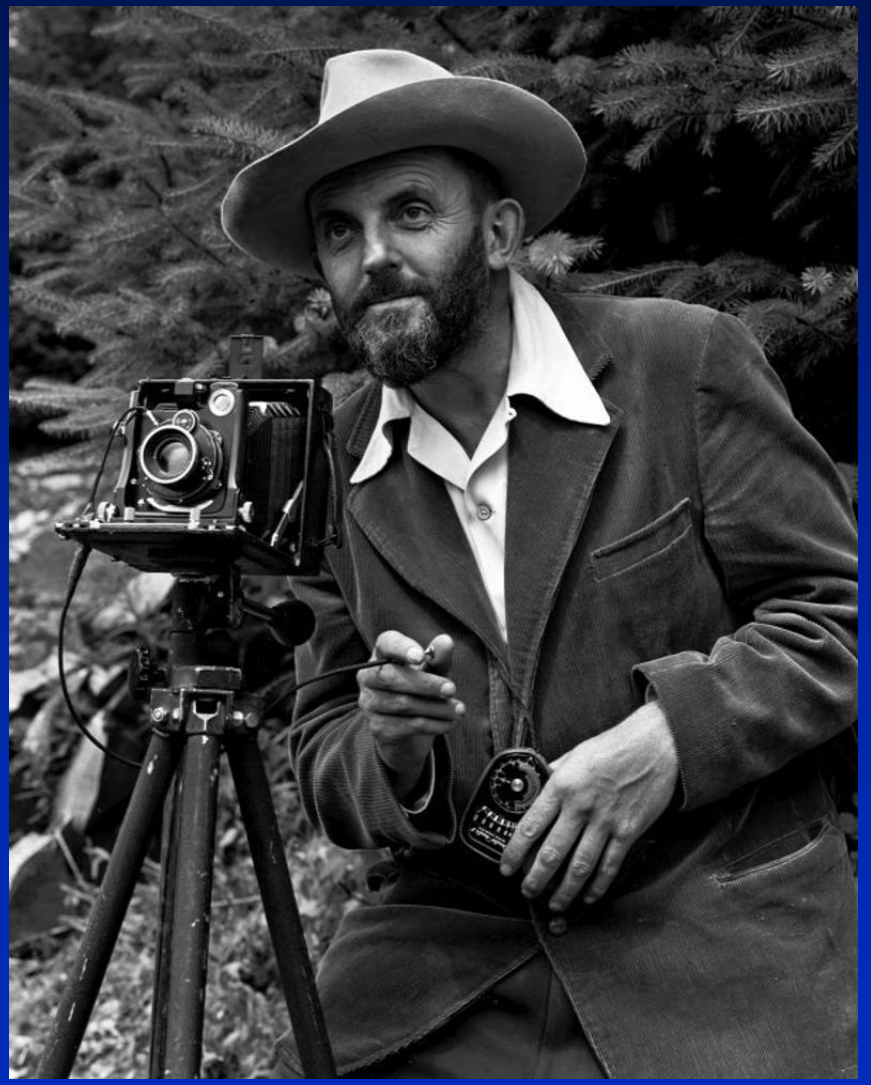
Ping Test

Ping Test Link

Imaging Ethics and Photojournalism

Is it OK to modify the images for artistic reasons?

Ansel Adams 1902-1984

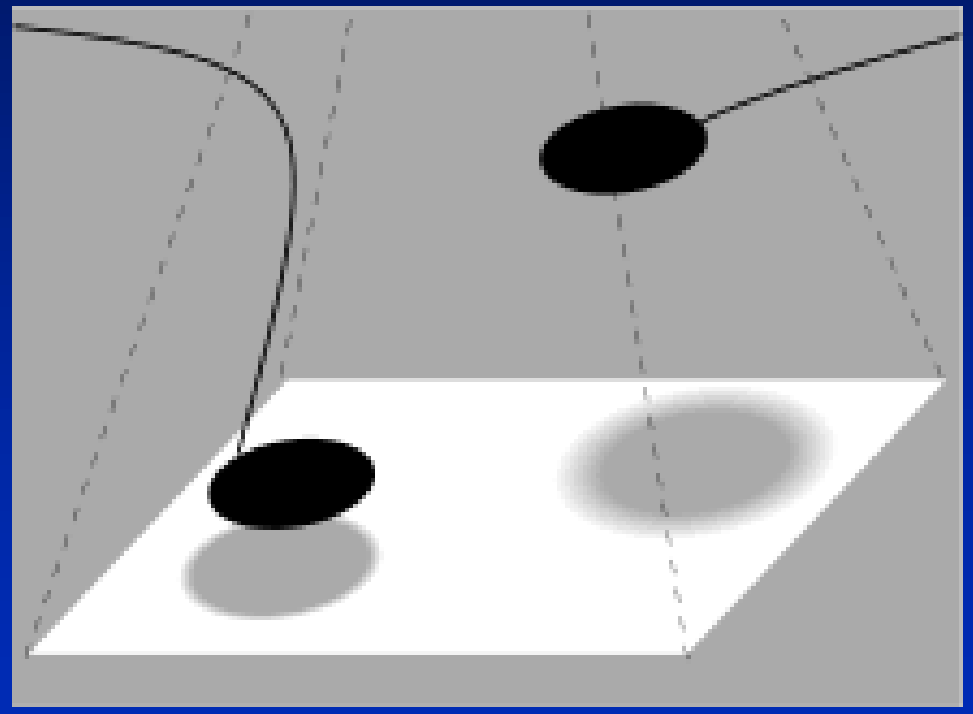


Dodging (Ansel Adams)

Ansel Adams. THE PRINT, 1983, Trustees of the Ansel Adams Publishing rights Trust.

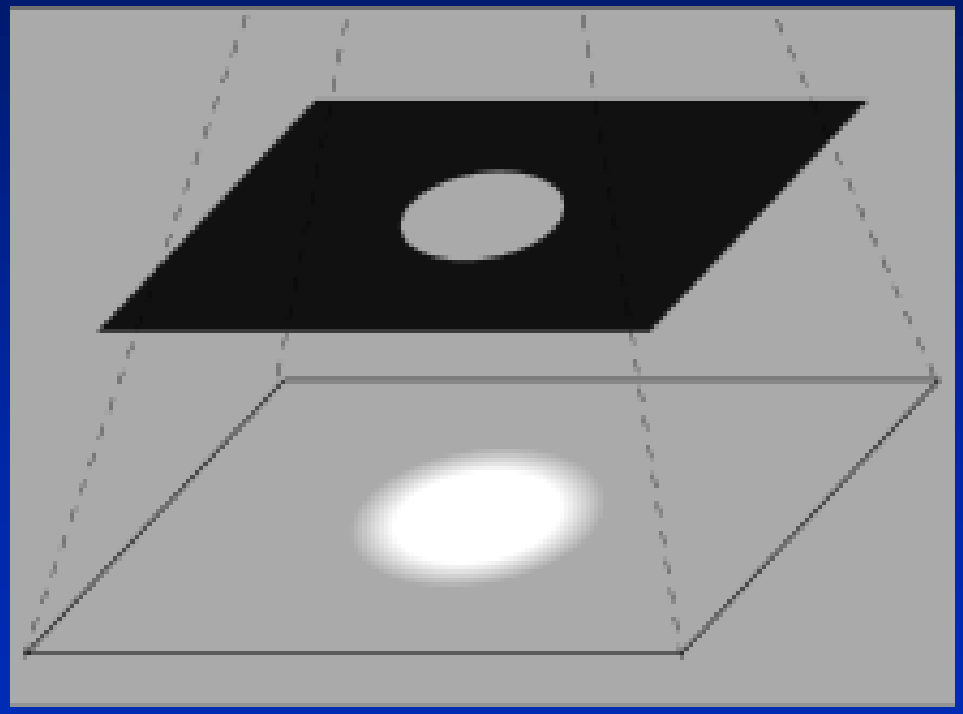
Dodging and Burning

Dodging and Less Exposure



Print is lighter

Burning and More Exposure



Print is dark

Moon and Half Dome

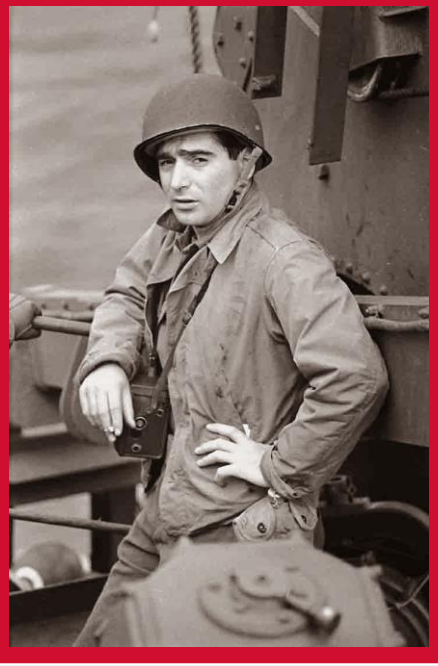
Ansel Adams

How can you determine whether a photograph or an image is authentic?

Real or Fake?

Magnum Photographers

Robert Capa



Henri Cartier-Bressone

- Organization was founded on the ideal that photographs must not be altered, cropped, or manipulated in any form.

D-Day WWII

Robert Capa

D-Day WWII

Robert Capa

D-Day WWII

Contact Sheet

Robert Capa

D-Day WWII

Robert Capa

Magnum

Robert Capa

Magnum

Henri Cartier Bresson

Is it OK to modify the images for political reasons?

Fake news is not new!

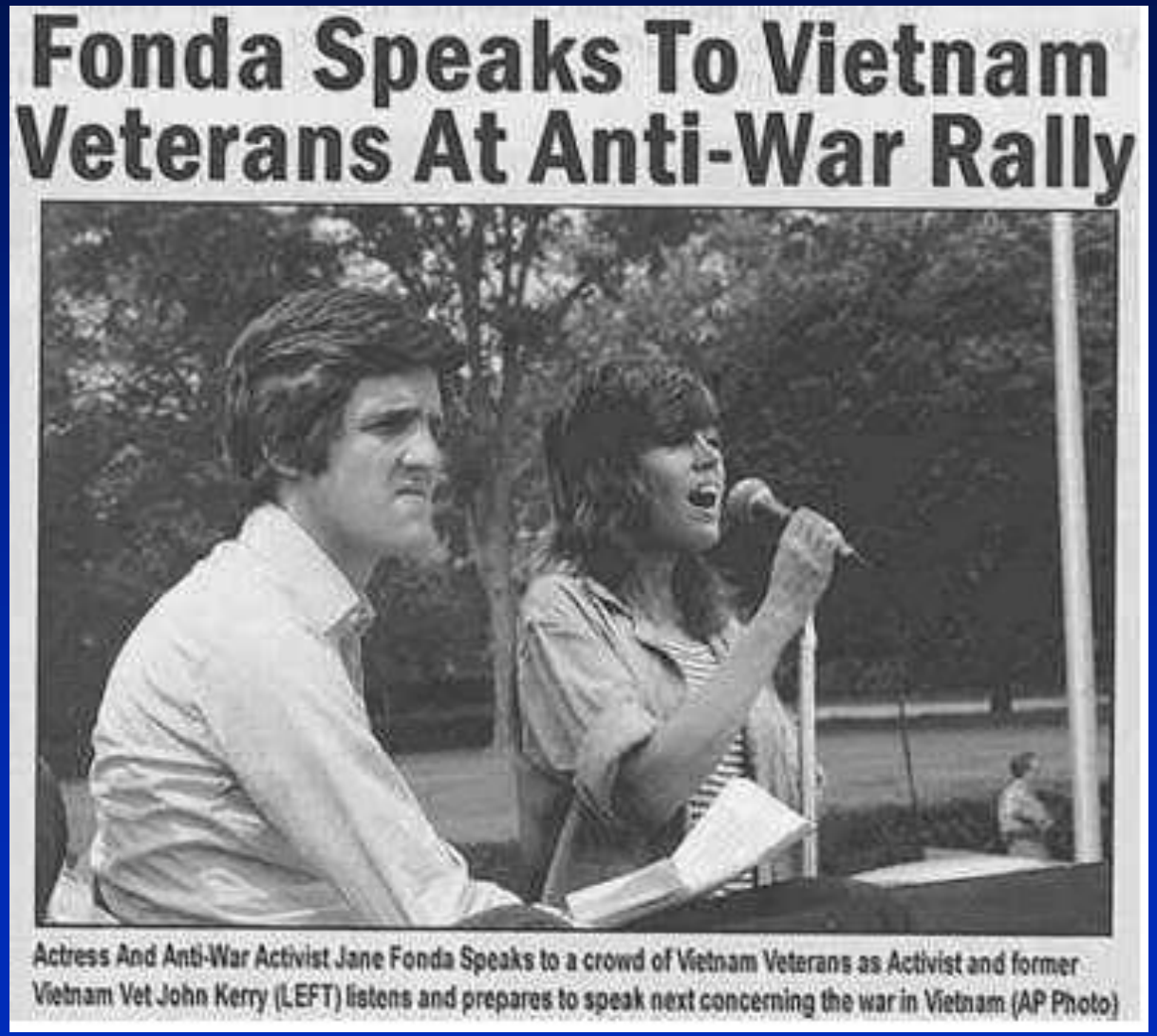
Stalin & Trotsky 1919

http://www.tc.umn.edu/~hick0088/classes/csci_2101/false.html

Kerry and Fonda

The picture of Senator Kerry was captured by photographer Ken Light as Kerry was preparing to give a speech at the Register for Peace Rally held in Mineola, New York, in June 1971. The picture of Jane Fonda was captured by Owen Franken as Fonda was speaking at a political rally in Miami Beach, Florida, in August 1972.

Kerry and Fonda


Fonda Speaks To Vietnam Veterans At Anti-War Rally

Actress And Anti-War Activist Jane Fonda Speaks to a crowd of Vietnam Veterans as Activist and former Vietnam Vet John Kerry (LEFT) listens and prepares to speak next concerning the war in Vietnam (AP Photo)

February 2004: This digital composite of Senator John Kerry and Jane Fonda sharing a stage at an anti-war rally emerged during the 2004 Presidential primaries as Senator Kerry was campaigning for the Democratic nomination.

http://www.google.com/imgres?imgurl=http://www.cs.dartmouth.edu/farid/research/digitaltampering/tydings1.jpg&imgrefurl=http://www.cs.dartmouth.edu/farid/research/digitaltampering/&h=297&w=370&sz=74&tbnid=cILnUj6FHAAJ:&tbnh=98&tbnw=122&prev=/images%3Fq%3DSenator%2Bmillard%2BE.%2Btydings,%2Bdoctored%2Bpicture&hl=en&sa=X&oi=image_result&resnum=1&ct=image&cd=2

O.J. Simpson 1994

http://www.tc.umn.edu/~hick0088/classes/csci_2101/false.html

Original

1994

Margaret Thatcher and George Bush
(*New York Times, Scientific American, Museum of Modern Art) 1994.*

English Version

U.S. Version

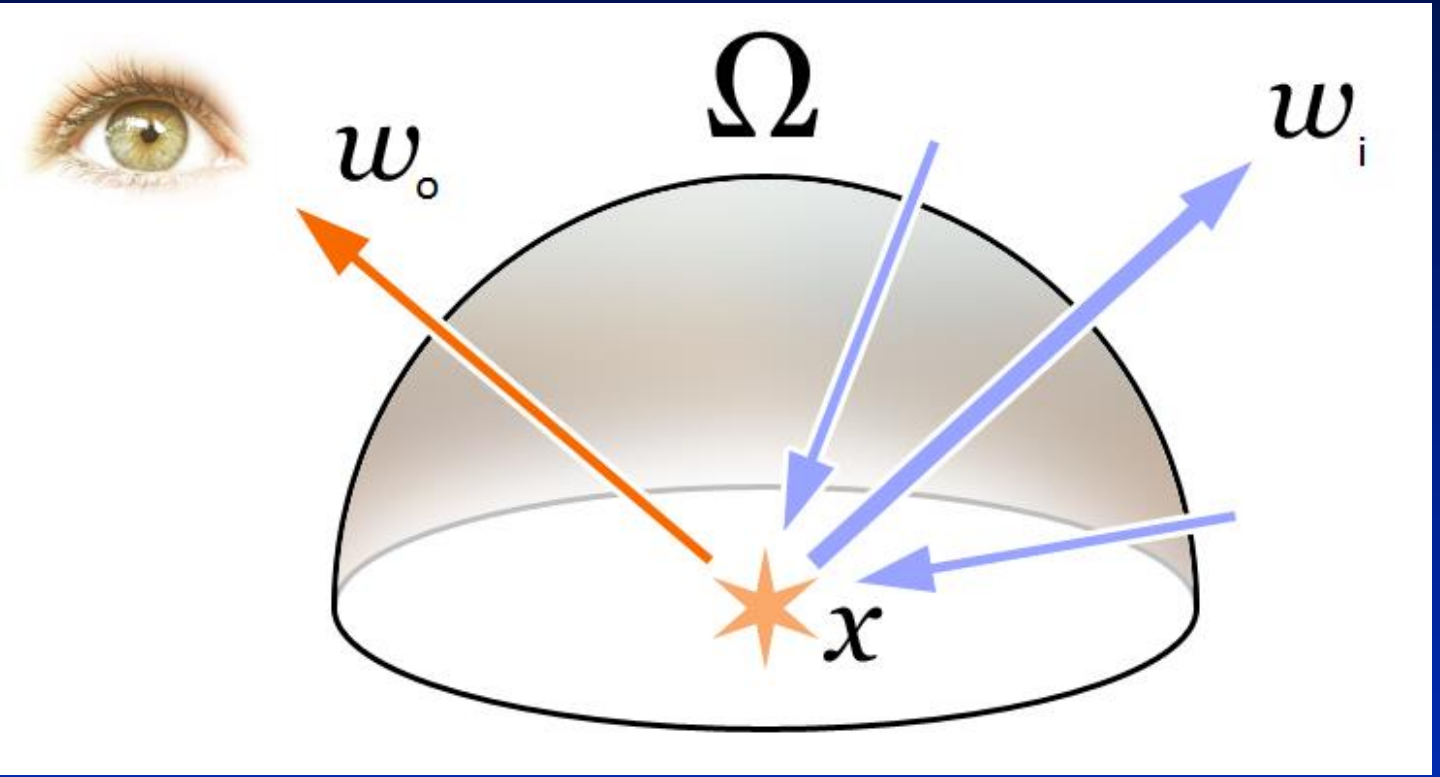
Margaret Thatcher and George Bush (*New York Times, Scientific American, Museum of Modern Art). 1994.*

How can you determine whether a photograph or an image is authentic?

Real or fake

The Rendering Equation

The rendering equation describes the total amount of light emitted from a point **x** along a particular viewing direction, given a function for incoming light and a BRDF.



Warren Court Re-evaluation 1972

- Consistency in the lighting (Compatibility of the Shadows)
- Geometrical Shape (Chin Width)
- Similarity of Objects (Rifle Shape)
- Physical Plausibility (Stance)

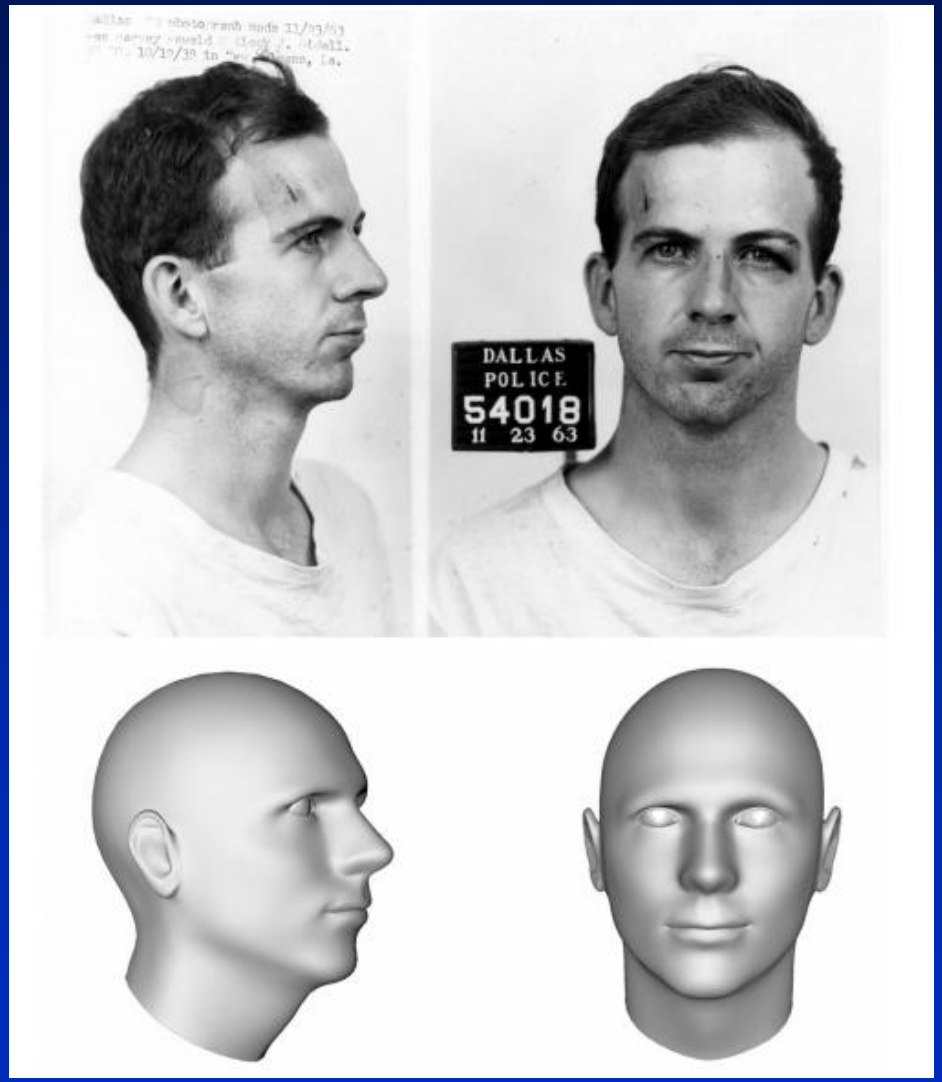
Lee Harvey Oswald

Hany Farid

Back Yard Photo

Lee Harvey Oswald

Hany Farid



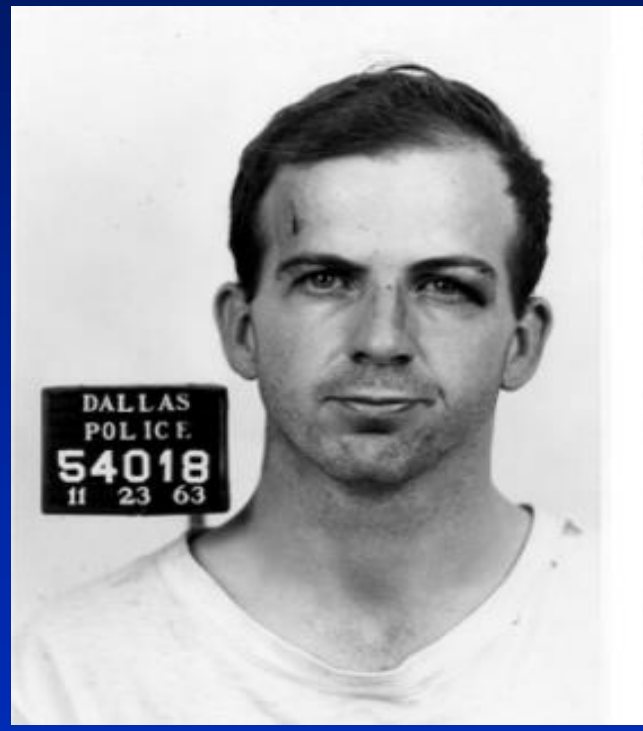
Mug Shots

Computer model using FaceGen

Lee Harvey Oswald

Hany Farid

Mug Shot



Back Yard Photo

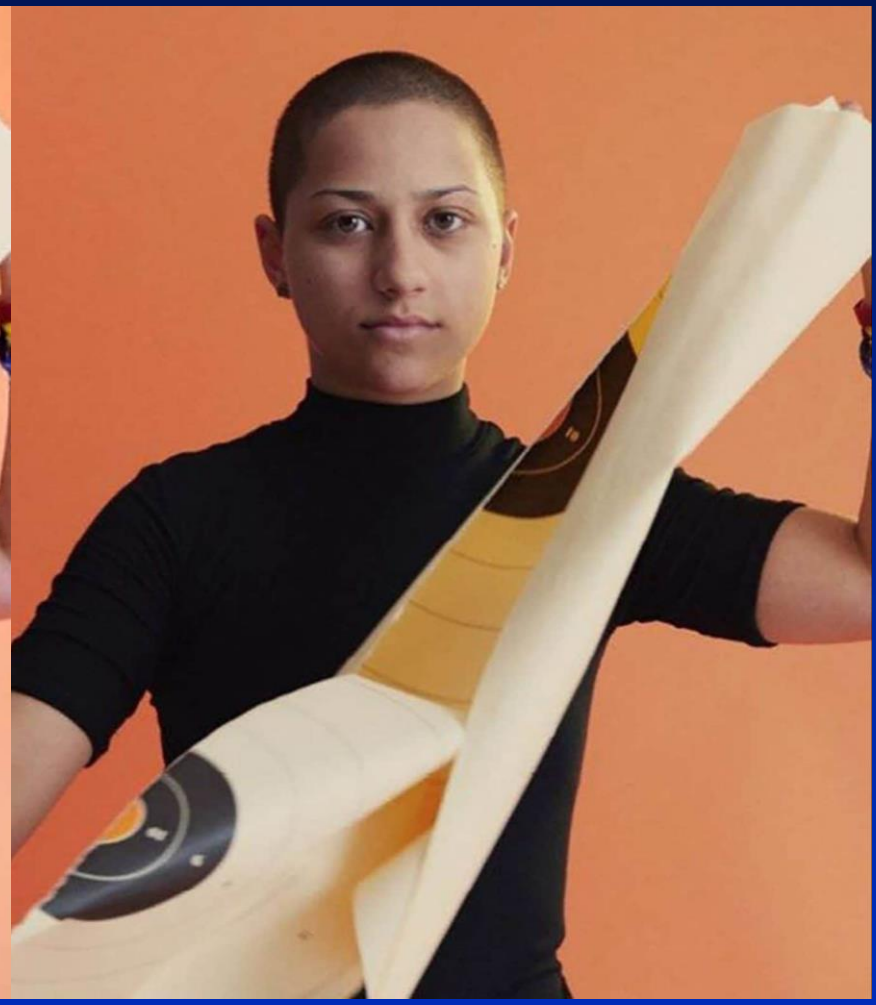
Lee Harvey Oswald

Hany Farid

What should be the ethics and rules in this age of digital photography?

Emma Gonzalez 2018

“We the People”



Target Bullseye

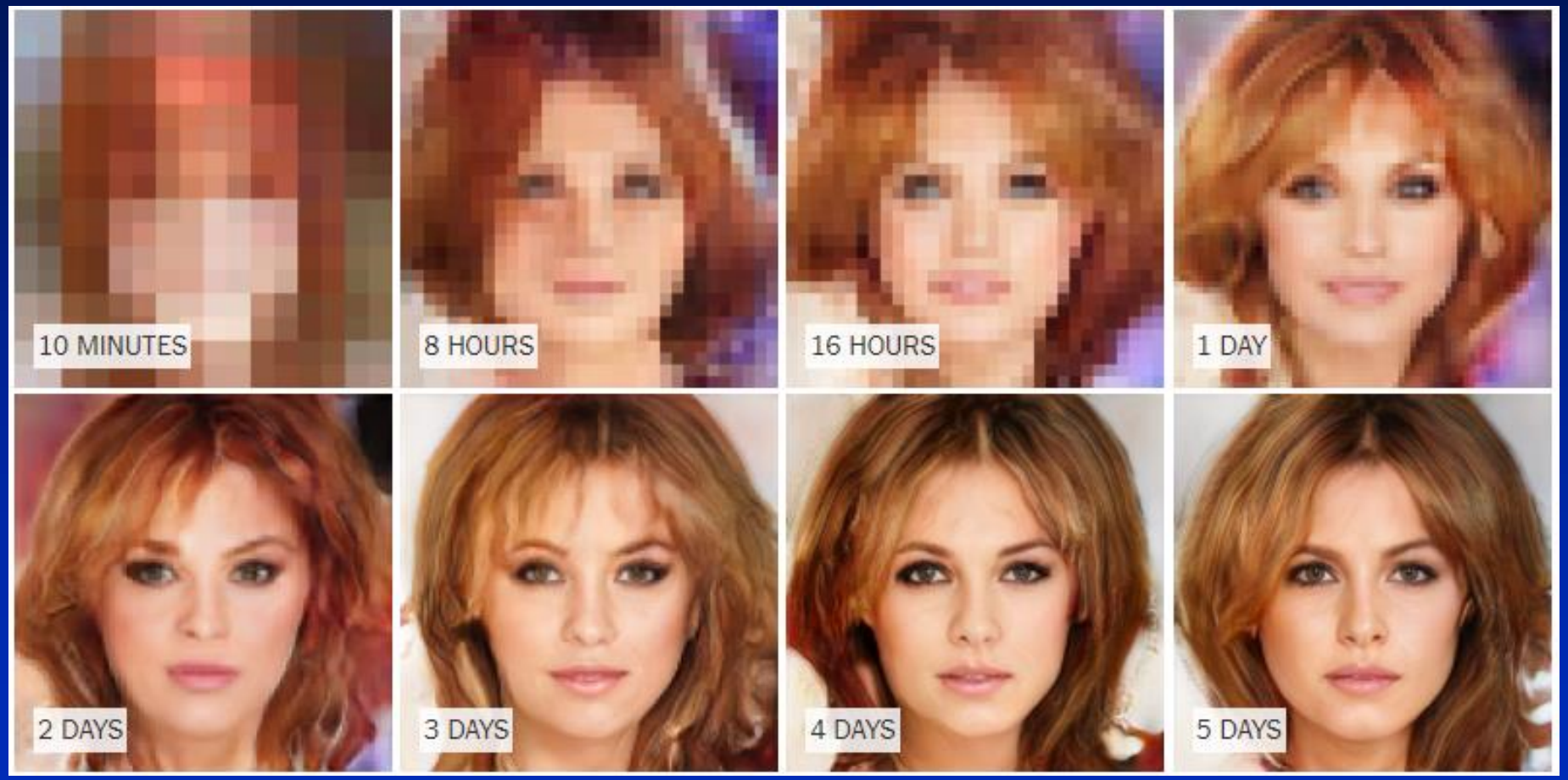
The rise of ‘Fake News’ including voice

What if the fake images have been generated by a machine?

Image Inpainting

Nvidia 2018

AI Generated Images 2018



The New York Times, 1/3/2018

NYT 2020

“Fake news travels faster, deeper, and broader than real news”

-Science, 9 March, 2018

Authenticity Summit

2/10/2020

Fighting Fake News

- Chipmaker Qualcomm and startup Truepic are testing a new feature for android phones that tags time and location when an image is captured.
- The photo-tagging code developed by Truepic run inside the secure area of a device's processor (payments, fingerprint scans, etc.)
- A major constraint is that an internet connection is required to create a verified "time stamp and location to the photos".
- Difficulties with respect to video

Who should be responsible for content distributed by carriers or social media?

“A lie can travel halfway around the world while the truth is putting on its shoes”

- *(attributed to) Mark Twain*

End…