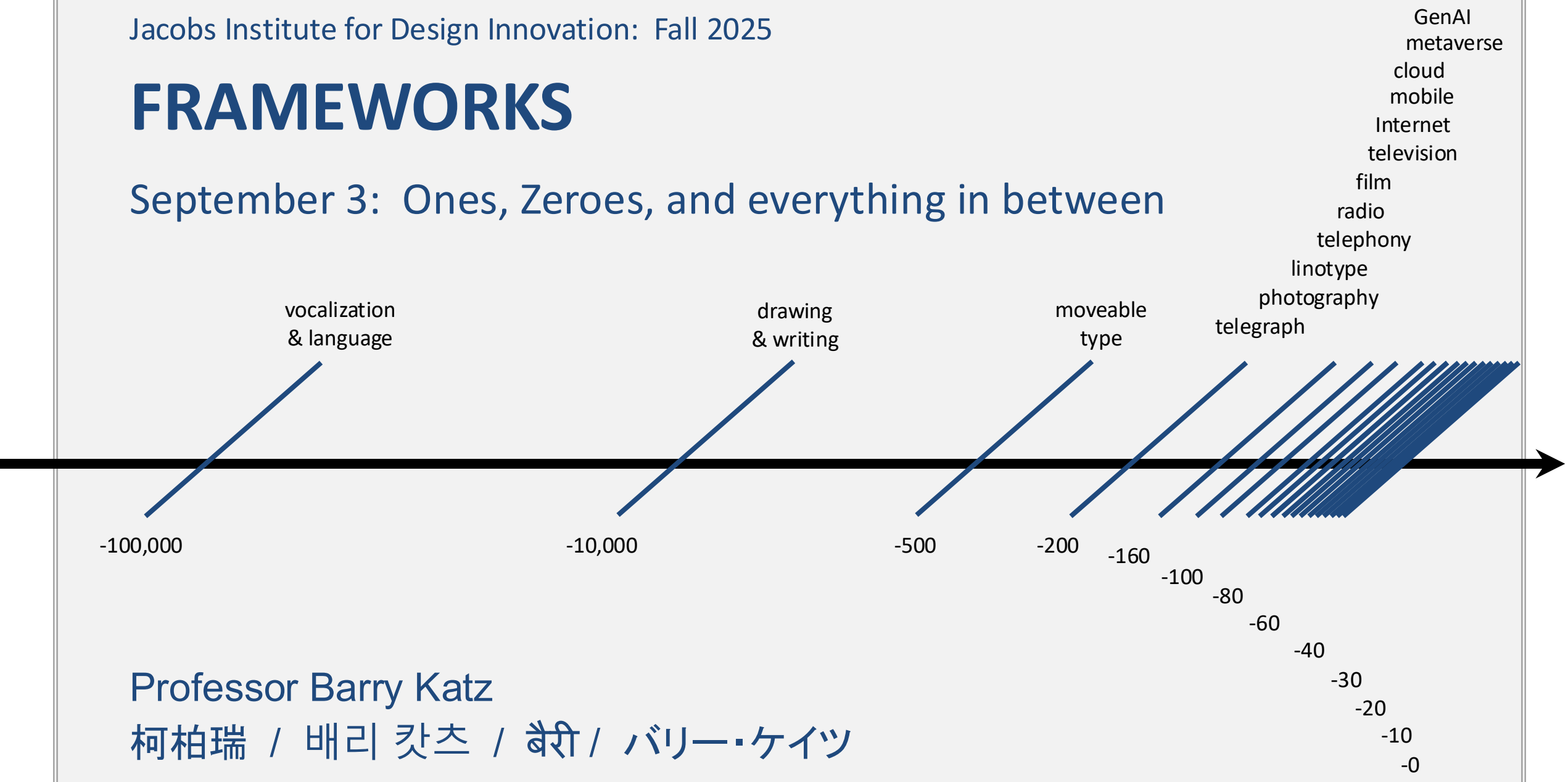
Jacobs Institute for Design Innovation: Fall 2025

FRAMEWORKS

September 3: Ones, Zeroes, and everything in between



Professor Barry Katz

柯柏瑞 / 배리 캇츠 / बेरी / バリー・ケイツ


Berkeley
UNIVERSITY OF CALIFORNIA
Stanford
University

Current [design] Events

Charles Eames

Ray Eames

FAST COMPANY

designboom®

Wallpaper*

SURFACE

“New Eames Institute launches with funding from Airbnb co-founder Joe Gebbia.”

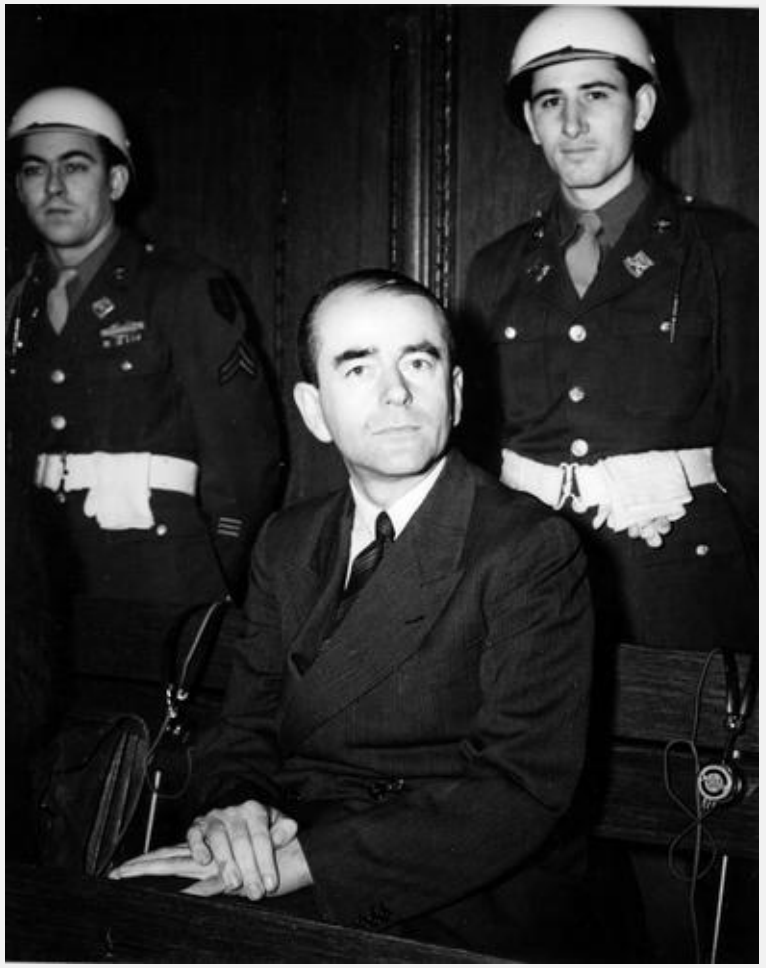
The New York Times

airbnb

From Airbnb to America's 'Chief Design Officer'

https://www.inc.com/jennifer-conrad/airbnbs-joe-gebbia-may-have-a-new-gig-in-the-white-house/91230393

Albert Speer & Adolf Hitler @ Berchtesgaden (1934)



Albert Speer @ Nuremberg (1945)

Frameworks

Victor P.

Gilles H.

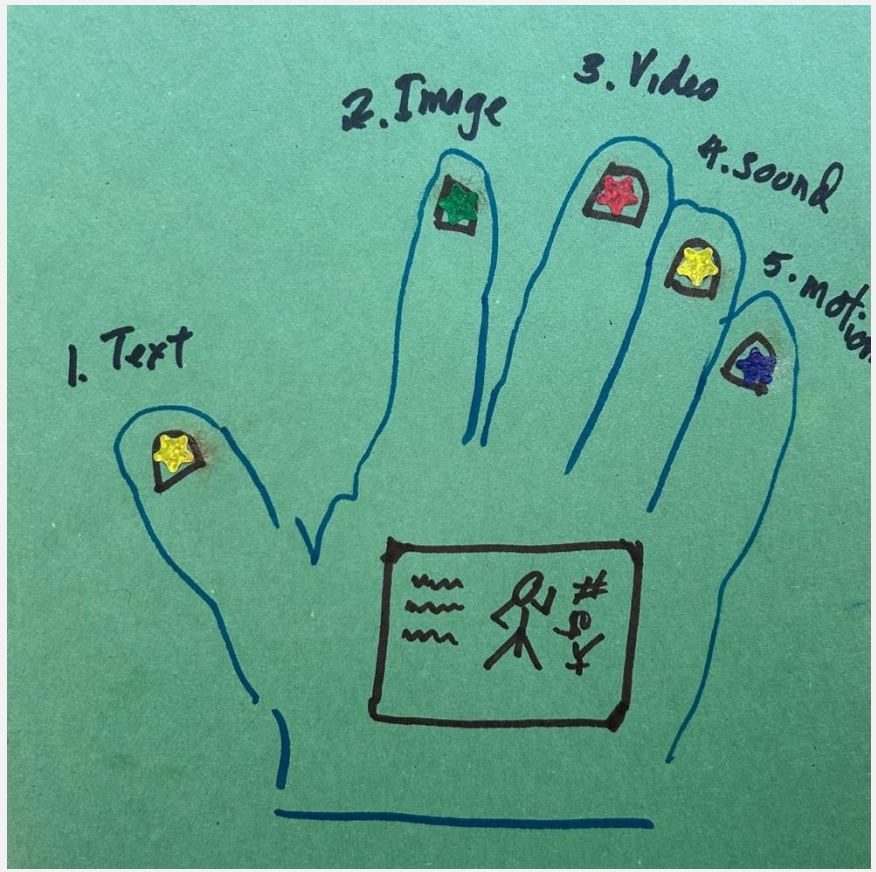
James C.

this_person_does_not_exist.com

Victor P.

Gilles H.

James C.


1. Text
2. Image
3. Video
4. Sound
5. motion


1.
2.Imag
3
Video
3
Sound
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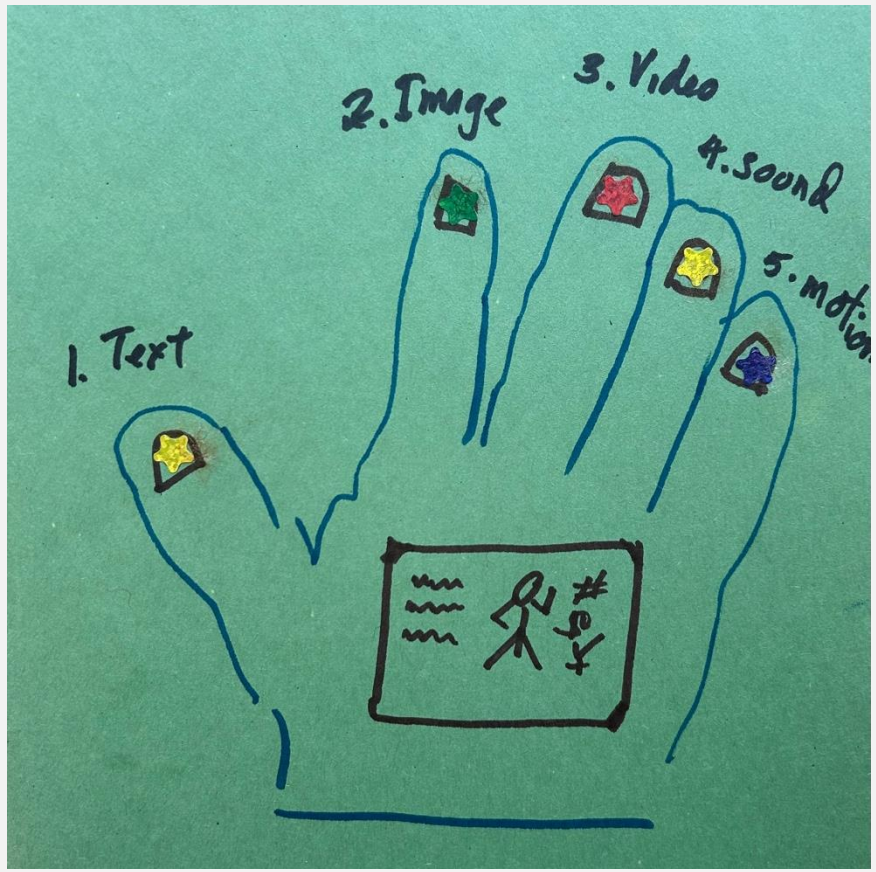
Motion
5. Motion
1.Text
5
ON
Motion


2. Image
3. Video
4. Sound
5. motion
1. Text


2
Imag
3
Video
4
Sound
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Motion
1. Text
5. Motion
tos
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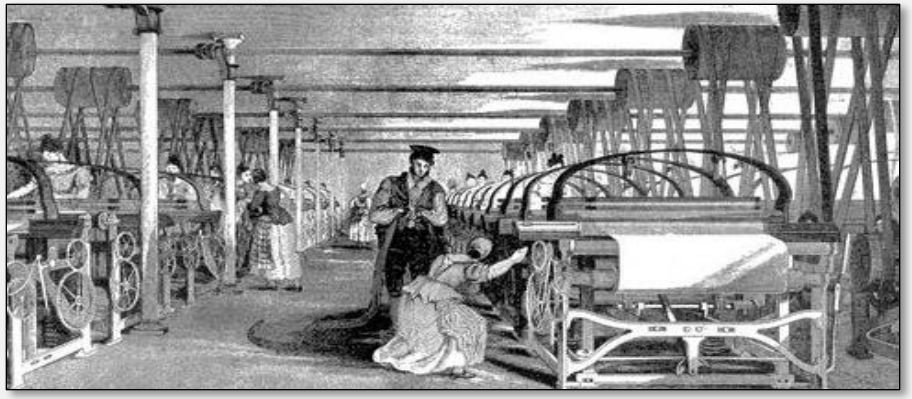
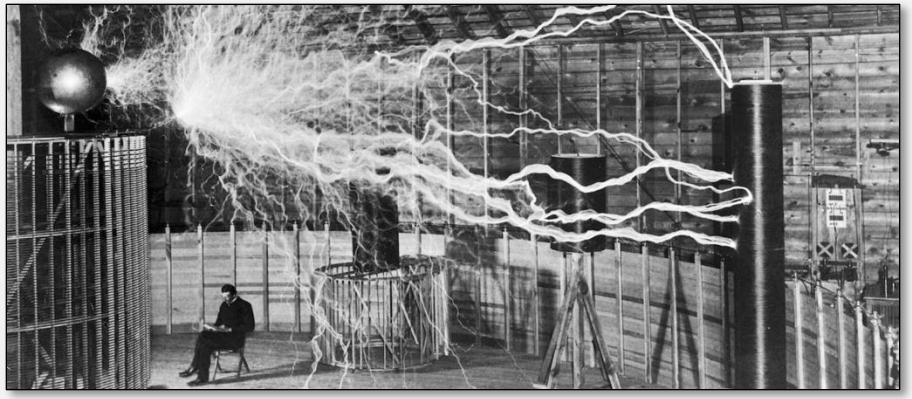
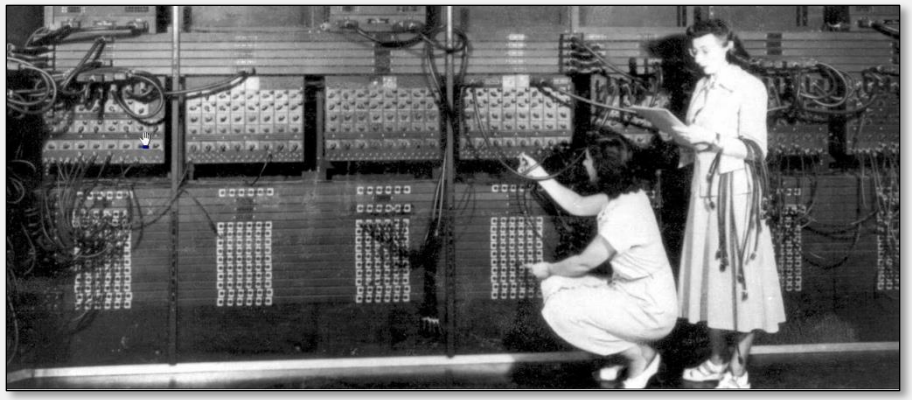
1st Industrial Revolution (late 18th): steam power



2nd Industrial Revolution (early 20th): electricity

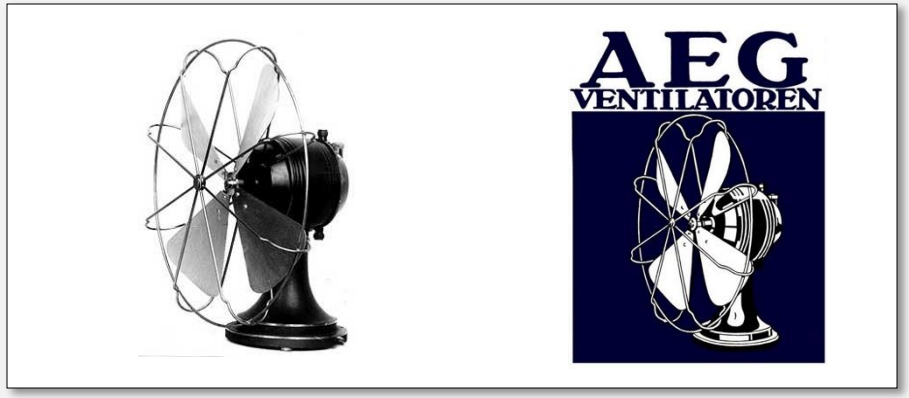


3rd Industrial Revolution (mid 20th): digital



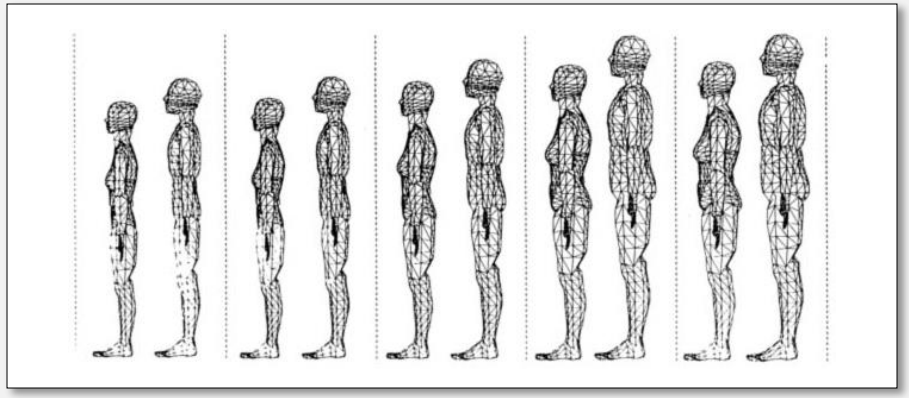
1st Industrial Revolution (late 18th):
Mass production

2nd Industrial Revolution (early 20th):
Appliances and automobiles

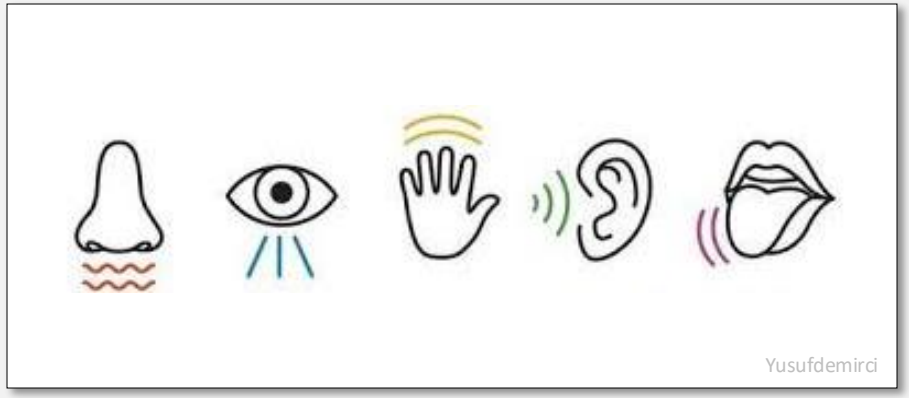


3rd Industrial Revolution (mid 20th):
Computers and electronics

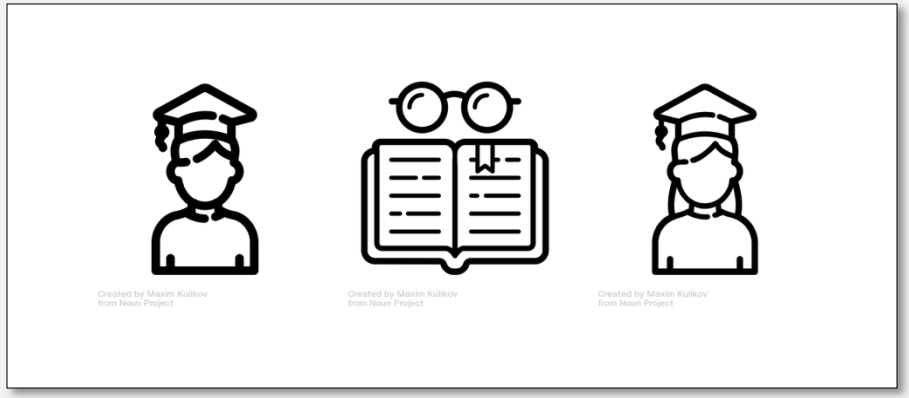
1st Industrial Revolution (late 18th):
The human body



2nd Industrial Revolution (early 20th):
The human senses

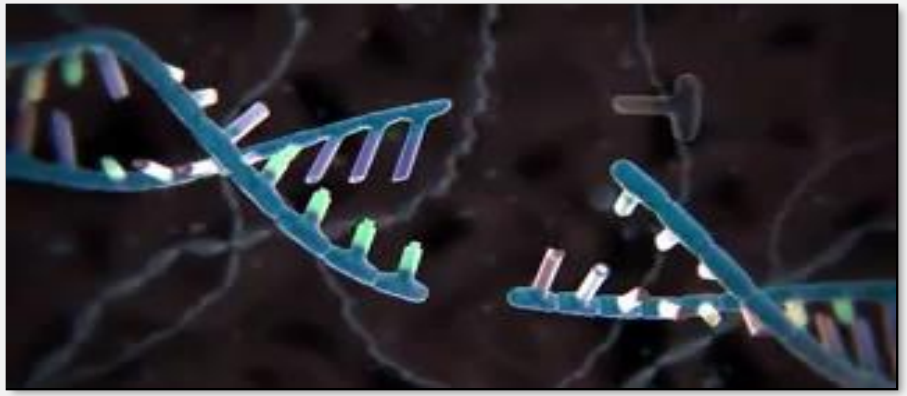


3rd Industrial Revolution (mid 20th):
The human intellect



4th Industrial Revolution:

- Autonomous vehicles
- Blockchain
- CRISPR gene editing
- Drone warfare
- Generative AI
- IoT
- Robotics
- Smartphone
- Social networks…



4th Industrial Revolution:

- Autonomous vehicles
- Blockchain
- CRISPR gene editing
- Drone warfare
- Generative AI
- IoT
- Robotics
- Smartphone
- Social networks…

Vannevar Bush (1890-1974)

https://en.wikipedia.org/wiki/Vannevar_Bush#/media/File:Vannevar_Bush_portrait.jpg

https://en.wikipedia.org/wiki/Vannevar_Bush#/media/File:Vannevar_Bush_portrait.jpg

A SCIENTIST OF THE FUTURE RECORDS EXPERIMENTS WITH A TINY CAMERA FITTED WITH UNIVERSAL-FOCUS LENS. THE SMALL SQUARE IN THE EYEGLASS AT THE LEFT SIGHTS THE OBJ

AS WE MAY THINK

A TOP U. S. SCIENTIST FORESEES A POSSIBLE FUTURE WORLI IN WHICH MAN-MADE MACHINES WILL START TO THINI

by VANNEVAR BUSH

DIRECTOR OF THE OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT

Condensed from the *Atlantic Monthly*, July 1945

This has not been a scientists' war; it has been a war in which all have had a part. The scientists, burying their old professional competition in the demand of a common cause, have shared greatly and learned much. It has been exhilarating to work in effective partnership. What are the scientists to do next?

For the biologists, and particularly for the medical scientists, there can be little indecision, for their war work has hardly required them to leave the old paths. Many indeed have been able to carry on their war research in their familiar peacetime laboratories. Their objectives remain much the same.

It is the physicists who have been thrown most violently off stride, who have left academic pursuits for the making of strange destructive gadgets, who have had to devise new methods for their unanticipated assignments. They have done their part on the devices that made it possible to turn back the enemy. They have worked in combined effort with the physicists of our allies. They have felt within themselves the stir of achievement. They have been part of a great team. Now one asks where they will find objectives worthy of their best.

* * *

There is a growing mountain of research. But there is increased evidence that we are being bogged down today as specialization extends. The investigator is staggered by the findings and conclusions of thousands of other workers—conclusions which he cannot find time to grasp, much less to remember, as they appear. Yet specialization becomes increasingly necessary for progress, and the effort to bridge between disciplines is correspondingly superficial.

Professionally our methods of transmitting and reviewing the results of research are generations old and by now are totally inadequate for their purpose. If the aggregate time spent in writing scholarly works and in reading them could be evaluated, the ratio between these amounts of time might well be startling. Those who conscientiously attempt to keep abreast of current thought, even in restricted fields, by close and continuous reading might well shy away from an examination calculated to show how much of the previous month's efforts could be produced on call.

Mendel's concept of the laws of genetics was lost to the world for a generation because his publication did not reach the few who were capable of grasping and extending it. This sort of catastrophe is undoubtedly being repeated all about us as truly significant attainments become lost in the mass of the inconsequential.

Publication has been extended far beyond our present ability to make use of the record. The summation of human experience is being expanded at a prodigious rate, and the means we use for threading through the consequent maze to the momentarily important item is the same as was used in the days of square-rigged ships.

But there are signs of a change as new and powerful instrumentalities come into use. Photocells capable of seeing things in a physical sense, advanced photography which can record what is seen or even what is not, thermionic tubes capable of controlling potent forces under the guidance

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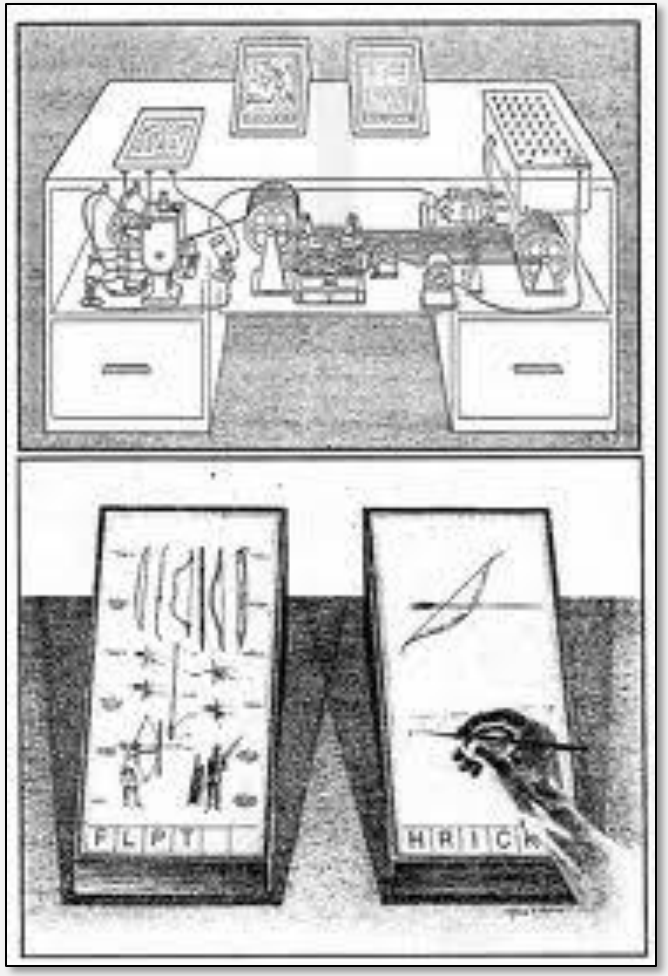
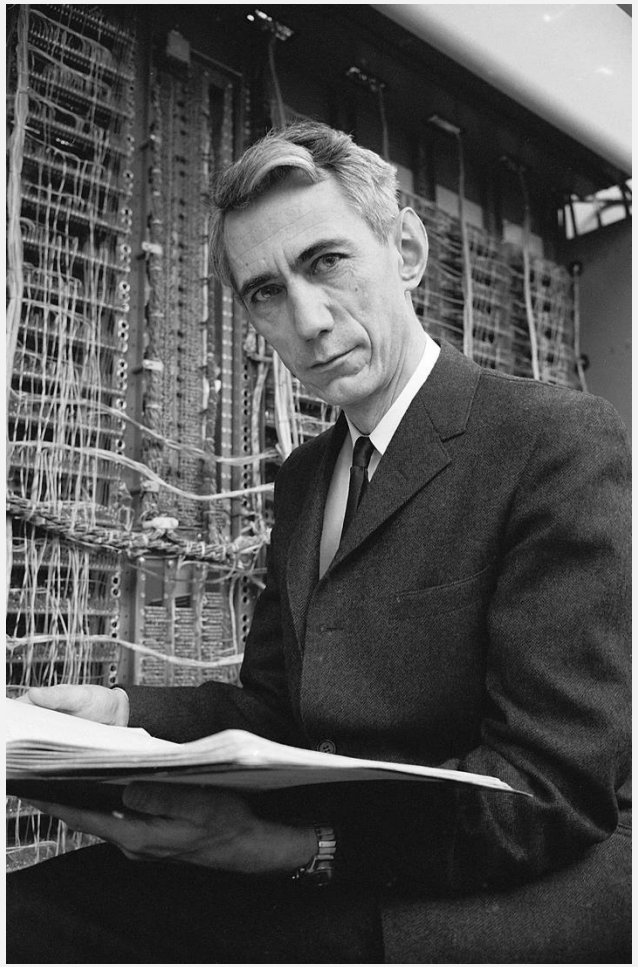
「LIFE」1945年9月10日号に特集された「AS WE MAY THINK」のページ

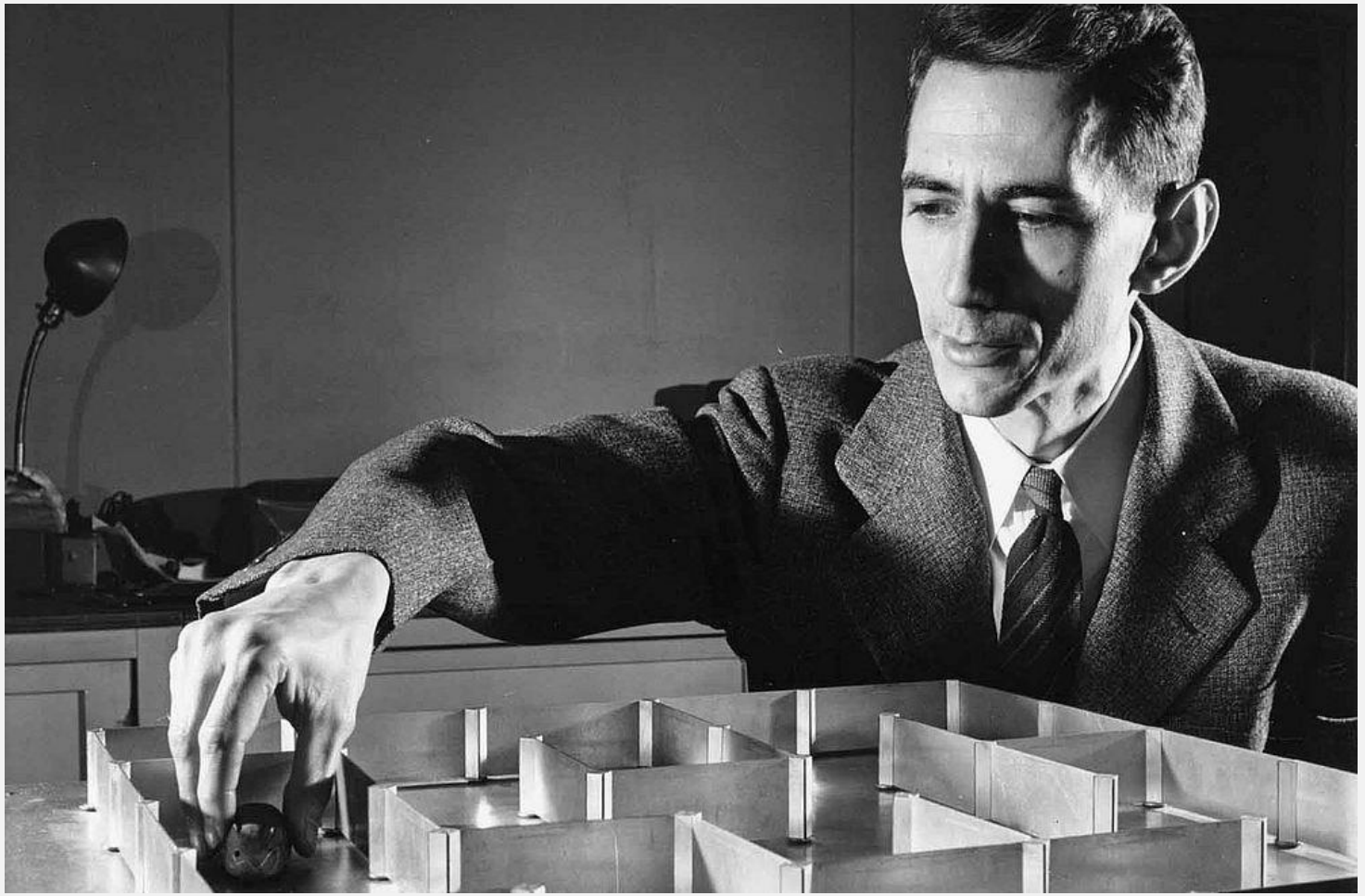
「LIFE」1945年9月10日号より引用

「AS WE MAY THINK」 From the Atlantic Monthly, July 1945



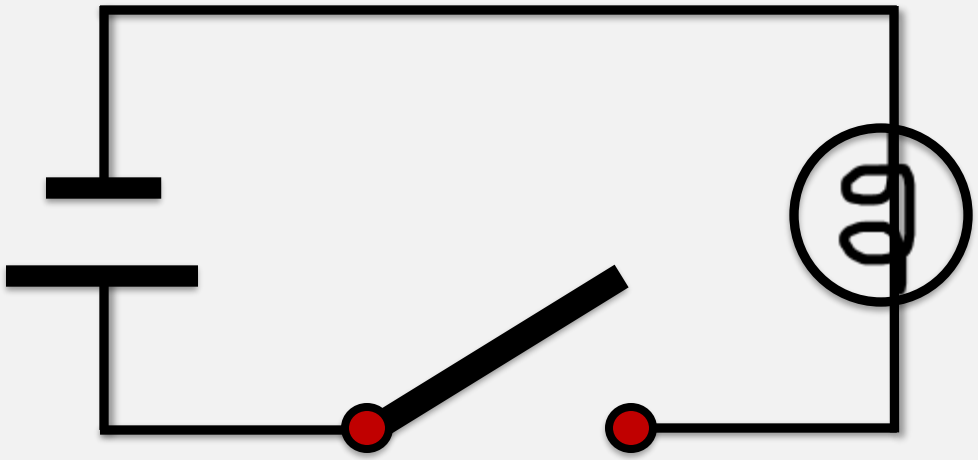
"For <u>mature thought</u> there is no mechanical substitute.
But <u>creative thought</u> and <u>repetitive thought</u> are very different things.
For the latter there are, and may be, powerful mechanical aids."





Claude Shannon (1916-2001)

Claude Shannon, The Ultimate Machine.



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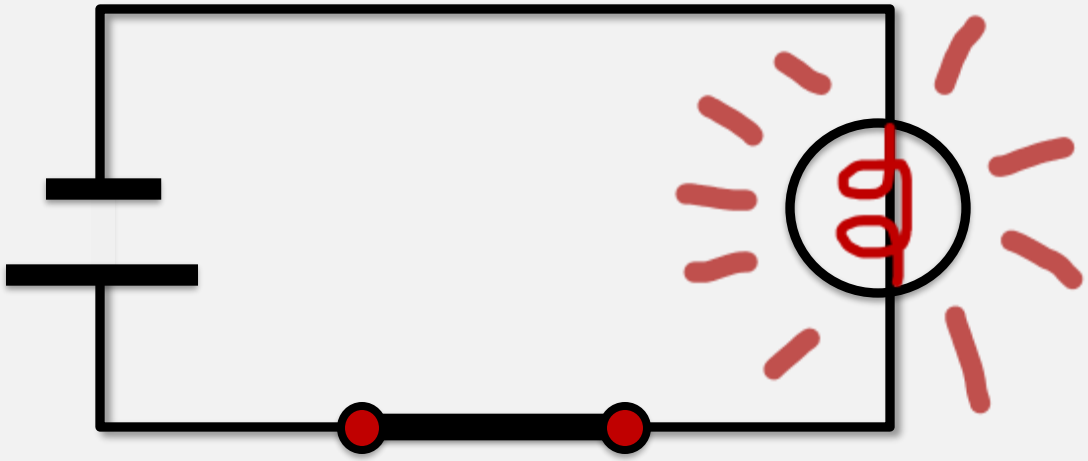
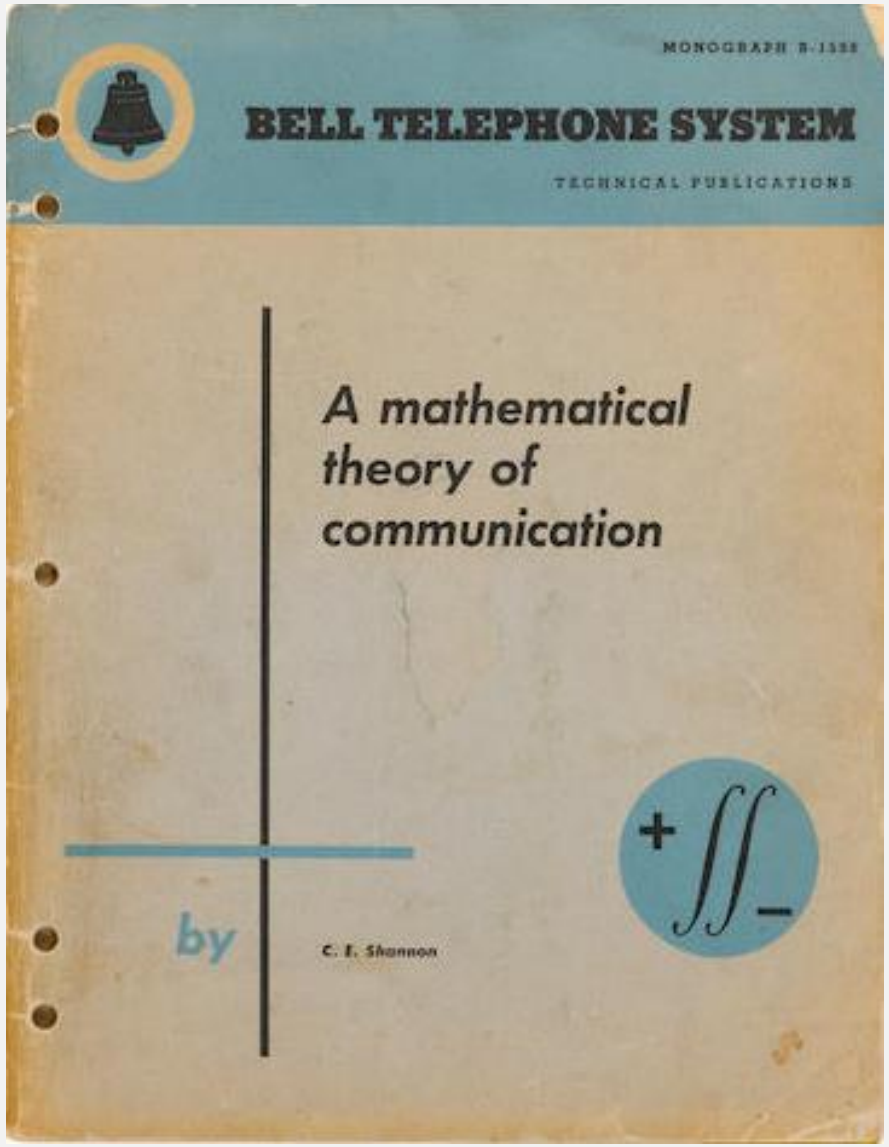


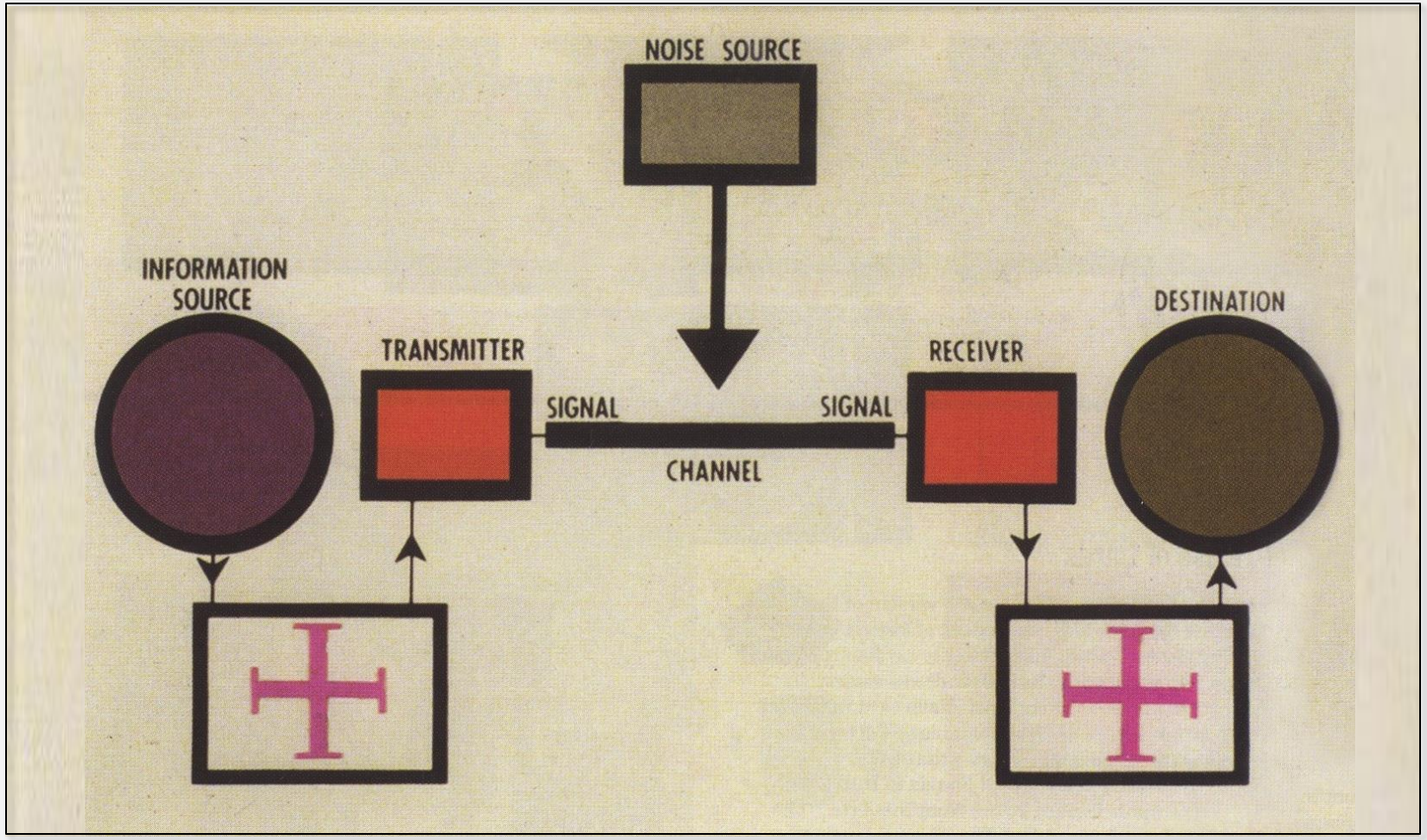
1 = ON



"The fundamental problem of communication is that of reproducing at one point… a message selected at another point...

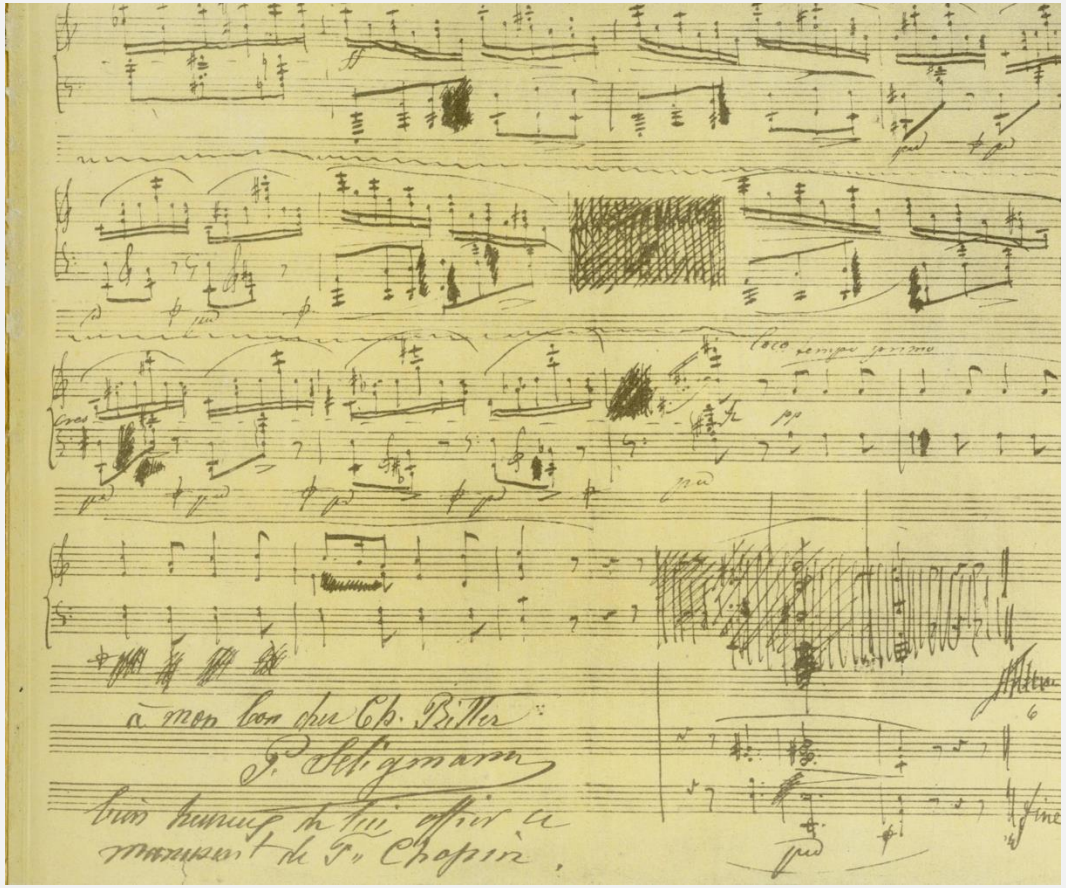
… Frequently these messages have *meaning*; **These *semantic* aspects of communication are irrelevant to the engineering problem."**

Claude Shannon (1916-2001)

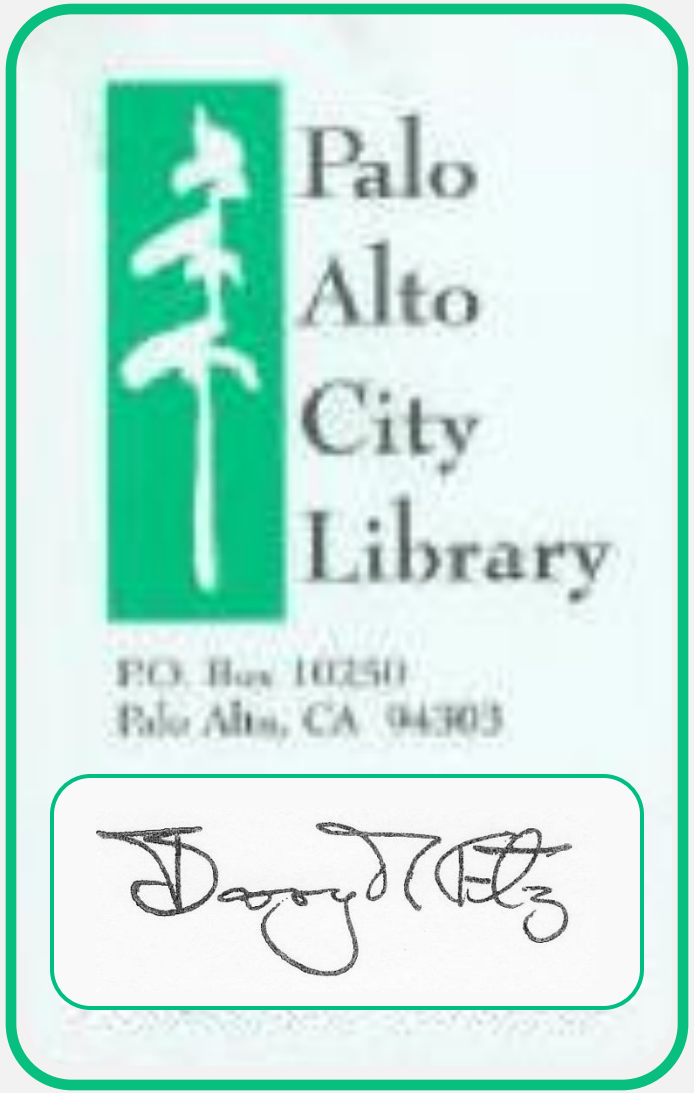


A Communications Primer (1953), Office of Charles and Ray Eames

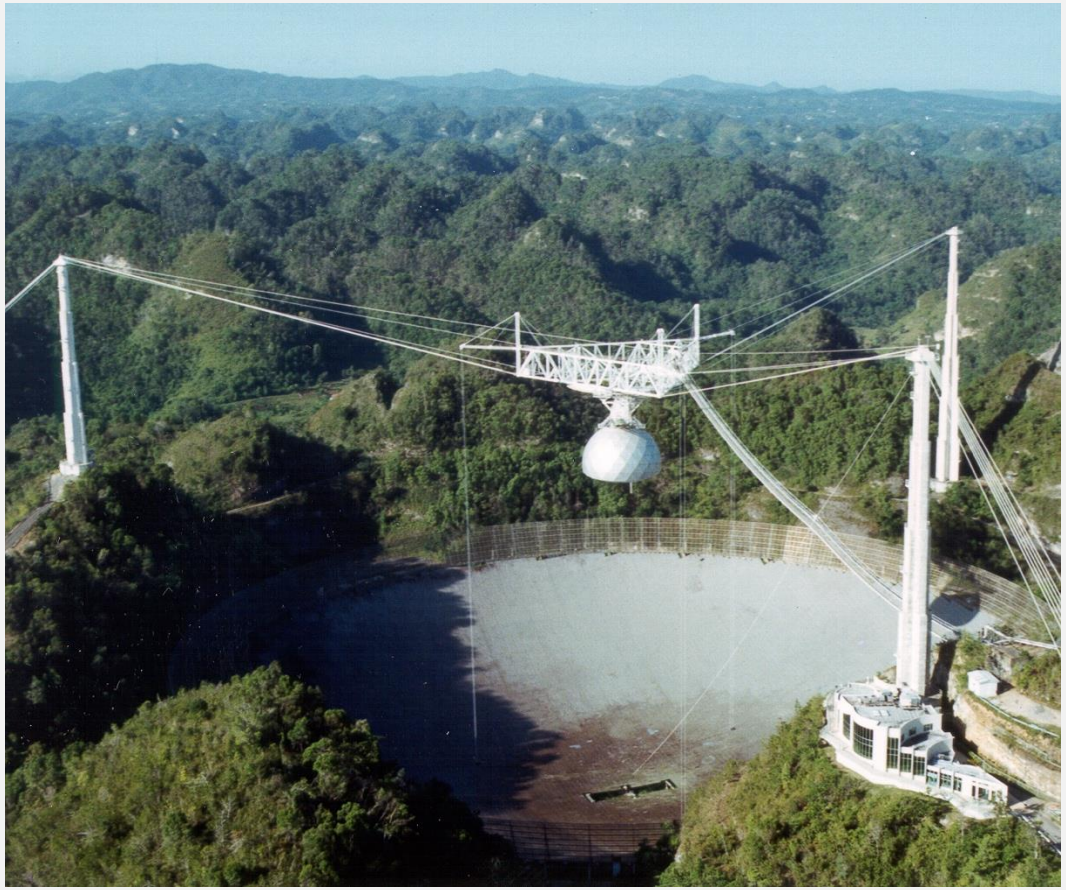
coding / decoding

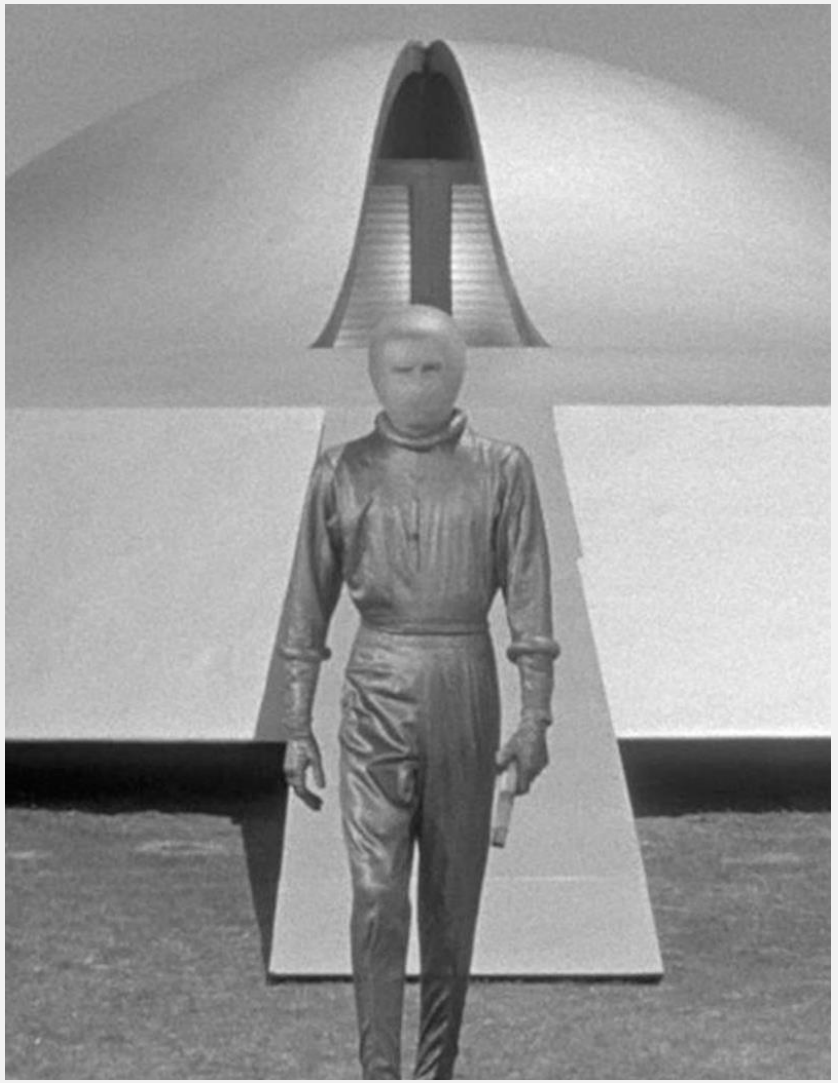


storage / retrieval



transmission / reception





https://www.unitymedcenter.com/hospital/davinci-surgical-system.html

"Our conventional response to all media, namely that it is how they are used that counts, is the numb stance of the technological idiot."

Marshall McLuhan, *Understanding Media*. (1964)

"The 'message' of any medium or technology is the change of *scale* or *pace* or *pattern* that it introduces into human affairs."

Marshall McLuhan (1965)

“We may have knowledge of the past, but cannot control it.

We may control the future, but we have no knowledge of it.”

-- Claude Shannon.”