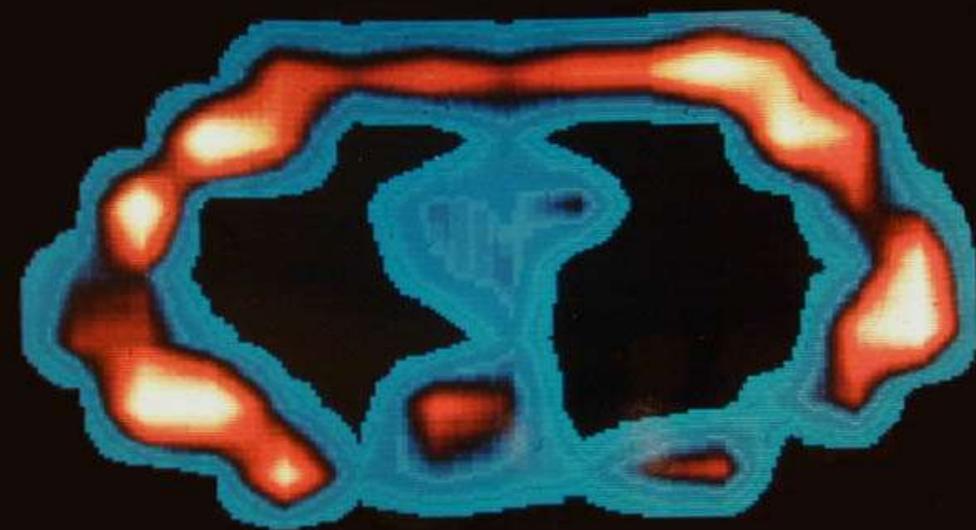# What the eye doesn't see: Invisible evidence of disease

Shinjini Kundu, MD, PhD
Research Fellow
University of Pittsburgh
Medical Center

4:45AM   July 3, 1977

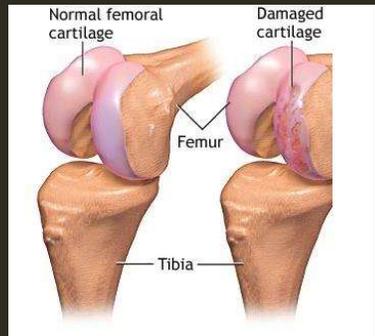FANTASTIC SUCCESS!
First Human Image
Complete in Amazing Detail
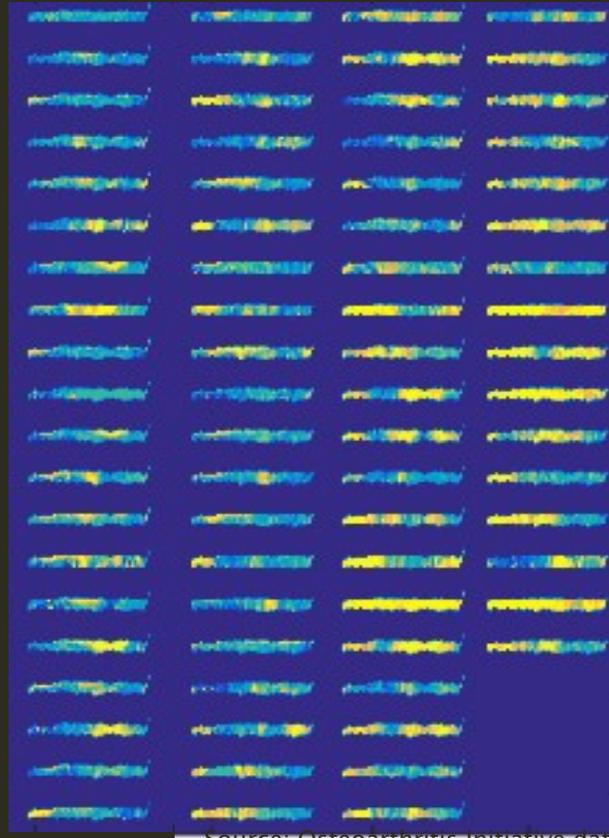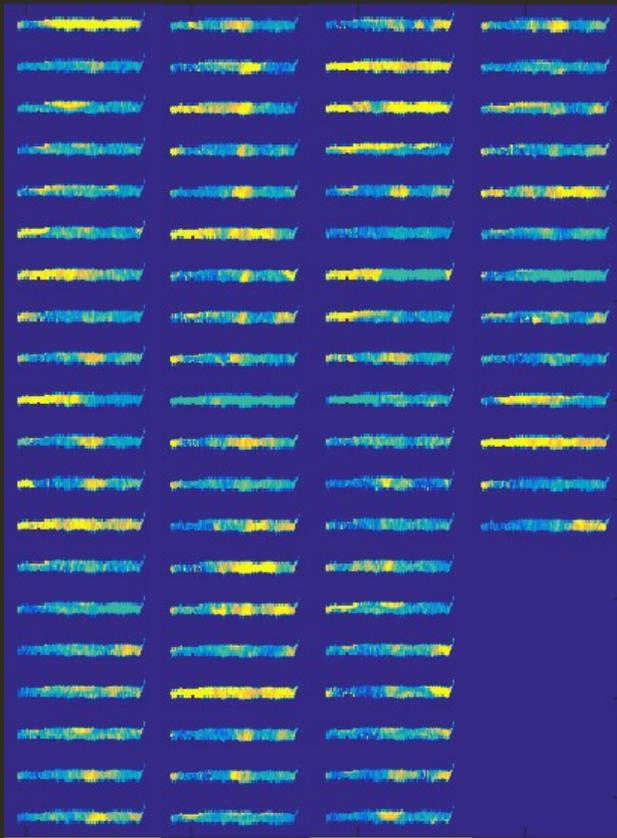
July 3, 1977

IBM Watson estimates that up to 90% of all digital healthcare data is in the form of imaging

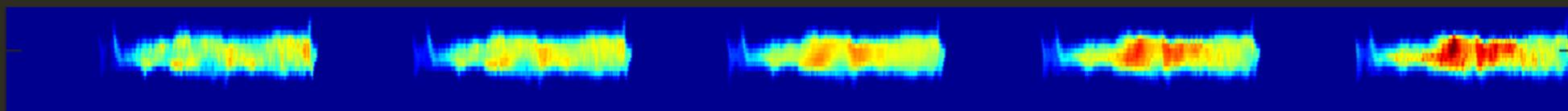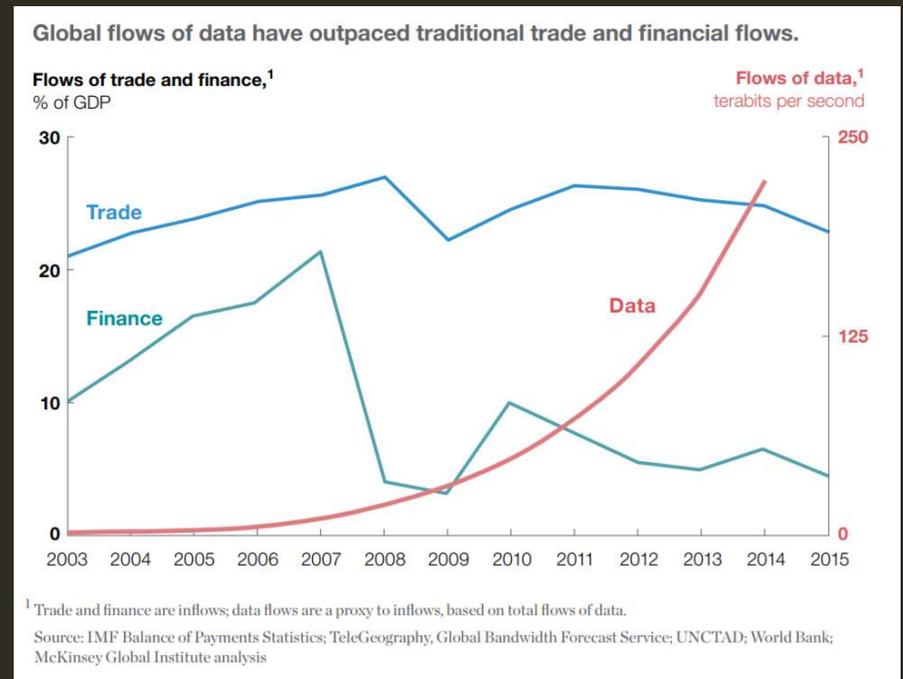Source: Osteoarthritis Initiative data

86.2%

Healthy ← ─────────────────────→ Osteoarthritis in 3 years

1. WE NEED TO BUILD DATA CORPUSES

- Cross-border data flow increasing at a rate approaching 50x that of the last decade (McKinsey Global Institute)

- Need to curate, label, and organize this data

- Opportunities for *global crowdsourcing*

Global flows of data have outpaced traditional trade and financial flows.

Flows of trade and finance,[1]
% of GDP

Flows of data,[1]
terabits per second

[1] Trade and finance are inflows; data flows are a proxy to inflows, based on total flows of data.

Source: IMF Balance of Payments Statistics; TeleGeography, Global Bandwidth Forecast Service; UNCTAD; World Bank; McKinsey Global Institute analysis

Every breached health record costs $355 in 2016, $380 in 2017 (Ponemon Institute and IBM) as well as *lost trust*

Need to track who is accessing and modifying the data

2. WE NEED TO ADDRESS SECURITY CONCERNS

3. WE NEED COLLABORATION ACROSS SECTORS

Public and Social Sectors

- Scalability and reduced cost of public health interventions

- Social determinants of health

Private Sector

- Compound annual growth rate in AI + Health startups of 40% through 2021 (Accenture)

- Projected $150 billion market