

A Brief History of Data Storage

Eli Holderness – @eli@hachyderm.io – they/them/theirs

Introduction

Eli (pronounced /'i:lai/) is a professional nerd, problem finder, and audience participator.

They like people, the web, and learning weird facts about computers.

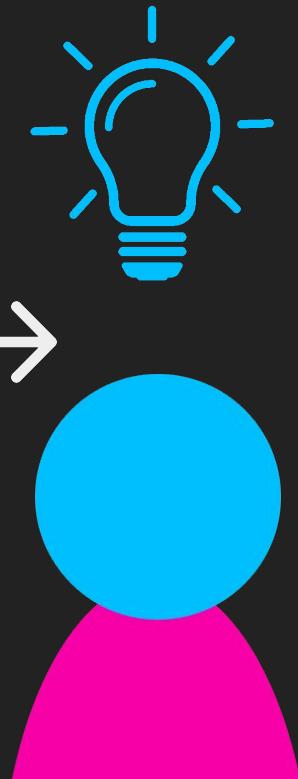
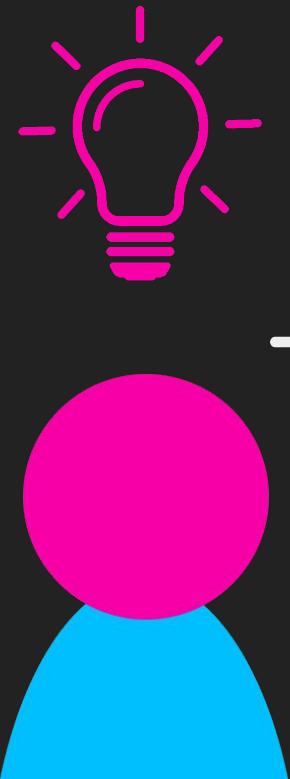
They can be found on Mastodon at [@eli@hachyderm.io](https://hachyderm.io/@eli), and – for now – on Twitter at [@eliholderness](https://twitter.com/eliholderness).

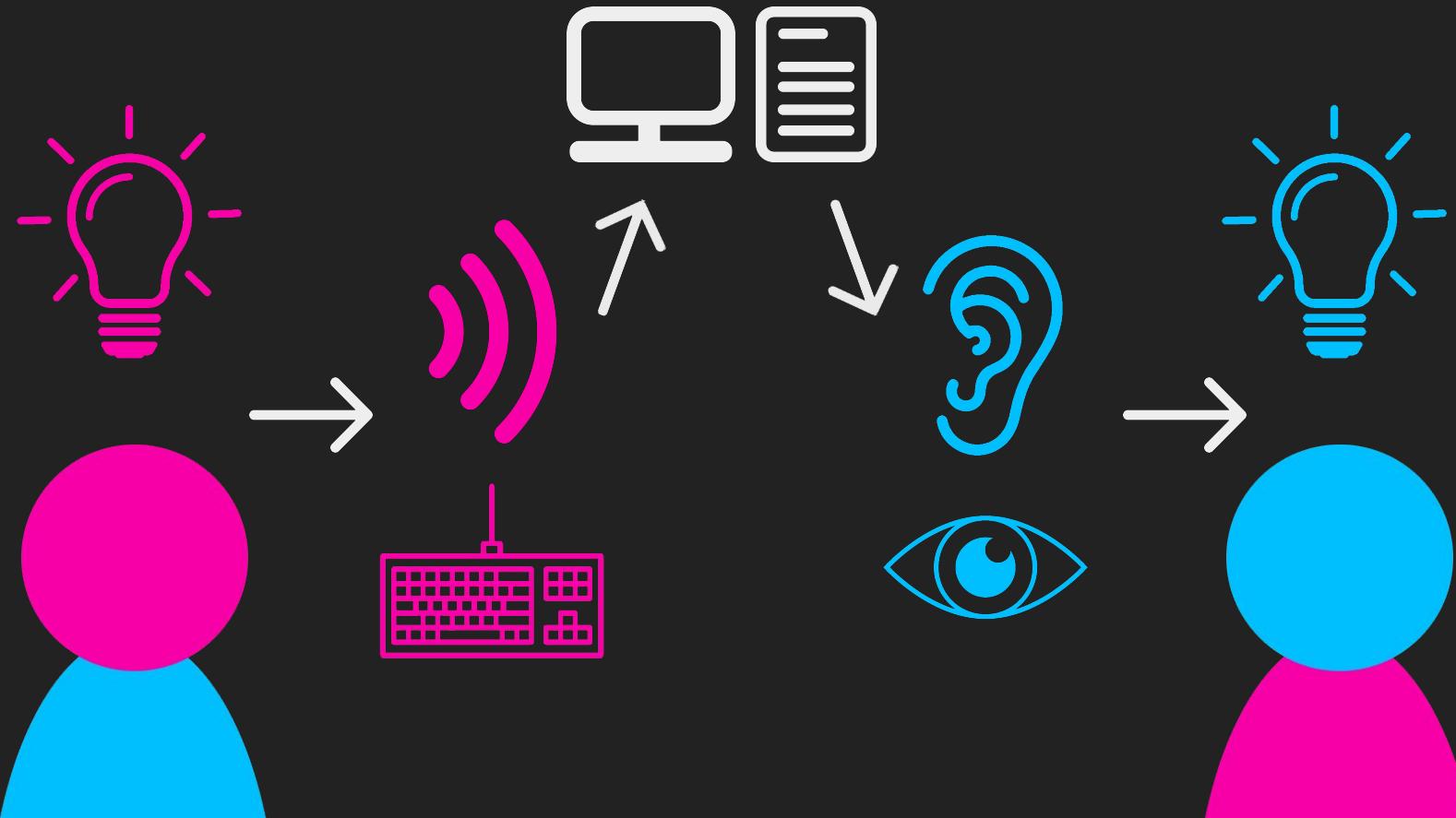
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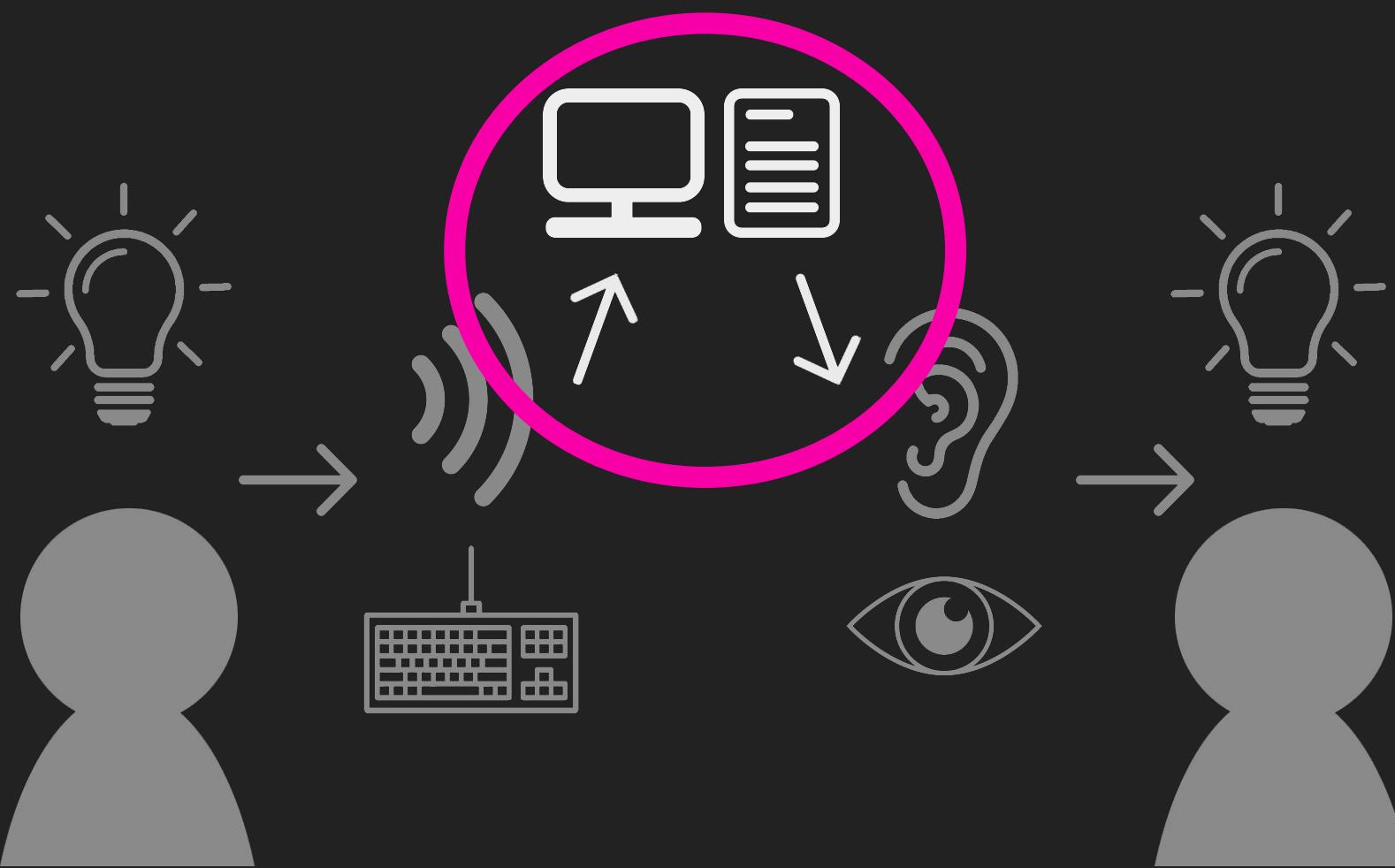
What is data storage?

What is data storage?





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What's on the agenda?

What's on the agenda?

1. Past things (no electricity)

What's on the agenda?

1. Past things (no electricity)
2. Past things (yes electricity)

What's on the agenda?

1. Past things (no electricity)
2. Past things (yes electricity)
3. Current things

What's on the agenda?

1. Past things (no electricity)
2. Past things (yes electricity)
3. Current things
4. Future things (maybe)

Old stuff (no electricity)

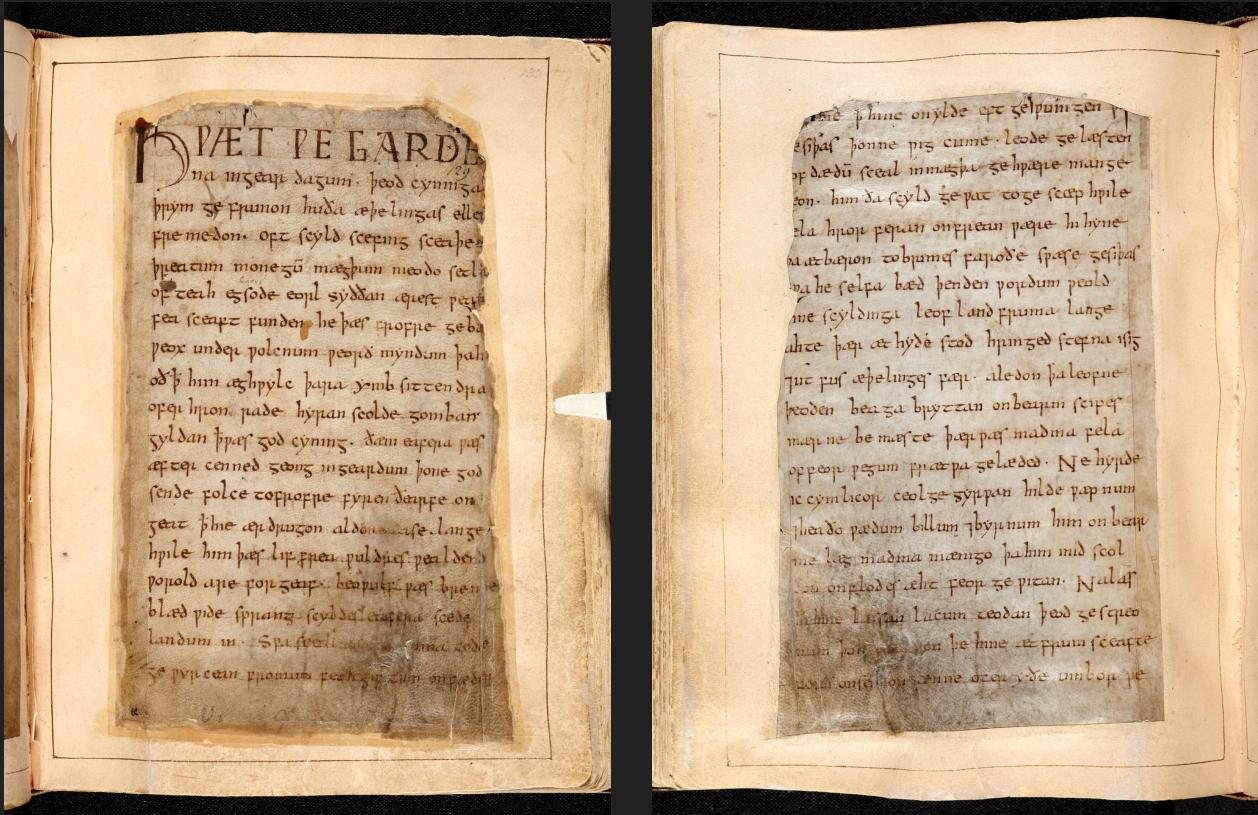
Clay tablets



Clay tablets



Pen and paper / ink and parchment / etc



Pen and paper / ink and parchment / etc



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https://commons.wikimedia.org/wiki/File:Ashburnham_House_exterior_London_by_Henry_Dixon_1880.jpg

English **technology**

from Ancient Greek **τέχνη** (tékhnē, “art”)

from Proto-Indo-European ***tetk-**
 (“to create, produce”)

gives Latin **textilis** (“woven”).

gives English **textile**

meus erit nomen
mouebitur adiuua
bit eam deus mane





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<https://commons.wikimedia.org/wiki/File:Commercial-street-2579034.jpg>

Punch cards (loom edition)



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Punch cards (loom edition)



Vinyl audio records



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Vinyl audio records



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<https://en.wikipedia.org/wiki/File:12in-LP-Vinyl-Record-Macro-Grooves.jpg>

Film photography



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https://upload.wikimedia.org/wikipedia/commons/8/8c/View_from_the_Window_at_Le_Gras_colorized_2020_new.png

Film photography



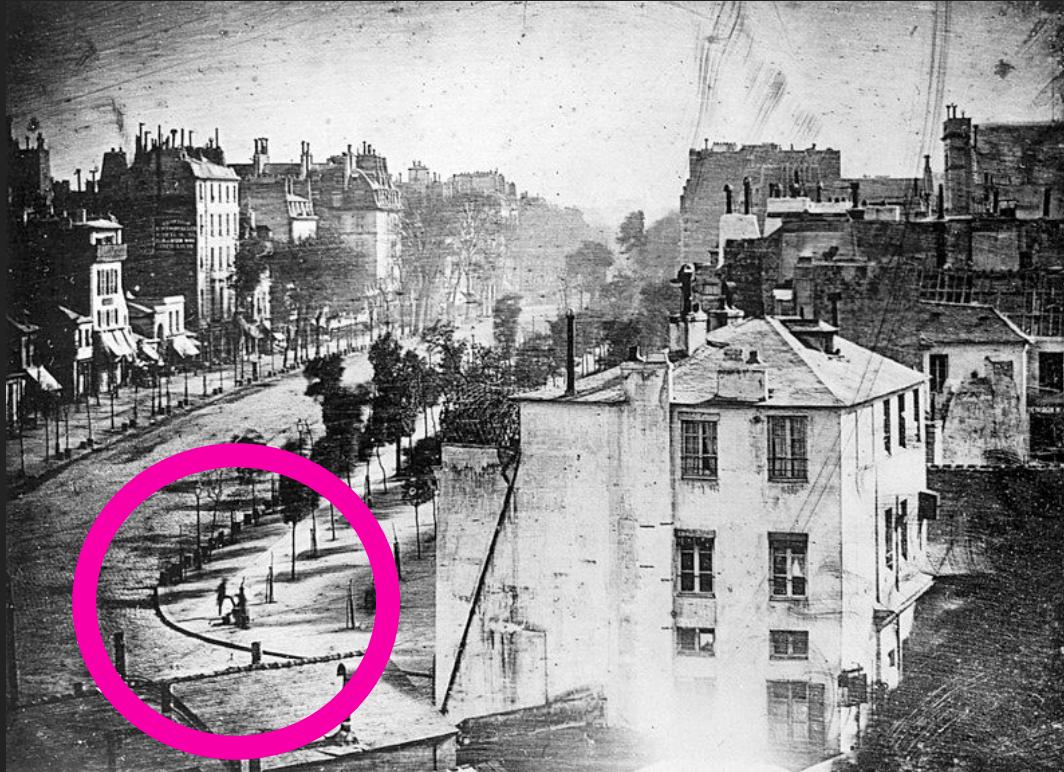
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Film photography



Film photography

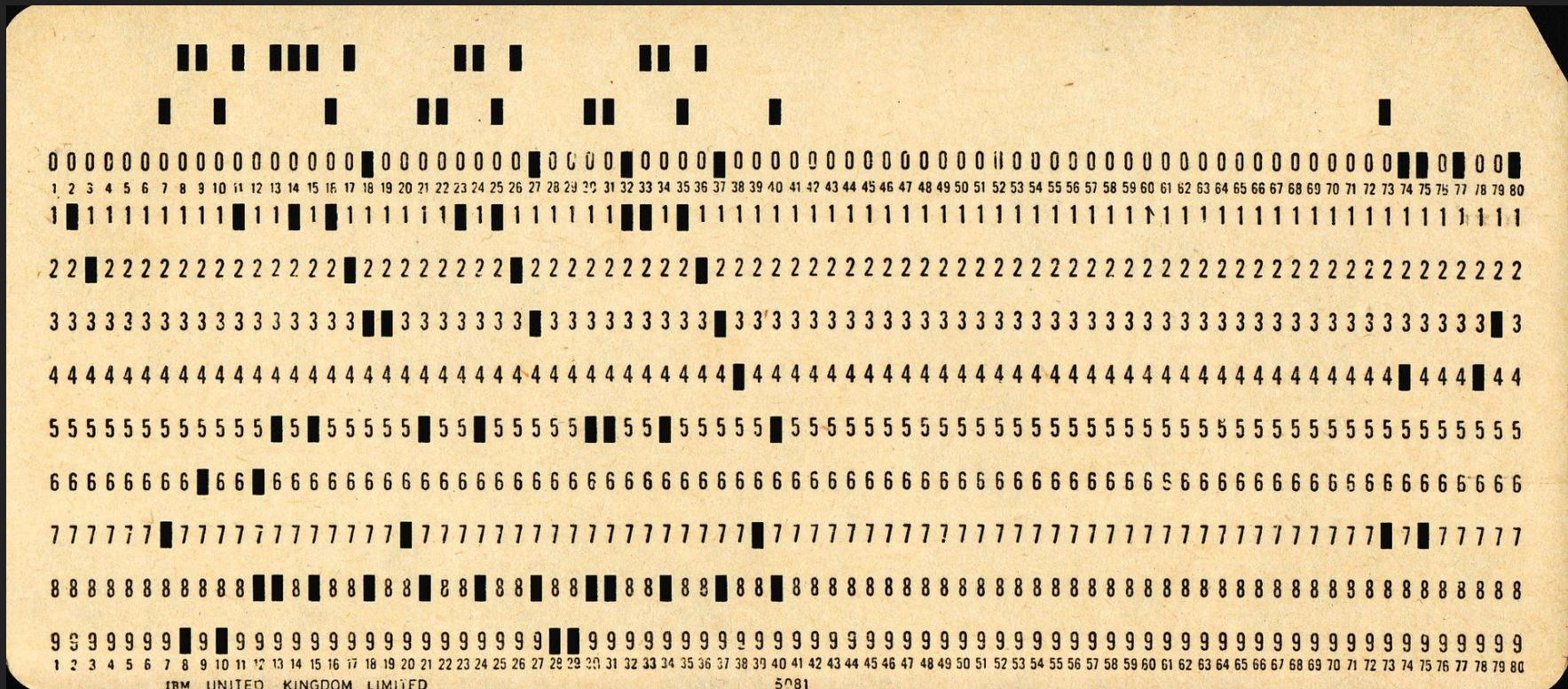


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https://commons.wikimedia.org/wiki/File%3ABoulevard_du_Temple_by_Daguerre.jpg

Old stuff (yes electricity)

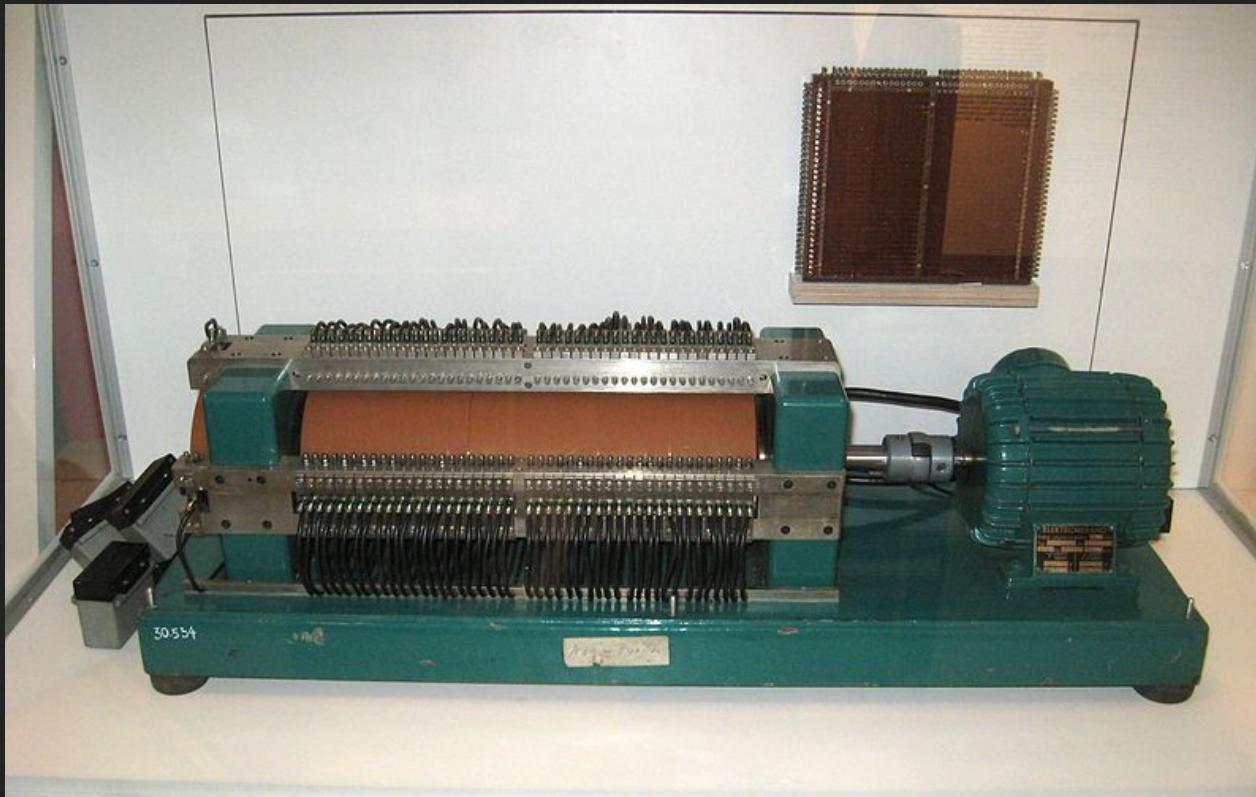
Punch cards (computer edition)



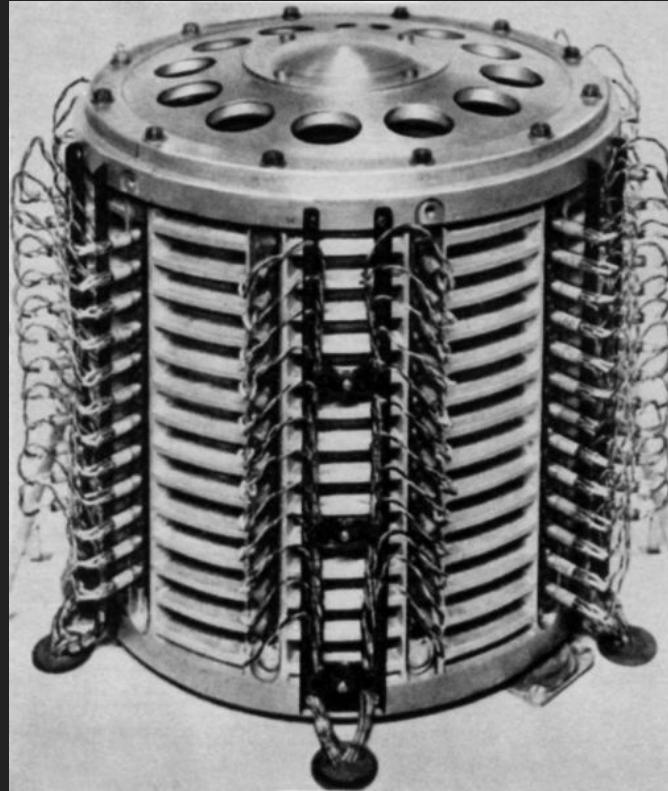
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By Pete Birkinshaw from Manchester, UK - Used Punchcard, CC BY 2.0,
<https://commons.wikimedia.org/w/index.php?curid=49758093>

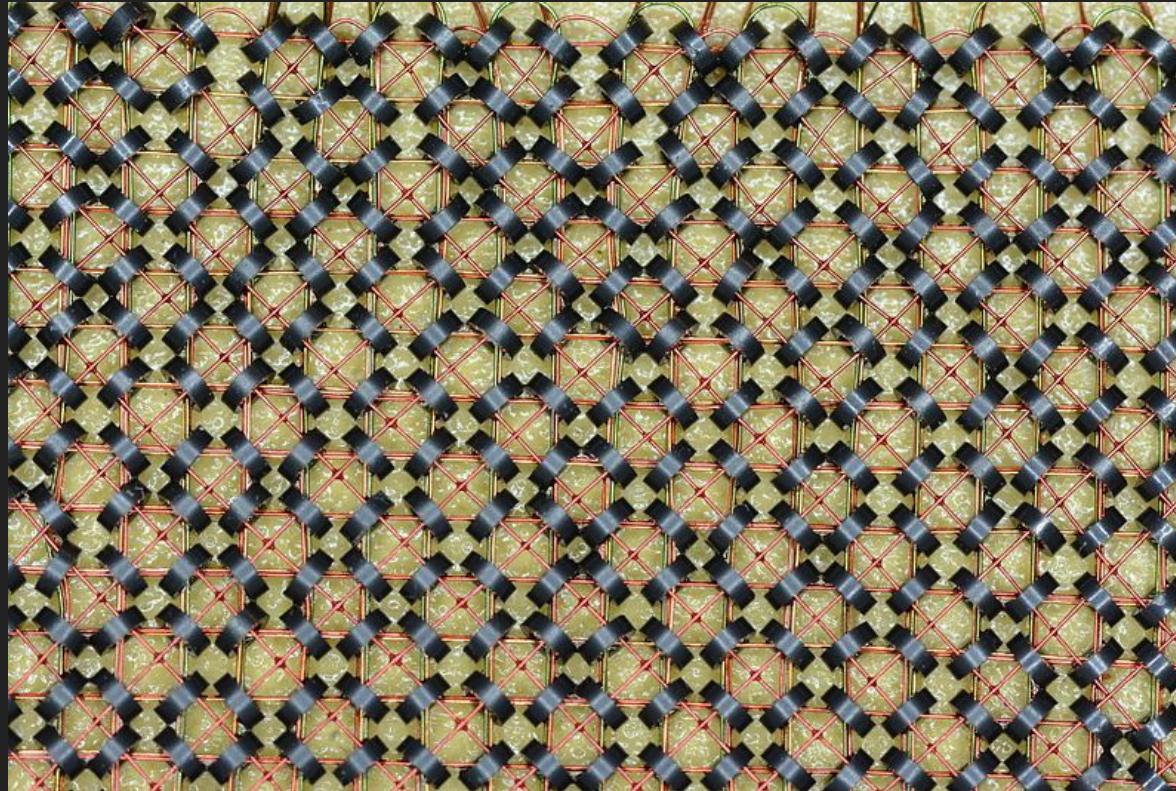
Drum memory



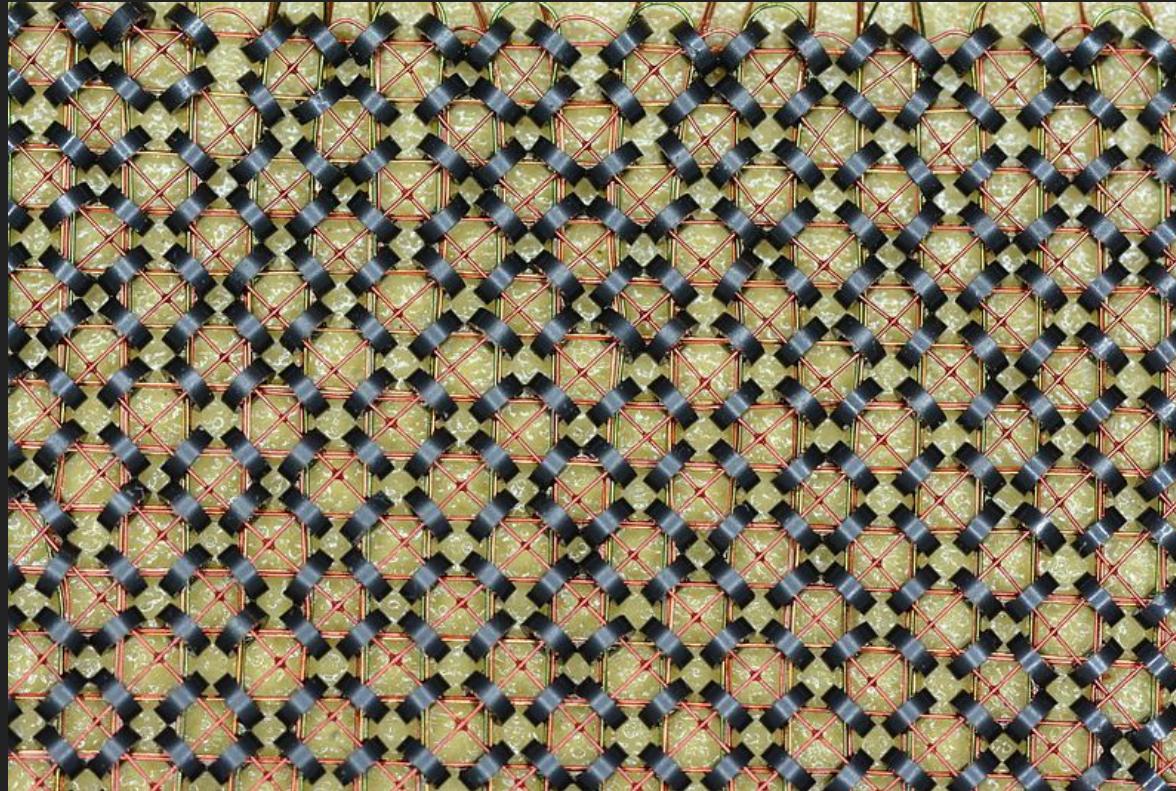
Drum memory



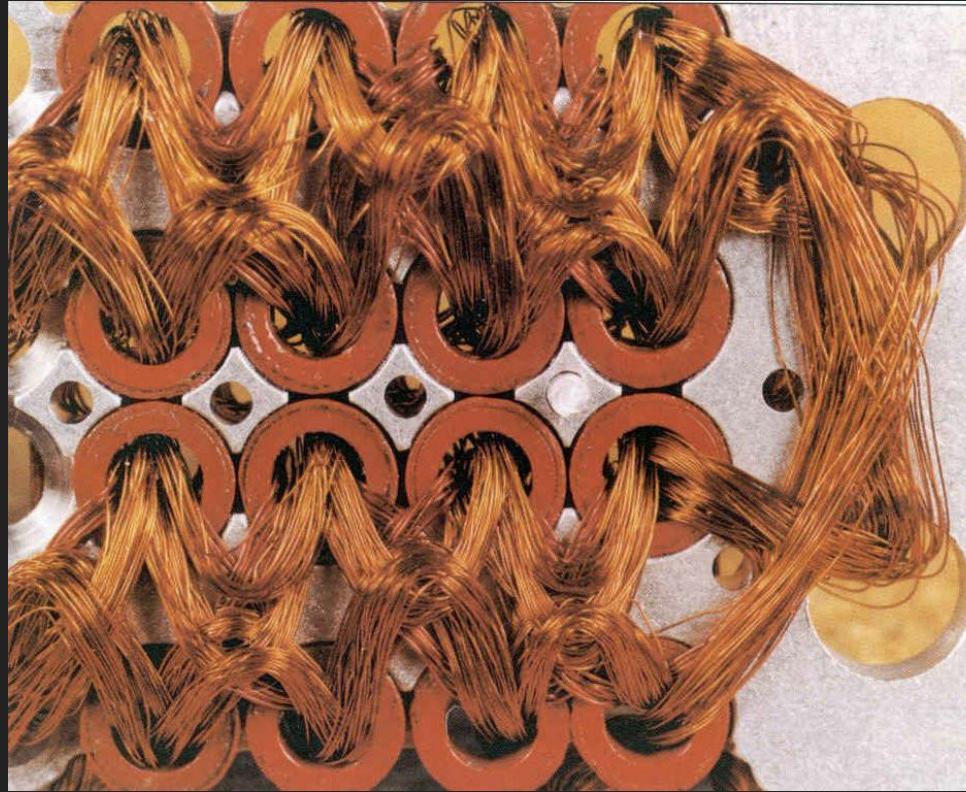
Magnetic core memory



Magnetic core memory



Core rope memory



Floppy disks



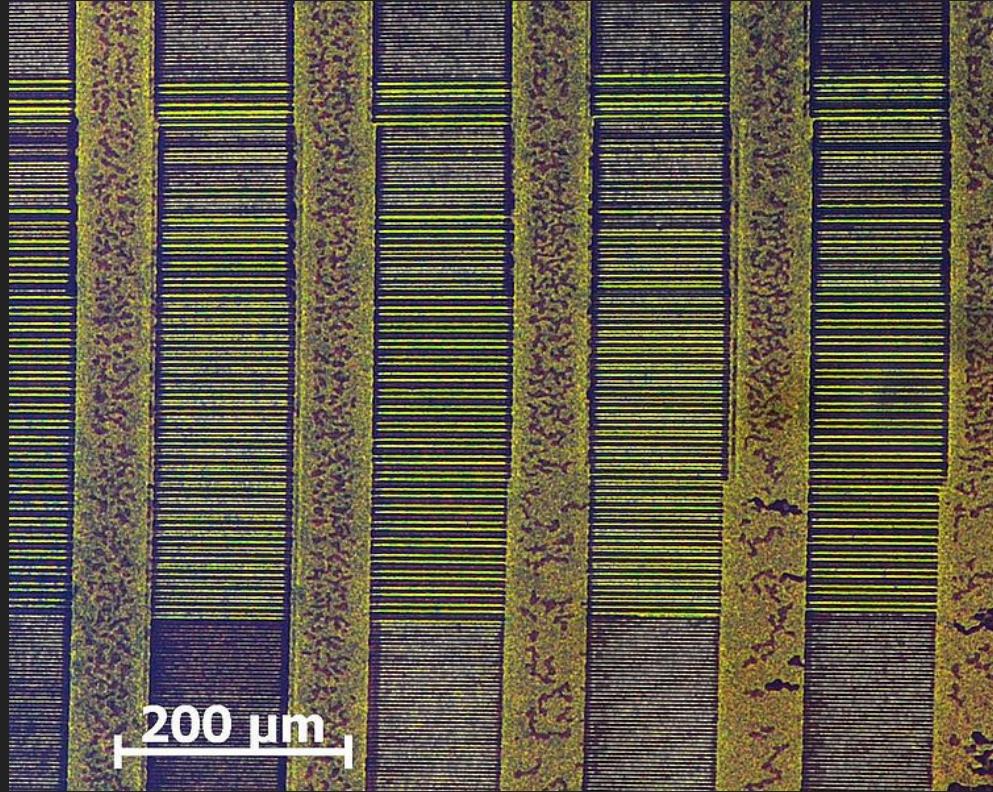
Floppy disks



[@eli@hachyderm.io](https://commons.wikimedia.org/wiki/File:Image3,5%27%27-Diskette_removed.jpg)

https://commons.wikimedia.org/wiki/File:Image3,5%27%27-Diskette_removed.jpg

Floppy disks



[https://en.wikipedia.org/wiki/File:Visualization_of_magnetic_information_on_a_Floppy_Disk_\(CMOS-MagView\).jpg](https://en.wikipedia.org/wiki/File:Visualization_of_magnetic_information_on_a_Floppy_Disk_(CMOS-MagView).jpg)

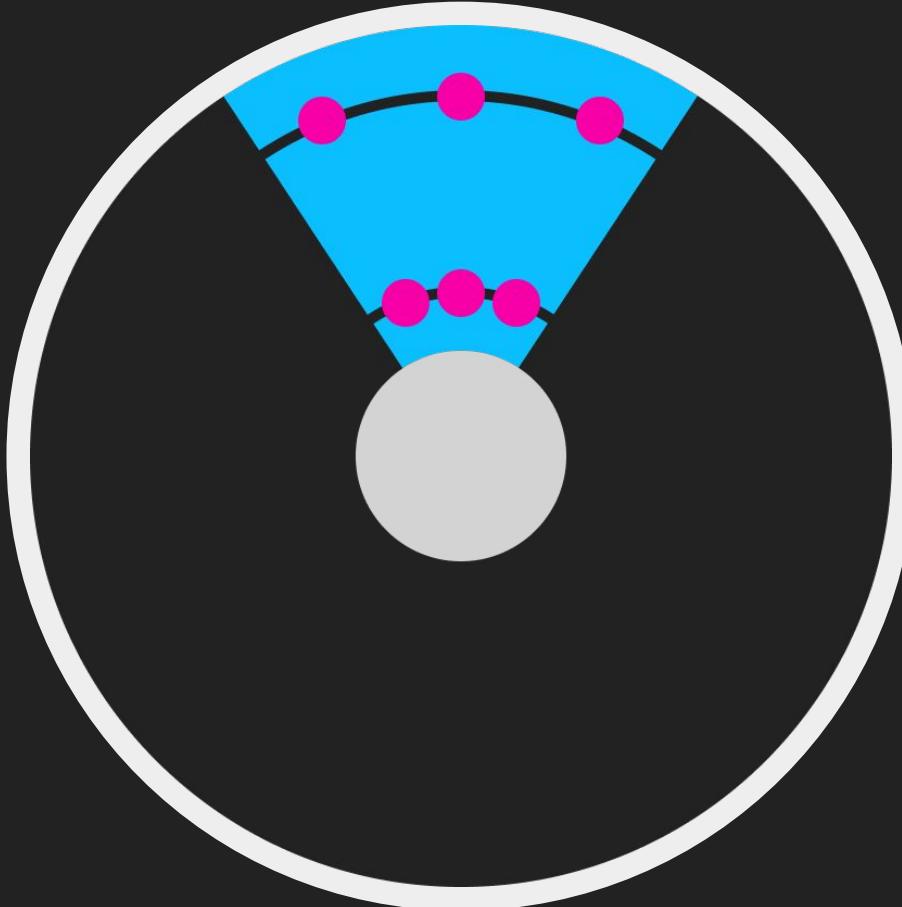
Floppy disks



Floppy disks



Floppy disks



Floppy disks



Floppy disks

Update Complete: U.S. Nuclear Weapons No Longer Need Floppy Disks

The Defense Department has transitioned away from a 1970s-era nuclear command and control system that relied on eight-inch floppy disks. The “modernizing” effort was quietly completed in June.

Floppy disks



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<https://i.kym-cdn.com/entries/icons/original/000/032/675/oliver.jpg>

Current stuff

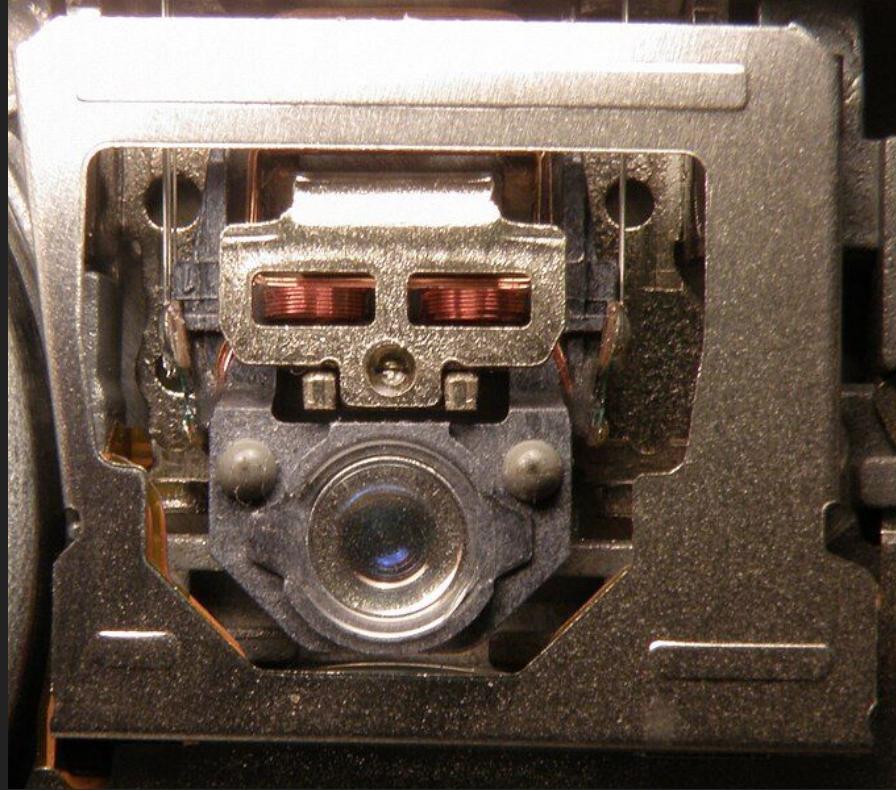
Optical media



Optical media



Optical media



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https://commons.wikimedia.org/wiki/File:Optical_drive_lens.JPG

Optical media



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https://commons.wikimedia.org/wiki/File:CD-RW_bottom.jpg

Optical media



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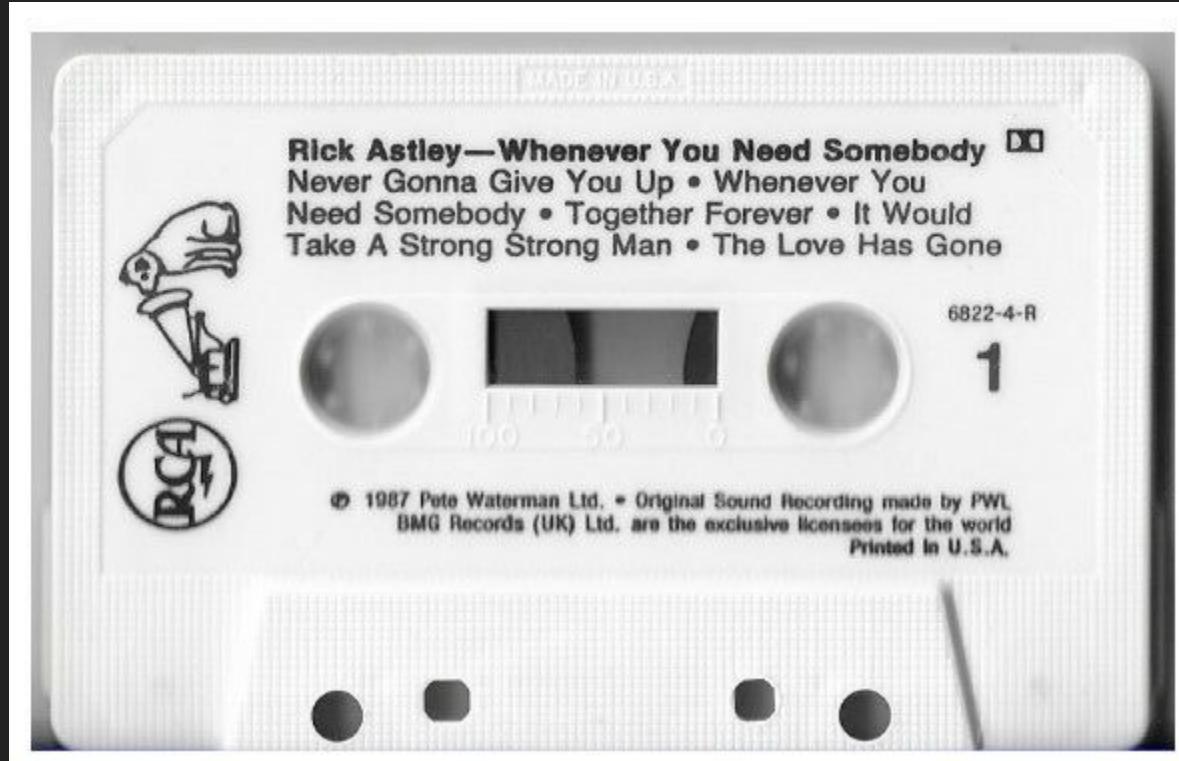
https://commons.wikimedia.org/wiki/File:Damaged_CD_20180219.jpg

Optical media



CD Shattering at 170,000FPS! - The Slow Mo Guys

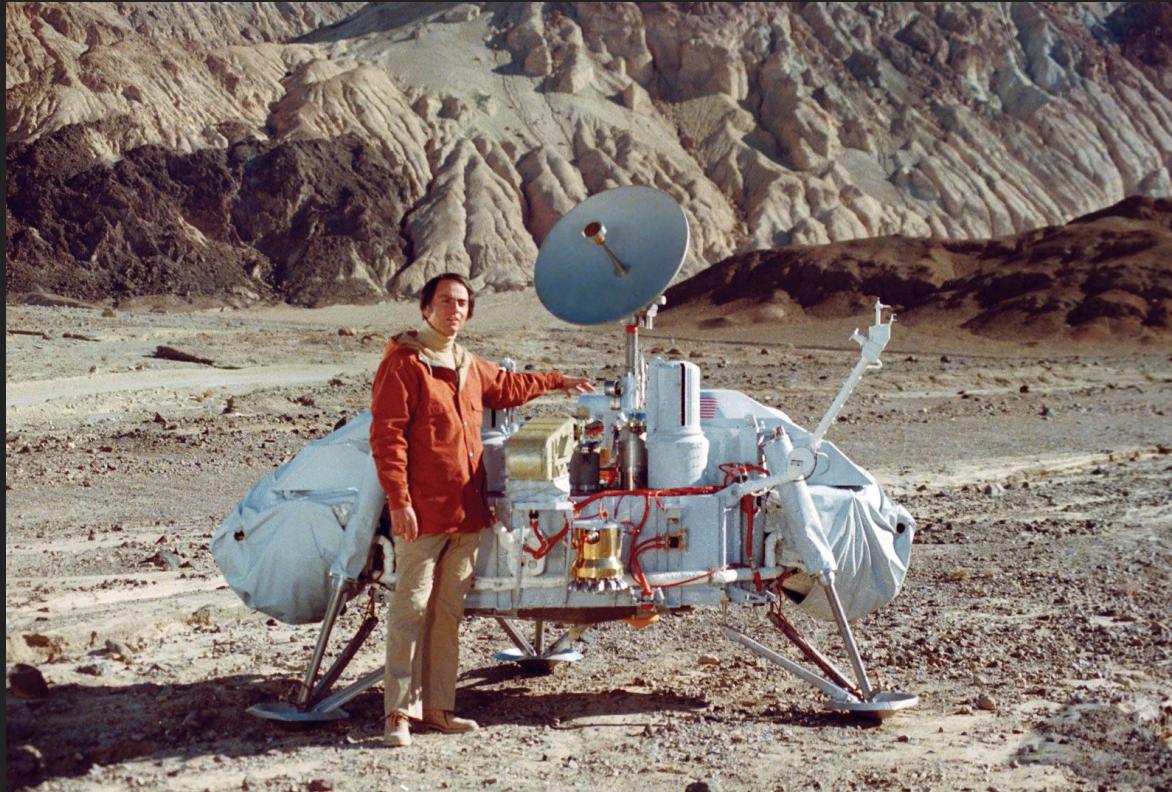
Magnetic tape storage



Magnetic tape storage



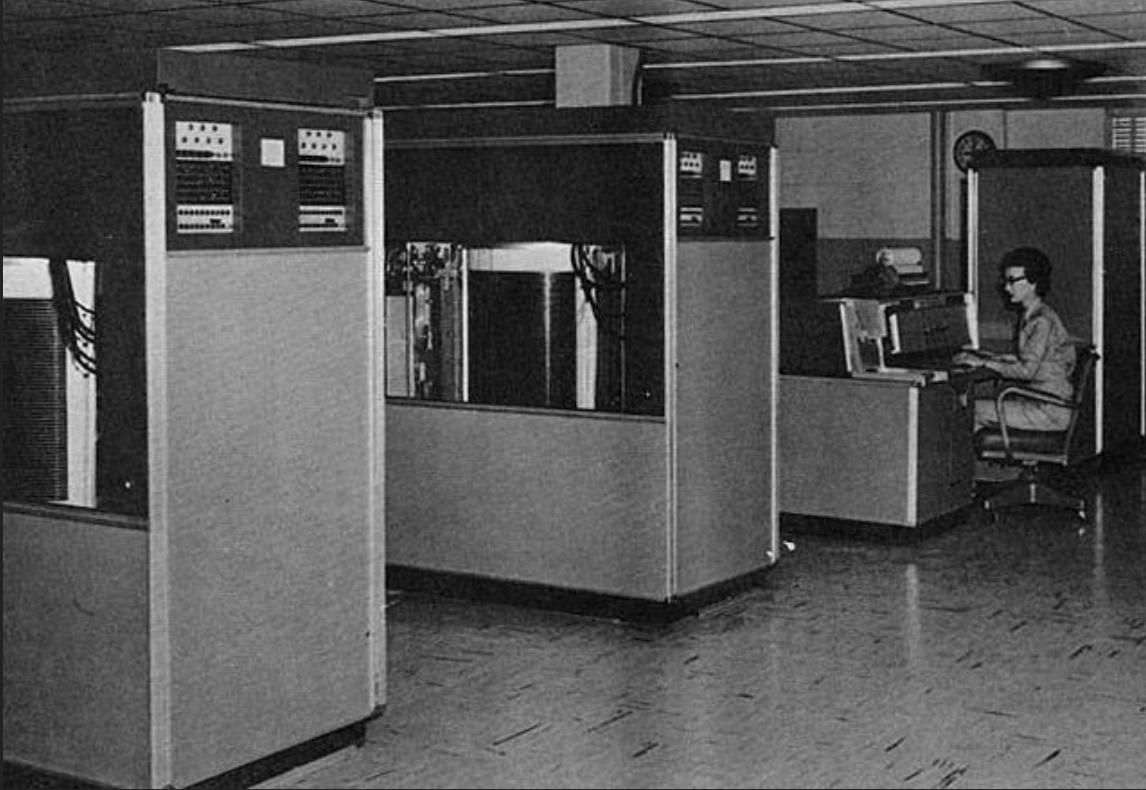
Magnetic tape storage



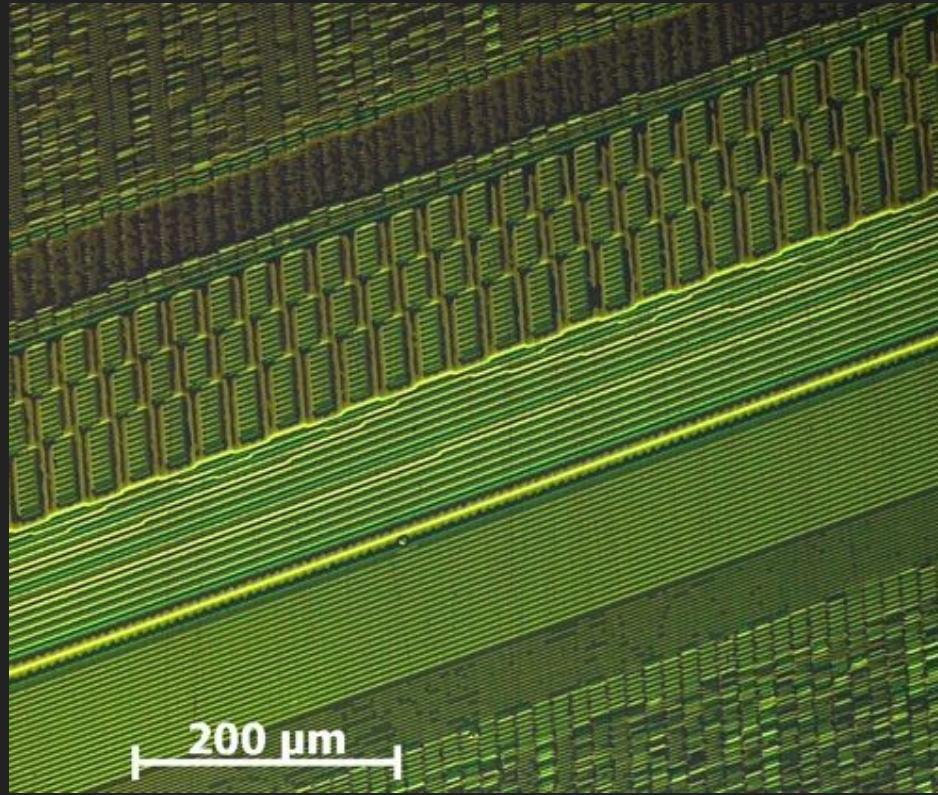
Hard disk drives



Hard disk drives



Hard disk drives



Hard disk drives



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<https://www.storagenewsletter.com/wp-content/uploads/2020/03/Scaleway-C14-Cold-Storage-img1.jpg>
<https://www.mikadolabs.com/coldstorage-c14/>

Flash memory



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[https://commons.wikimedia.org/wiki/File:Universal_serial_bus_\(USB\).jpg](https://commons.wikimedia.org/wiki/File:Universal_serial_bus_(USB).jpg)

Flash memory

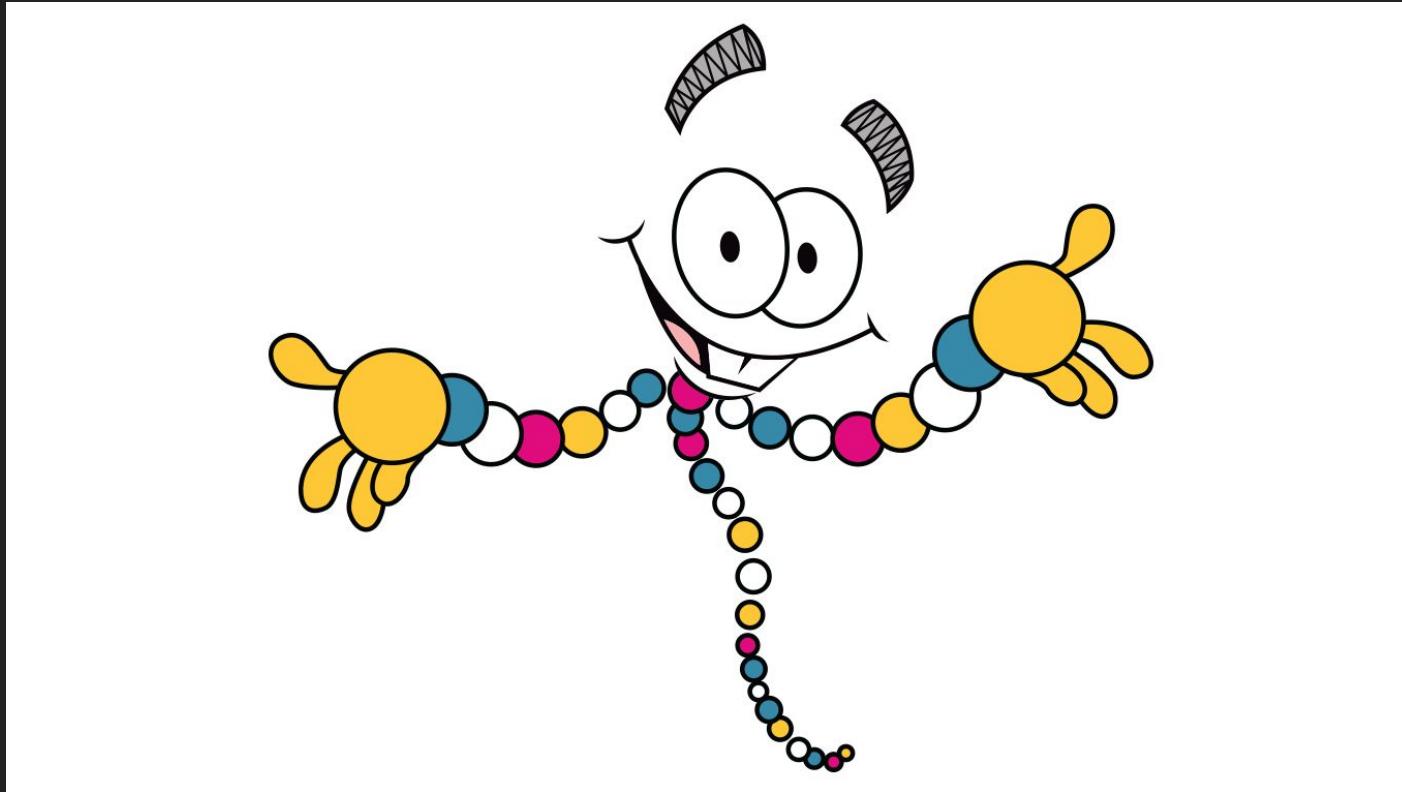


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[https://commons.wikimedia.org/wiki/File:Universal_serial_bus_\(USB\).jpg](https://commons.wikimedia.org/wiki/File:Universal_serial_bus_(USB).jpg)

Future stuff (!!!)

DNA



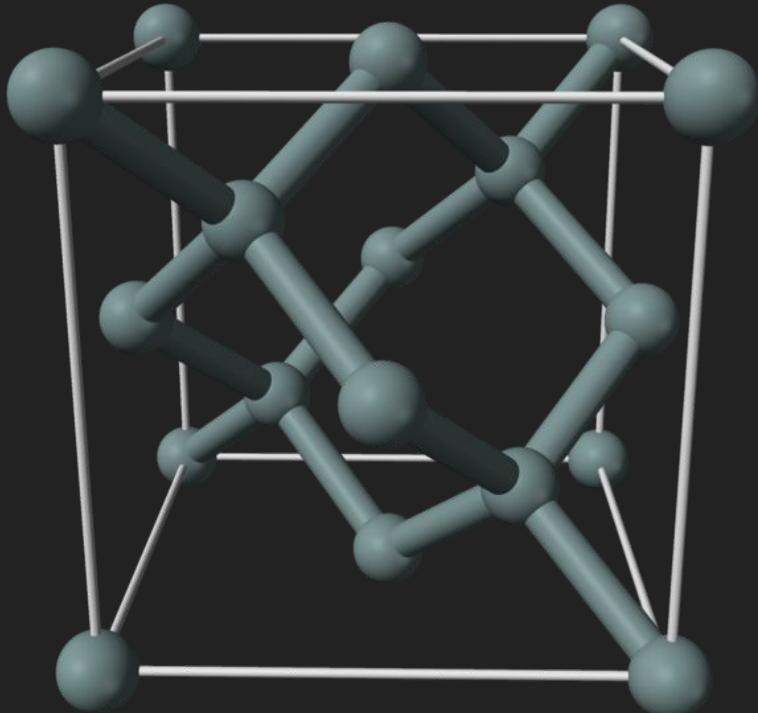
5D Optical data storage



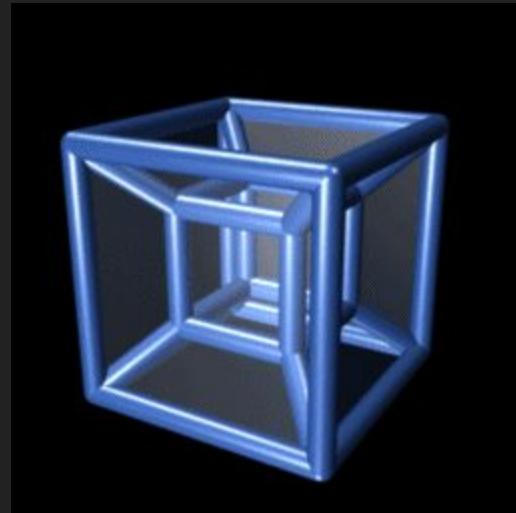
5D Optical data storage



TIME CRYSTALS (???)



TIME CRYSTALS (???)



Conclusions (?)



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