

# A Brief History of Data Storage

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

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# 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?

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# What's on the agenda?

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1. Past things (no electricity)

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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)

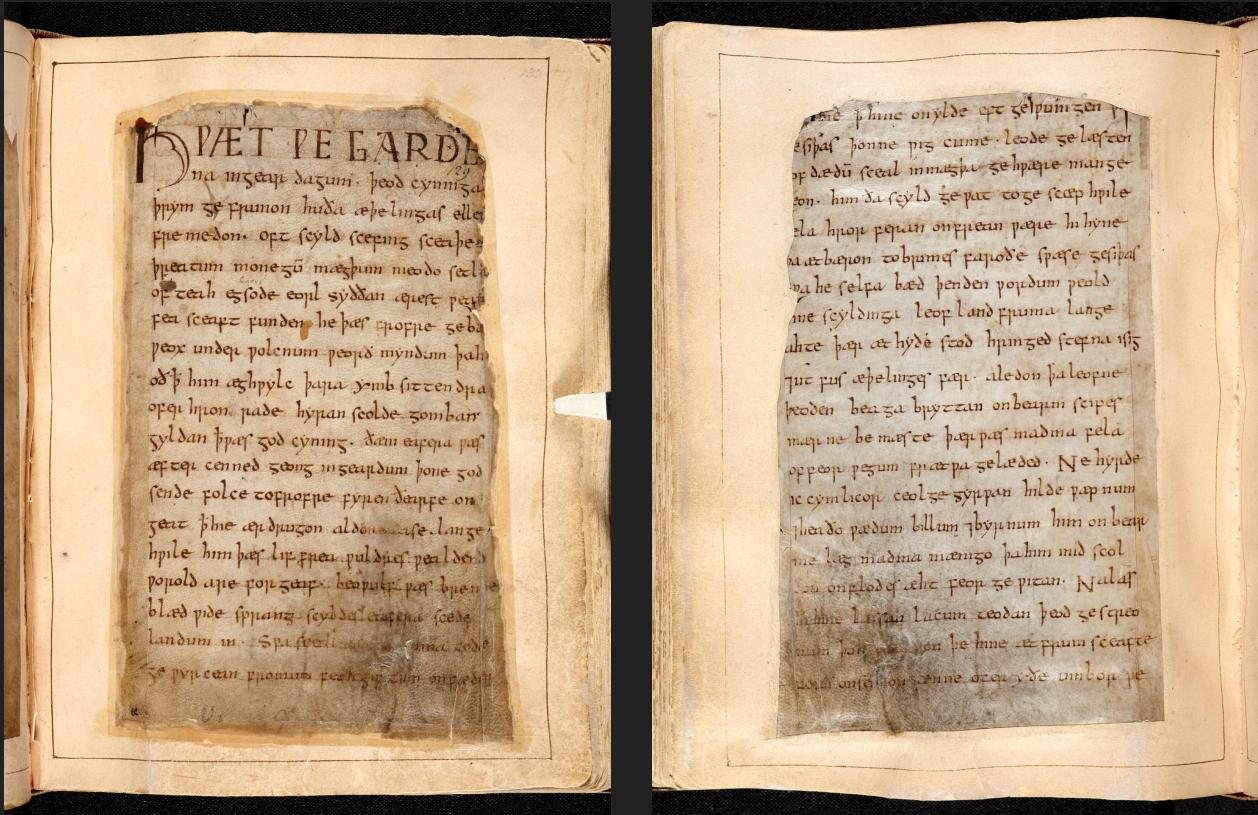
# Clay tablets



# 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](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**





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# Punch cards (loom edition)



# Punch cards (loom edition)



# 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](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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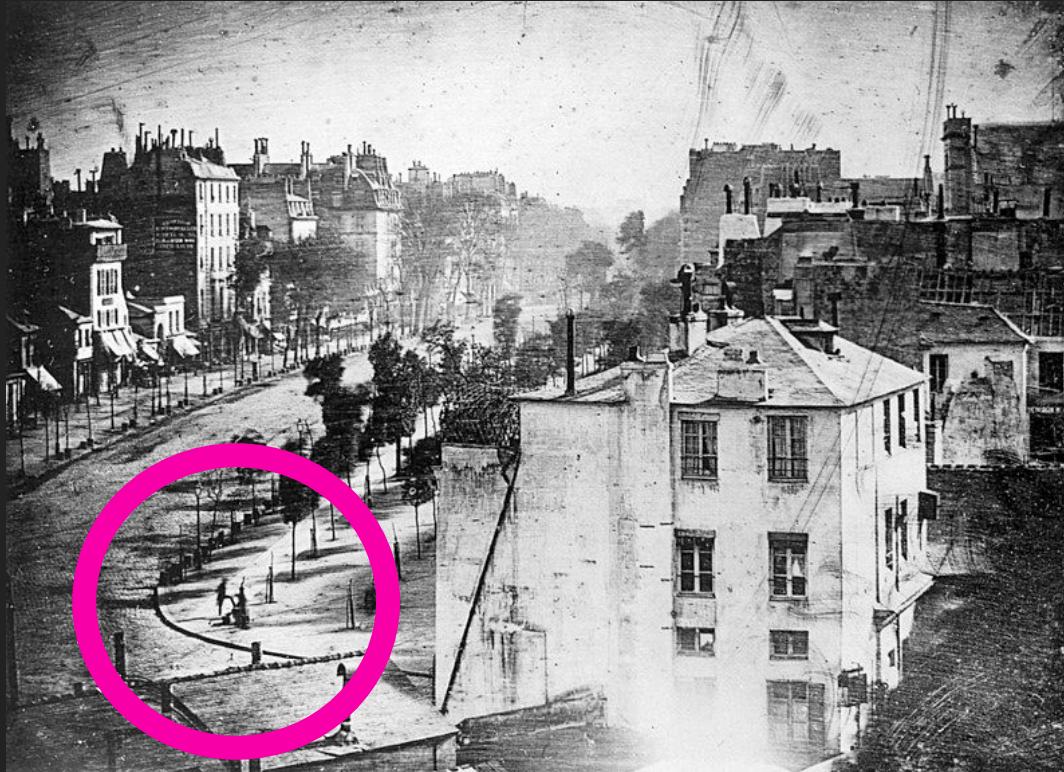
# Film photography



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# Film photography



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# Vinyl audio records



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<https://commons.wikimedia.org/wiki/File:NadelAufPlatte.JPG>

# Vinyl audio records

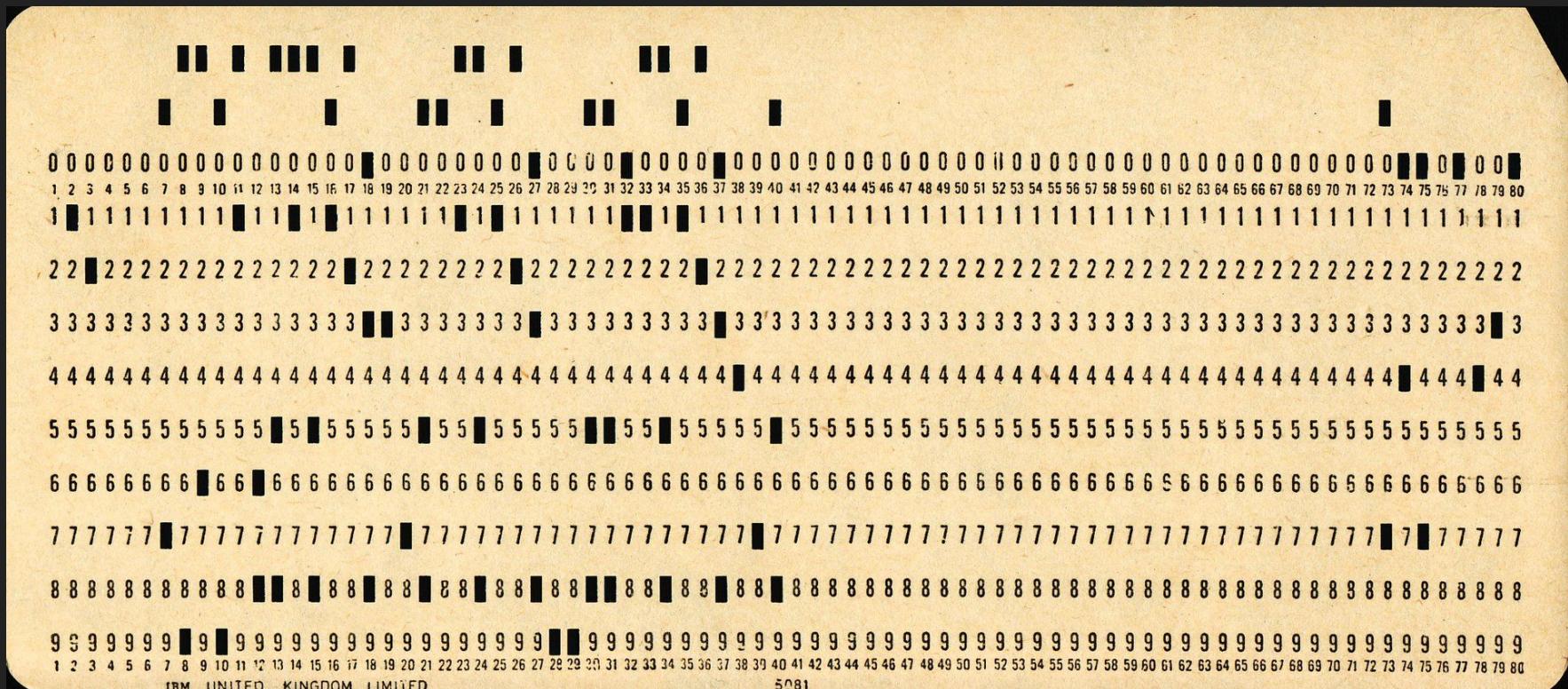


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<https://en.wikipedia.org/wiki/File:12in-LP-Vinyl-Record-Macro-Grooves.jpg>

# Old stuff (yes electricity)

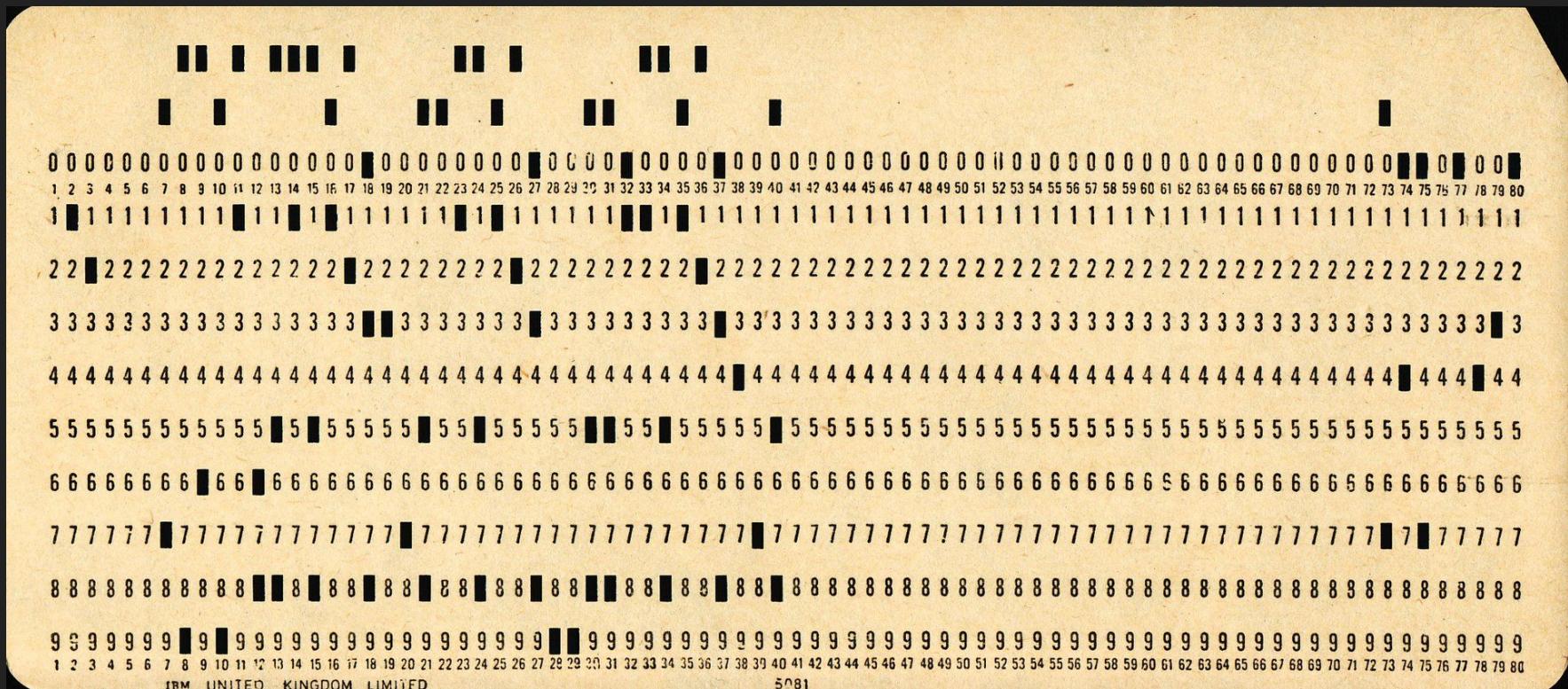
# Punch cards (computer edition)



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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>

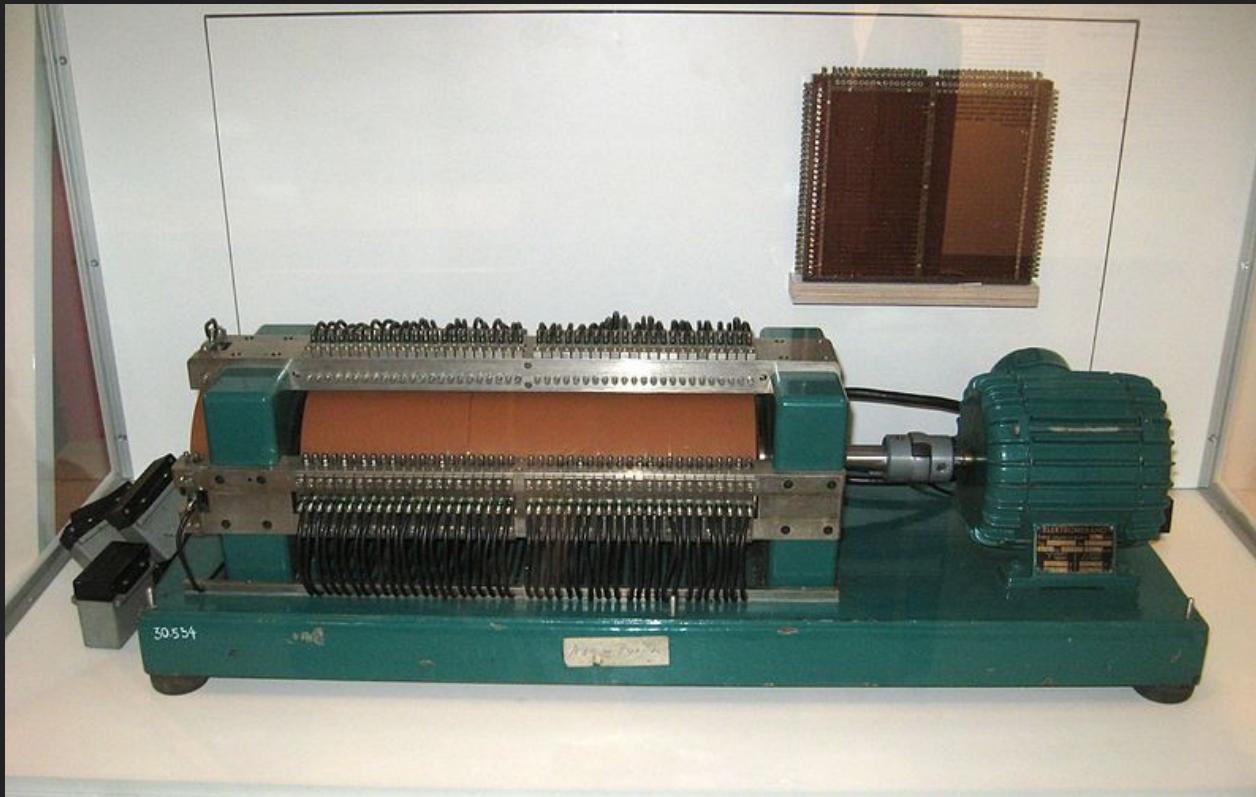
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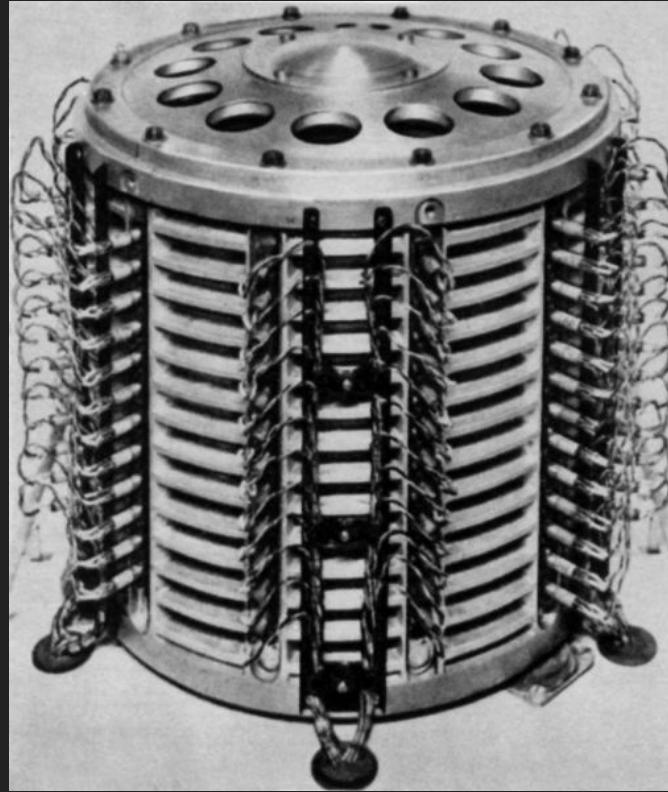
# Drum memory



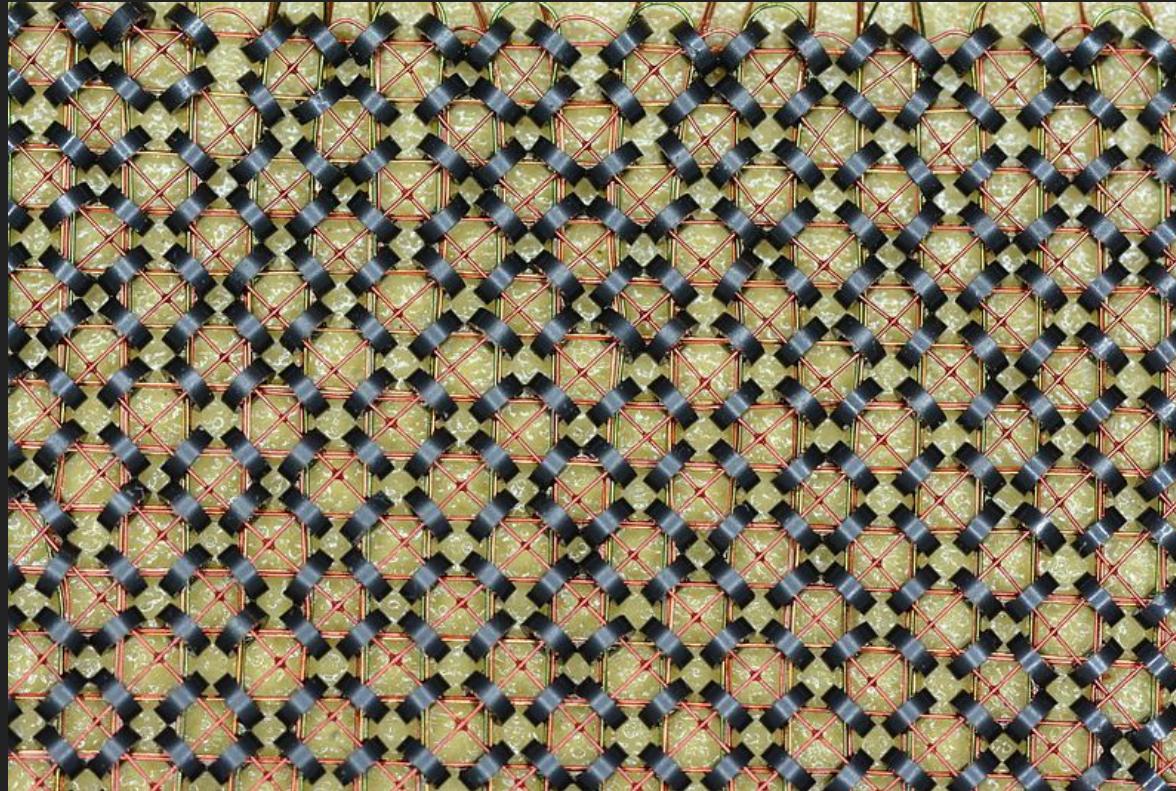
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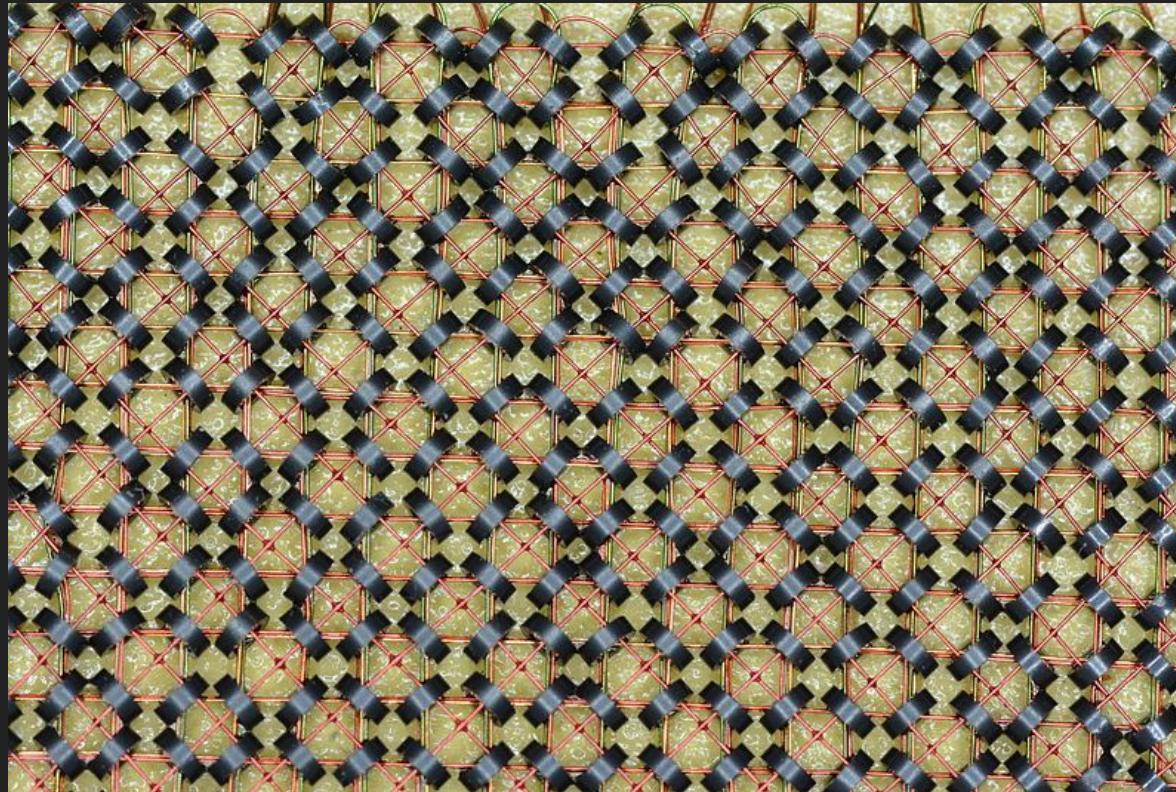
# Drum memory



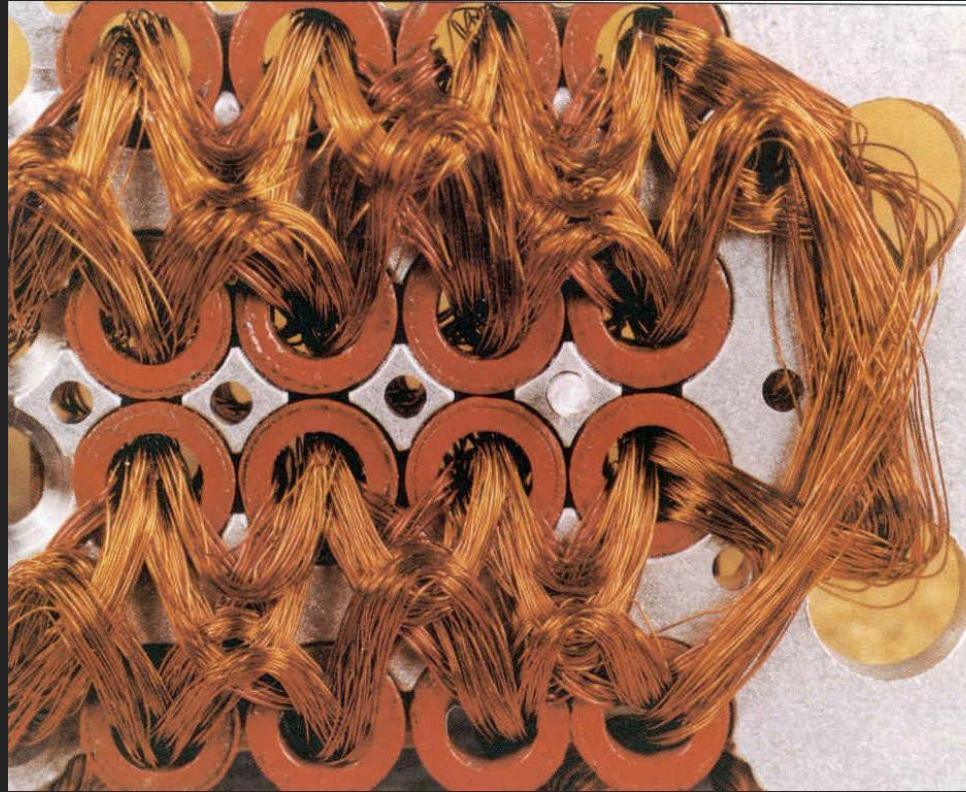
# Magnetic core memory



# Magnetic core memory



# Core rope memory



# Floppy disks



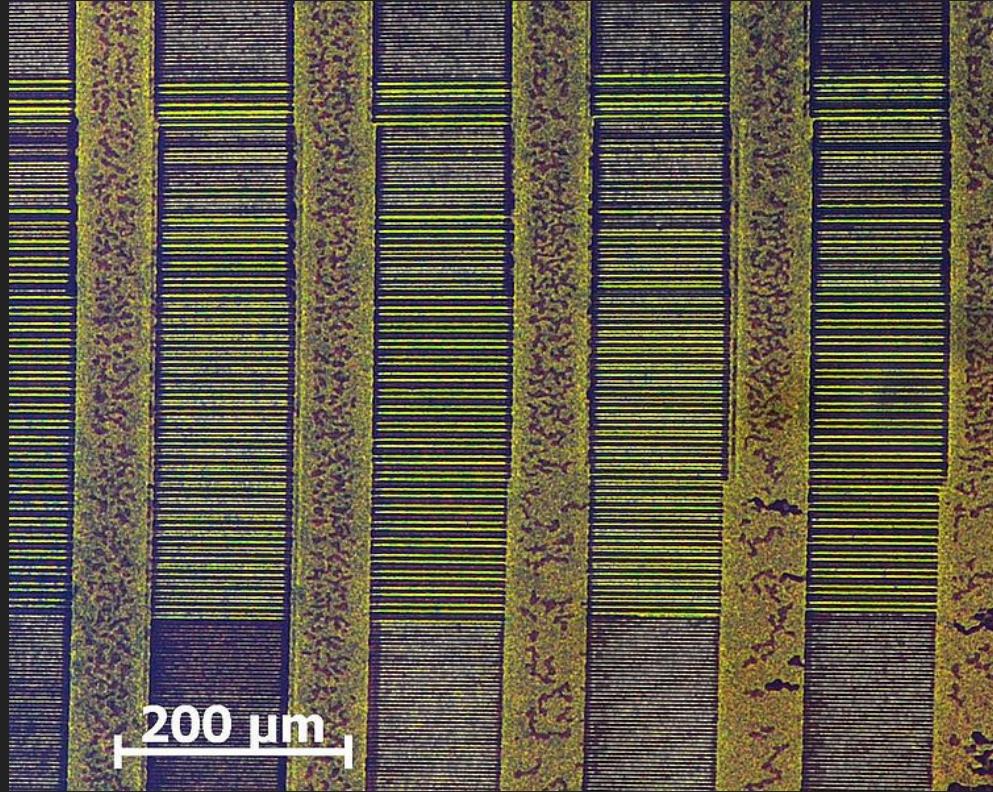
# Floppy disks



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[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)

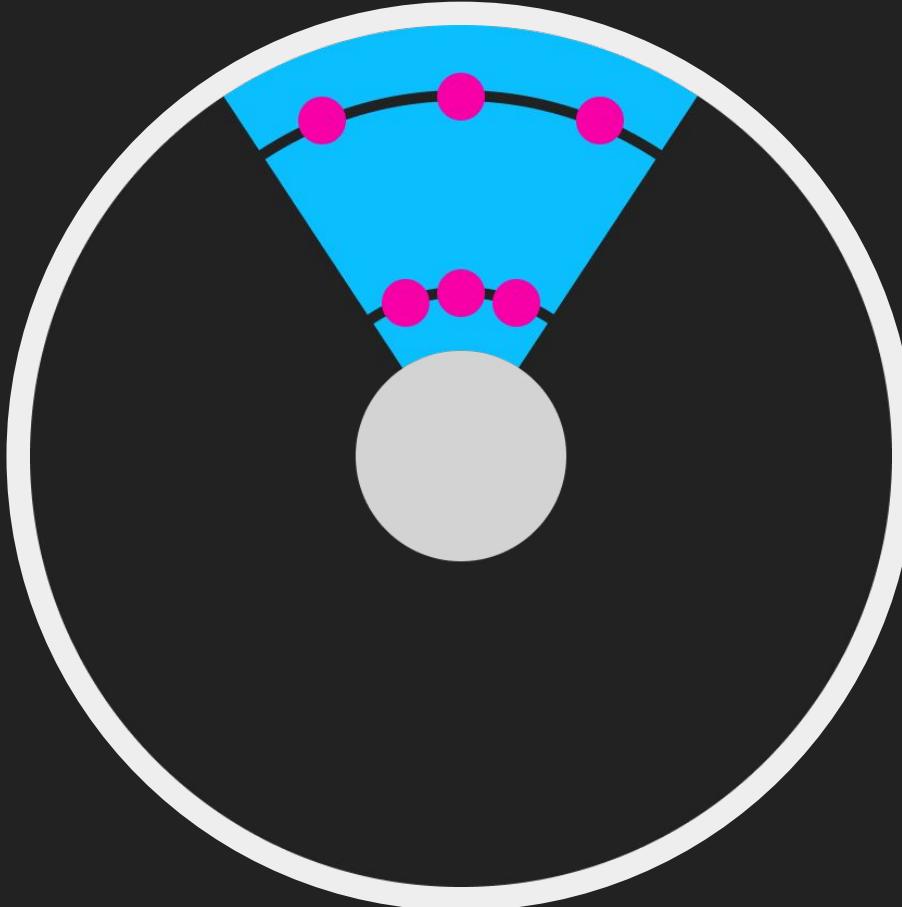
# Floppy disks



# 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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# Interlude: encodings

# Current stuff

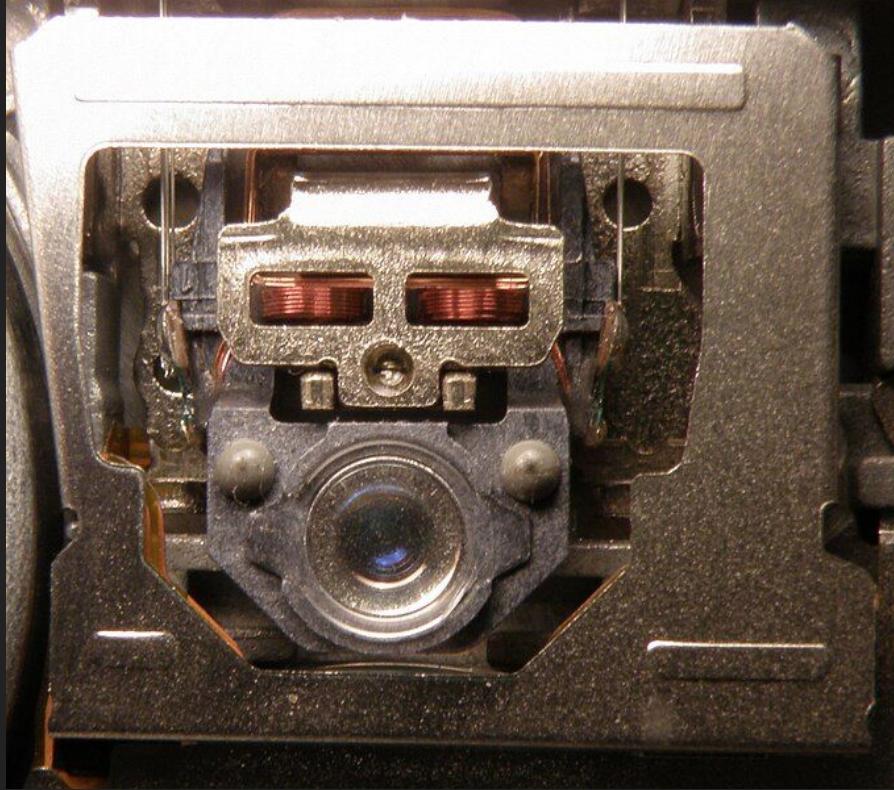
# Optical media



# Optical media



# Optical media



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# Optical media



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# Optical media



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[https://commons.wikimedia.org/wiki/File:Damaged\\_CD\\_20180219.jpg](https://commons.wikimedia.org/wiki/File:Damaged_CD_20180219.jpg)

# Optical media



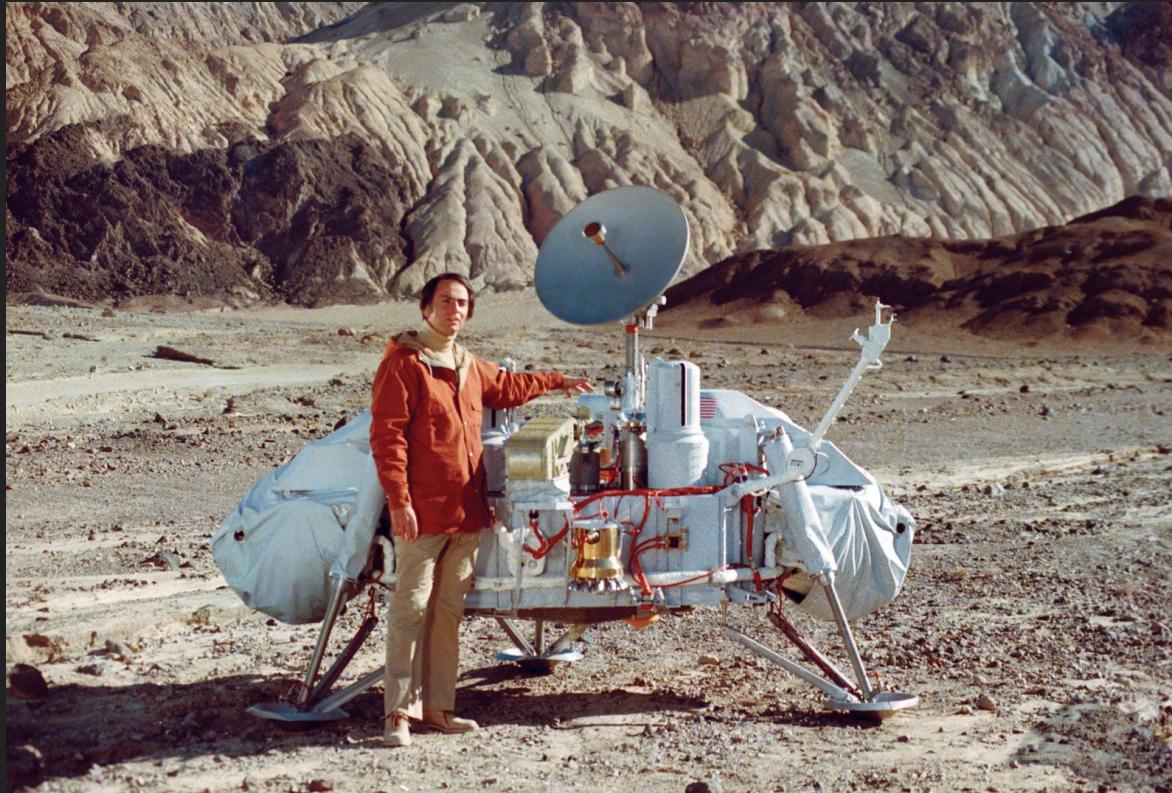
# Magnetic tape storage



# Magnetic tape storage



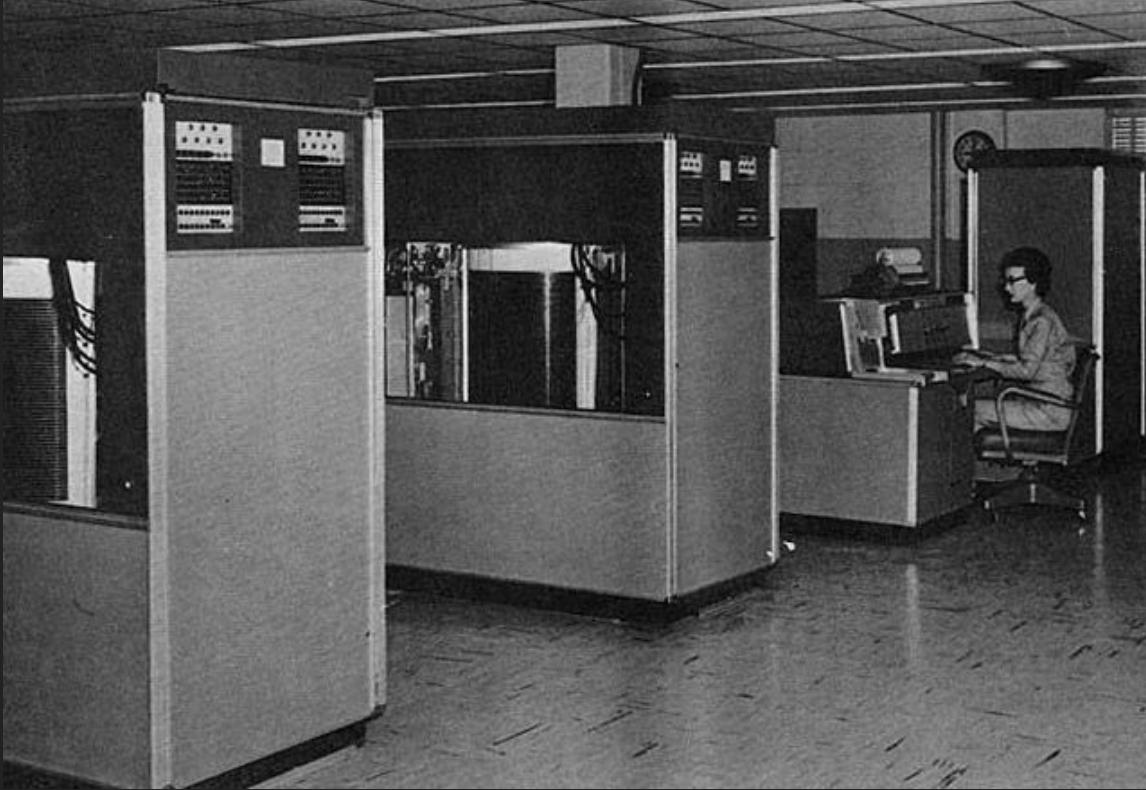
# Magnetic tape storage



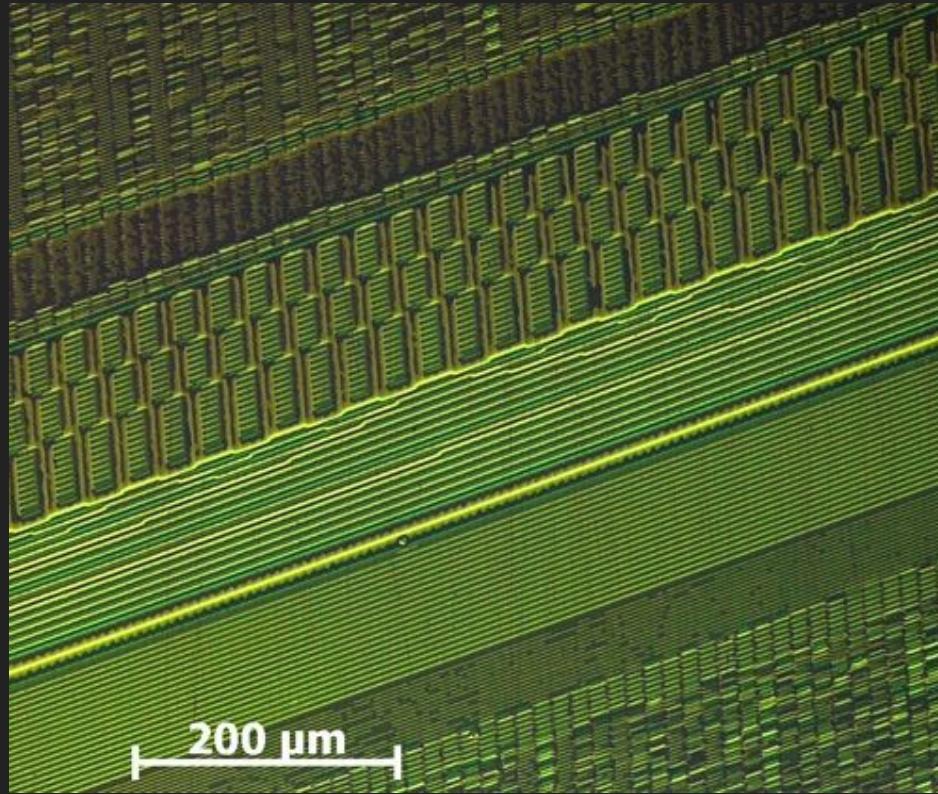
# Hard disk drives



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# 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

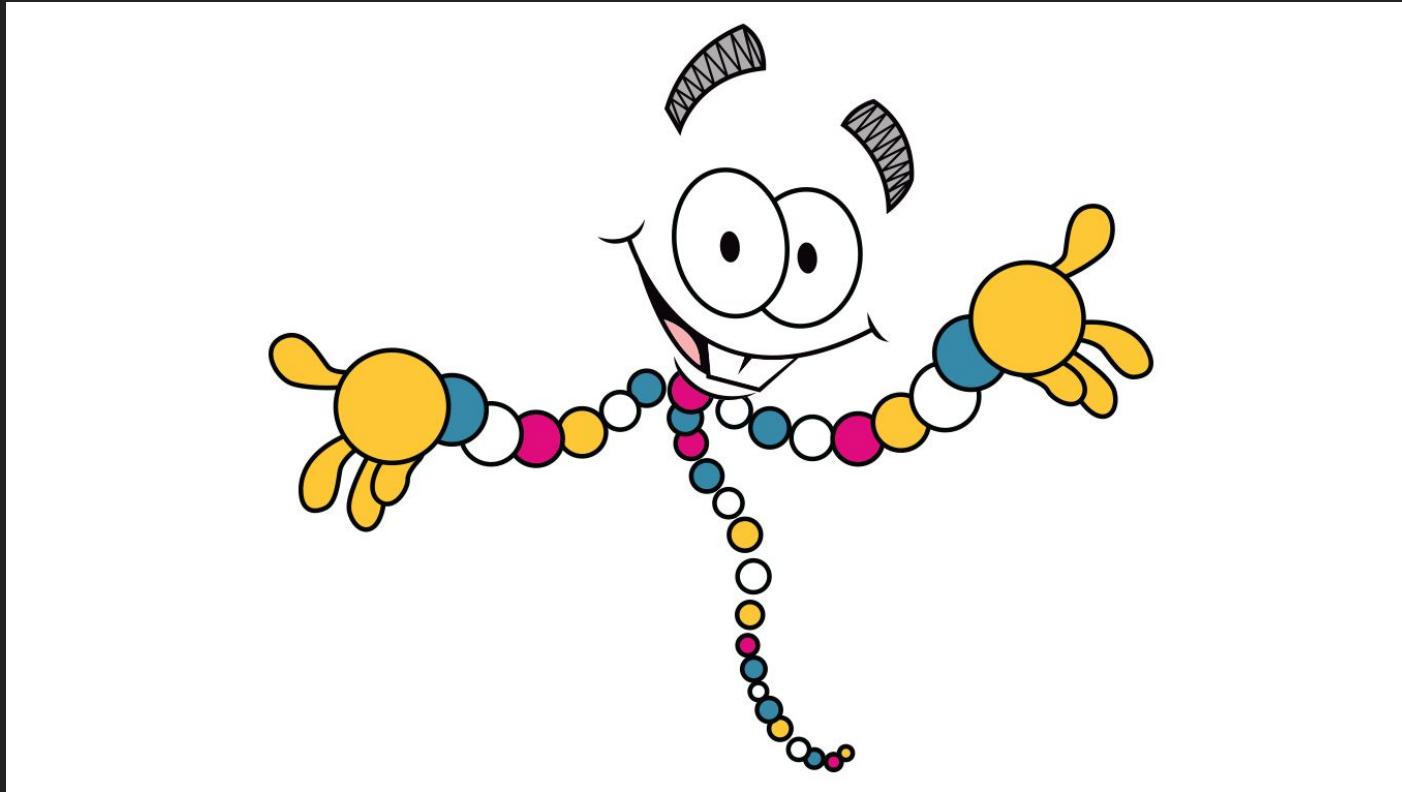


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[https://commons.wikimedia.org/wiki/File:Universal\\_serial\\_bus\\_\(USB\).jpg](https://commons.wikimedia.org/wiki/File:Universal_serial_bus_(USB).jpg)

# Future stuff (!!!)

# DNA



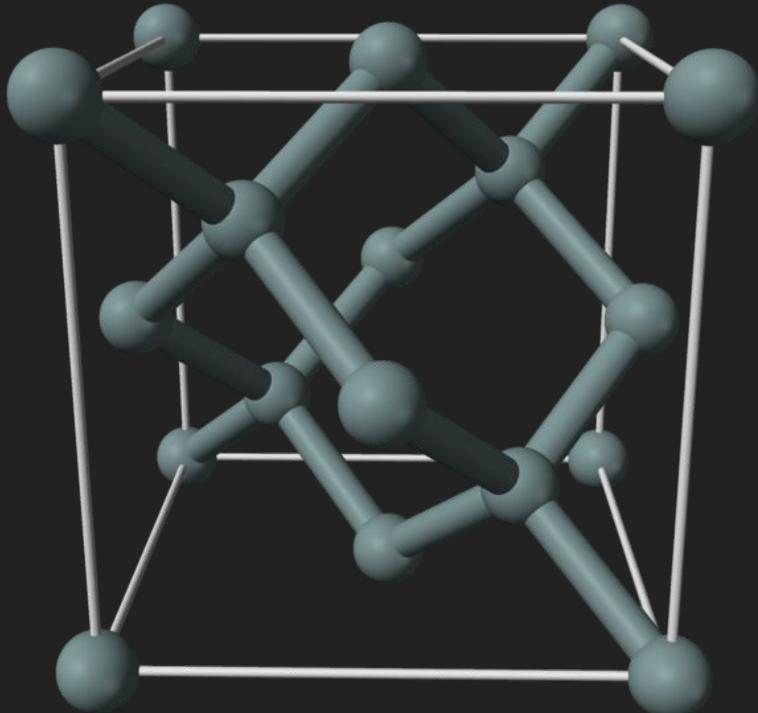
# 5D Optical data storage



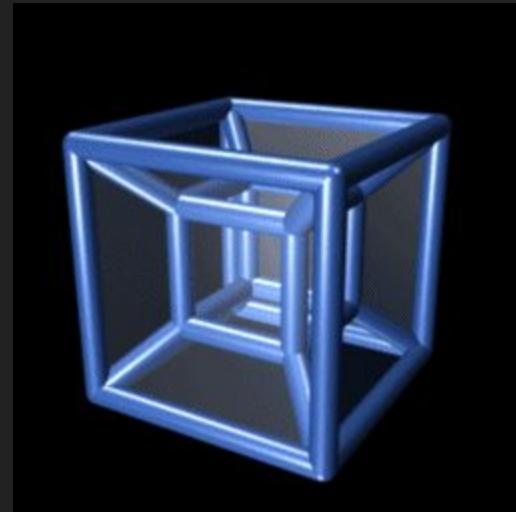
# 5D Optical data storage



# TIME CRYSTALS (???)



# TIME CRYSTALS (???)



# Conclusions (?)



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