Tech Curiosity Session 5 of 6

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Welcome

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Tech Curiosity Presentation Archive

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You are invited

- "The White House (OSTP) Office of Science and Technology Policy's

- series of listening sessions and public events November 15-29

- That addresses issues at the intersection of artificial intelligence, other data-driven technologies and equity.

- Each session will address a specific topic such as criminal justice, consumer rights and healthcare, among others.

- The long-term goal is "to engage the American public in the process of developing a Bill of Rights for an Automated Society."""

Thanks Phoebe!

The Perfect Scam

. I always kept it in garage, no rust, no dents, original paint, no accidents and clean title without any liens or encumbrances.

heidihamilton0441@comcast.net

It is in a good condition, no scratches, no damages, never been involved in any kind of accidents. Great on gas, automatic transmission & only 58,042 miles. ABSOLUTELY NO ISSUES at all and I have the clean title in hand. I'm selling it at this final price of $1.200 because my husband passed away 2 months ago (he had a heart attack) and brings me bad memories

I was accepted for a new job and I moved to my hometown Minneapolis, Minnesota. I am a regular eBay user and now with this new virus situation I decided to use their services. You will have to pay eBay and they won't give me any money until you receive and test the vehicle for 5 days. The vehicle is at the shipping company, ready to be delivered. We also benefit from free shipping, it will be delivered to your address within 3 days and you have a 5 days inspection period to test and inspect it. Please provide me your information (name, address and phone#) so I can register you as the buyer and after that eBay will send you an email with the terms and conditions, with no obligation on buying it and also they will confirm the fact that the transaction is conducted through them and I'm a legitimate seller.

Zoom subscription levels

BASIC
Personal meetings

Free

[Sign Up]

- Host up to 100 participants
- Unlimited group meetings for up to 40 minutes
- Unlimited one-to-one meetings with a 30 hour time limit per meeting.
- Private & Group Chat

*Free, forever. No credit card required.

PRO
Great for small teams

$14.99 /month/license

[Buy Now]

All the benefits of Free, plus:

- Host up to 100 participants
- Increase participants up to 1,000 with Large Meetings add-on
- Group meetings for up to 30 hours
- Social media streaming
- 1 GB cloud recording (per license)

*Purchase up to 9 licenses per account

Update Available!

New version 5.8.4 (1736) is available. You have 5.8.3 (1581).

Release notes of 5.8.4 (1736)
Resolved Issues
 -Security enhancements
 -Minor bug fixes

Release notes of 5.8.3 (1581)
General features
 -Additional MSI/PLIST/GPO/MDM options
Meeting/webinar features
 -Polling enhancements for quizzing
 -Presentation slide control
 -Profile photos for in-meeting chat
 -Optional Reclaim Host when rejoining

How to Update...

WiFi

- And will my router kill me?
    - Nope!
        - [Reality Check: No, your Wi-Fi isn't dangerous](#)
        - [Is WiFi Safe?](#)
        - [Is It Safe To Sleep Near A Wireless Router?](#)
        - [You Should Turn Off Your WiFi Router at Night?](#)
        - [Is it a health hazard to sit beside a WiFi router?](#)
        - [Is It Safe to Sit Next to a Wireless Router?](#)
        - [Etc...](#)
    - Still Nope!

Wifi Frequencies ([source](#))

- Most WiFi routers list two frequencies, usually 2.4 GHz and 5 GHz
- **2.4GHz vs 5GHz WiFi**
    - 5 GHz, more data can be carried, but it's harder for the higher frequency to go as far or to
    - 2.4 GHz, not as much information can be transmitted, but because it's not as high energy, it can go further before the signal degrades. move through solid objects like walls
    - a channel is a segment range of the frequency so there can be multiple devices on the same frequency - like lanes on a freeway
    - In the 2.4 GHz frequency, there are 14 different channels, listed as 1 through 14. Channel 1 uses the frequencies 2.401 GHz through 2.423 GHz, and Channel 14 ranges from 2.473 GHz to 2.495 GHz. 5 GHz channels break down the same way only some signals are designated for "indoor" versus "outdoor."

The difference between WiFi* and a hotspot ([source](#))

What does WiFi stand for? Wireless Fidelity – nope
It's just a user-friendly name to refer to a not so user-friendly technology known as [IEEE 802.11](#)

S.NO	Wifi	Hotspot
1.	Wifi is a wireless communication technology that is used for LAN(Local Area Networks).	Whereas the hotspot provides internet to wireless devices by using wifi.
2.	There is no hotspot without wifi.	Whereas a hotspot is created using wifi.
3.	Wifi is used between wireless devices and an access point for interconnection.	While the hotspot is created using an access point device that is connected to the router.
4.	Wifi provides high speed as compared to hotspot in the case of multiple users.	The hotspot offers lower speed than wifi in the case of many users.
5.	Wifi services are provided by the local area Internet service provider.	Whereas the hotspot services are largely provided by cellular or phone corporations.
6.	Wifi is more secure in comparison to hotspot.	Hotspots are less secure than private wifi as they are typically used in public places.
7.	In wifi, electromagnetic waves under the radio frequency band 2.4GHz are used for communication.	Whereas in the hotspot, wifi technology is used in order to connect the devices to the access point for sharing the internet.
8.	Basically the Wifi is at the end of receiver of internet services.	Whereas Hotspot is at the end of donor of internet services.

The future of WiFi ([source](#))

- New standards such as [WiFi 6](#) or 802.11 ax will use both frequencies at the same time, doubling the amount of data that can be transmitted over the network. New frequencies in the 1 GHz and 7 GHz range are planned to be used as well, which will increase the amount of data transmitted over time.

- The [theoretical speed of WiFi 6](#) is 10Gbps. It achieves this speed increase by combining the 2.4GHx and 5GHz spectrum bands and employing [MU-MIMO technology](#)* for both uplink and downlink data transfers

- WiFi 6 supports increased battery life. Battery life is extended through a feature known as target wake time (TWT). TWT enables the [WiFi access point](#) to communicate with your device to tell it when exactly to turn its WiFi radio to wake up and go to sleep.

- WiFi 6 minimizes network congestion with a technology known as Orthogonal Frequency Division Multiple Access ([OFDMA](#)). This allows a wireless channel to be divided into a number of sub-channels that can each be used to carry data for a different device. This allows a single access point to communicate with more devices simultaneously.

- Improvements in Multiple In/Multiple Out (MIMO) capabilities now allow a router with multiple antennas to both send and receive data transmissions from multiple devices at the same time. WiFi 5 could only send, but not receive multiple signals at once.

- WiFi 1 — 802.11b, released in 1999
- WiFi 2 — 802.11a, released in 1999
- WiFi 3 — 802.11g, released in 2003
- WiFi 4 — 802.11n, released in 2009
- WiFi 5 — 802.11ac, released in 2014
- WiFi 6 — 802.11ax, released in 2019

*multi-user, multiple-input, multiple-output supports multiple users accessing wireless networks at the same time

More RF Drama

FAA, FCC, and 5G – what's the problem?

- **[FAA issues warning on potential safety risks from 5G C-band](#)**
- What's the big deal?
  - Wireless carriers paid big, in particular Verizon and AT&T at more than $45 and $23 billion respectively, to acquire new spectrum licenses in the 3.7-3.98 GHz range at auction earlier this year that are seen as key for 5G services.
  - Specifically at question of the ongoing debate is interference with radio altimeters, which operate in the nearby 4.2-4.4 GHz band and help with key systems such as landing in bad weather, avoiding collisions and preventing crashes.
  - "Operators should be prepared for the possibility that interference from 5G transmitters and other technology could cause certain safety equipment to malfunction, requiring them to take mitigating action that could affect flight operations," the FAA statement continued.
  - "Any delay in activating this spectrum risks America's competitiveness and jeopardizes our ability to ensure global 5G leadership" is **CTIA**-The Wireless Association's response.

FAA,FCC, and 5G (continued)

- Recommendations
  - pilots remind passengers that all portable electronic devices equipped with 5G be should be turned off or switched to airplane mode during flight.
  - Radio altimeter and wireless avionics intra-communications (WAIC) system manufacturers will continue testing specific equipment that could have interference from the 3.7-3.8 GHz frequencies and report concerns to civil aviation authorities and spectrum regulators
  - Bottomline: "C-Band auction winners may have the right under FCC rules to operate networks, but if the FAA raises its voice in predicting safety problems and the airlines start canceling flights, the political backlash could force some delays and compromises." (Levin)

Source

- But as **Boeing** (PDF) and others point out, numerous other important industries depend on C-band satellite services as well, including for air traffic control and to distribute detailed weather information used to support flight operations.

- According to Aviation Spectrum Resources (ASR), radio altimeters are especially vital for helicopters, which have a variety of missions often involving operation at lower altitudes, over uneven terrain, and in a variety of environments.

- Boeing **has noted** (PDF) that radio altimeters use relatively low power levels and must operate across the entire 4200-4400 MHz bandwidth to generate accurate results for landing aircraft.

- "This need creates the risk that terrestrial radio transmitters operating near the upper edge of the C-band could overpower relatively weak reflected radio altimeter" signals leading to false readings of an aircraft's altitude above terrain," ASR told the commission in a **Dec. 11 filing** (PDF).

Everything you need to know about Search (and more)

Search – without tracking ([source](#))

- **12 Private Search Engines that Do Not Track You**
  - **DuckDuckGo**
  - **WolframAlpha**
  - **Startpage**
  - **Yippy**
  - **Hulbee**
  - **Gibiru**
  - **Disconnect Search**
  - **Lukol**
  - **MetaGer**
  - **Gigablast**
  - **Oscobo**
  - **Dogpile**

How to Use Search ([source](#))

- How many searches on Google?
  - 63,000 every second, **5.6 billion per day** and ~2 trillion per year
- Best Practices
  - **Use Google Search <mark>Modifiers</mark>** (ways you can refine your search results)
    - **Exclude terms with a minus (-) symbol** *best apps -android*
    - **Use quotations to search for the exact order** *"Patrick Stewart young"*
    - **Find one result OR the other** *apple OR Microsoft*
  - **Learn Google's Search <mark>Operators</mark>** (find results from specific websites, web headings, and file types)
    - **A single website** *Google Photos tips site:pcmag.com*
    - **Search titles only** *Microsoft Bing intitle:bad* or *allintitle: Google is faster than Bing*
    - **Search text only** *intext:* or *allintext:* allows you to only search on the text of a site
    - **Search File Types** *filetype:* to search only for uploaded files that match your query ([more](#))
    - **Search Related Websites** *related:amazon.com* ([more](#))

How to Use Search (source)

- **Set Google Search Result Time Restraints**
  - Looking for only the latest news about a subject or trying to find information relevant to a specific time frame? Use Google's search tools on desktop and mobile to filter your search results. After you conduct a search, click Tools on the top right and select **Any time** to open a drop-down menu to narrow results to hours, week, months, or a custom date range.

- **Perform an Advanced Google Image Search**
  - You can use many of the aforementioned search refiners in Google image searches. However, you can get *even more* in-depth image searches by clicking over to Google's advanced image search page, which allows you to search by image size, region, file type, and even for specific colors.

Advanced Image Search

Find images with...		To do this in the search box
all these words:		Type the important words: `winter hoarfrost`
this exact word or phrase:		Put exact words in quotes: `"frost flower"`
any of these words:		Type OR between all the words you want: `trees OR weeds OR grasses`
none of these words:		Put a minus sign just before words you don't want: `-windows`

Then narrow your results by...

image size:	any size	Find images in any size you need.
aspect ratio:	any aspect ratio	Specify the shape of images.
colors in image:	● any color ○ full color ○ black & white ○ transparent ○ this color: ■	Find images in your preferred colors.
type of image:	any type	Limit the kind of images you find.
region:	any region	Find images published in a particular region.
site or domain:		Search one site (like `sfmoma.org`) or limit your results to a domain like `.edu`, `.org` or `.gov`
SafeSearch:	Show explicit results	Tell SafeSearch whether to filter sexually explicit content.
file type:	any format	Find images in the format you prefer.
usage rights:	all	Find images you are free to use yourself.

Advanced Search

How to Use Search (source)

- **Perform a Reverse Image Search**
  - Google supports "backward" image searches on most browsers. This function allows you to upload an image file and find information on that image. For example, if you uploaded a picture of the Eiffel Tower, Google will recognize it and give you information on the Paris monument. It also works with faces, and can direct you to websites where the image appears, identify a work of art, or show you images that are "visually similar."
  - Go to Google Images, where you can drag and drop an image into the image search bar, or click the camera icon to upload an image or enter an image's URL. (Here's how to do a reverse image search on your phone.)
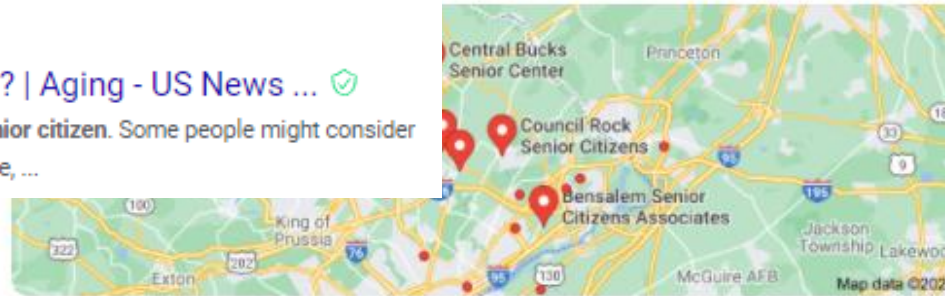
About 6 results (0.65 seconds)

Image size:
1077 × 1485

No other sizes of this image found.

Possible related search: *senior citizen*

https://money.usnews.com › ... › Retirement › Aging ▾
When Do You Become a Senior Citizen? | Aging - US News ... ✓
There is no clearly defined age when you become a **senior citizen**. Some people might consider themselves seniors when they retire from the workplace, ...

Rating ▾   Hours ▾   Your past visits ▾

Central Bucks Senior Center
4.4 ★★★★☆ (35) · Senior citizen center
700 N Shady Retreat Rd

Council Rock Senior Citizens
4.7 ★★★★☆ (26) · Senior citizen center
Richboro, PA

Bensalem Senior Citizens Associates
4.7 ★★★★☆ (71) · Senior citizen center
Bensalem, PA

And if you want to see even more information about a photo, use: '**Jeffrey's Image Metadata Viewer**'

Senior   ⦉

: an elderly person especially : **one who has retired.**

https://www.merriam-webster.com › dictionary ›
Definition of senior citizen - Merriam-Webster ✓

How to Use Search ([source](#))

- **Do Math in Your Google Search Box**
  - Whether you want to figure out a tip on a meal, or create a complex geographical rendering, Google search has you covered.
  - You can do basic calculations directly in the search bar. For example, searching *34+7* will prompt a calculator below the bar with the correct answer already filled in. You can also search *3 times 7* or *20% of $67.42* and receive the answer.
  - Super math nerds can create interactive 3D virtual objects (on desktop browsers that support WebGL) by plugging in an equation that uses "x" and "y" as free variables. Or plug in different numbers along with some cos(x)s, sin(y)s, and tan(x)s and see what renders.
  - If these more advanced math functions are something you can use for your everyday activities, Google has an in-depth, mathlete-level explainer [here](#).

About 1,170,000 results (0.59 seconds)

Graph for cos(3*x)+sin(x), cos(7*x)+sin(x)

x: -5.70932464   y: 0.392663384
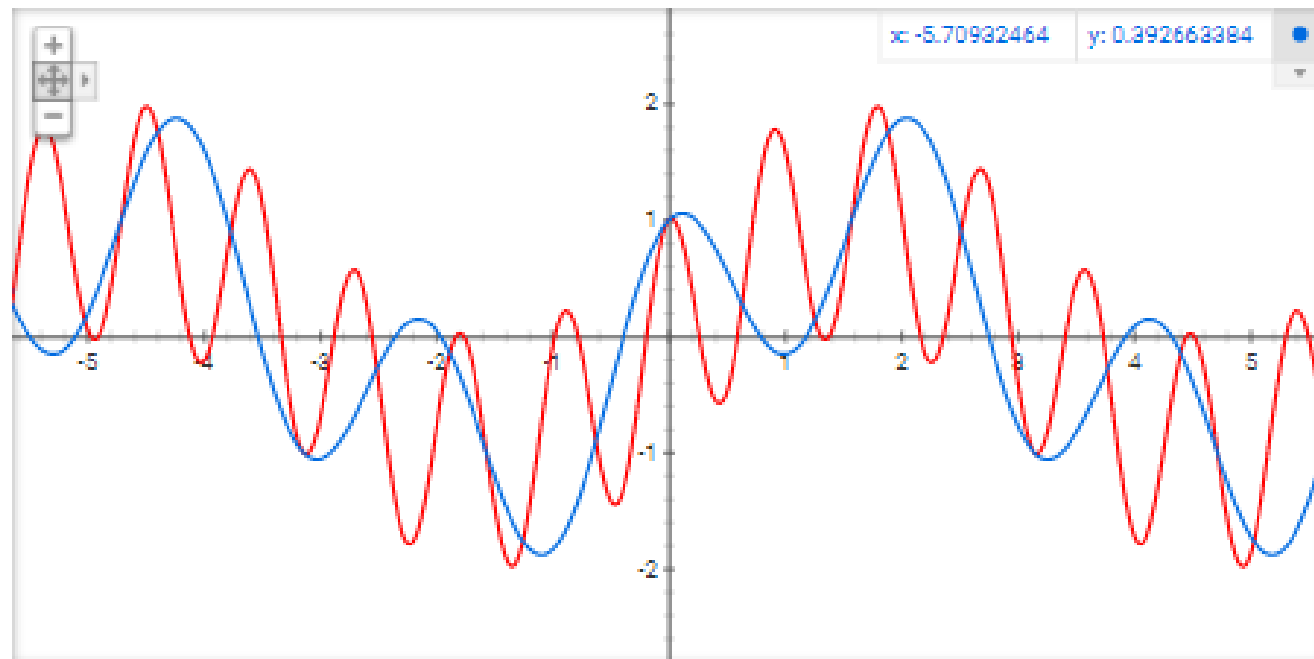
More info

How to Use Search ([source](#))
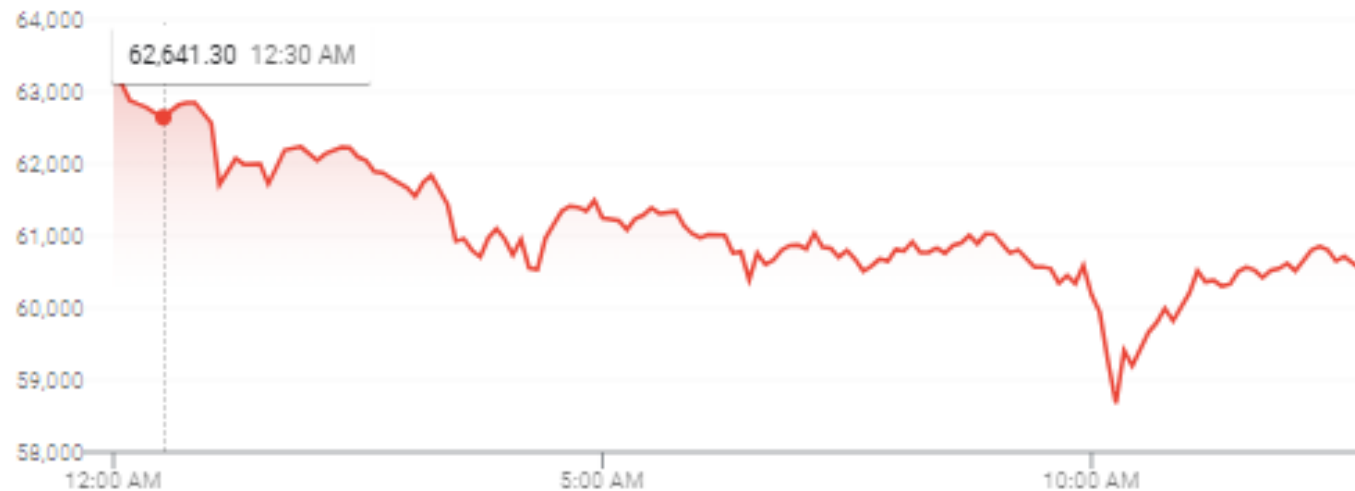
- **Use Google Search as a Converter**
  - Google will help you convert just about anything. You can search *38 Celsius in Fahrenheit, 10 ounces in pounds,* and even *17.5 millimeters in light years*. Not only will Google provide you with the answer, it will also provide an interactive conversion calculator for further converting.
  - Additionally, you can find up-to-date currency conversion rates with just a few keystrokes without needing to know the official currency symbol ($, €, etc.) or ISO designator (i.e. USD for the US dollar or GBP for the British pound). Google's algorithm is able to discern sentence-style queries to provide an answer, interactive chart, and a calculator for further conversions.
  - For example, a search for *38 dollars in Iceland* returns the answer that (as of Nov. 16, 2021) $38 was equal to 5,030.44 Icelandic Króna. You can even search *1 bitcoin in dollars* to find out it is worth $60,541.50 (at 12:45pm UTC).

Yikes! Bitcoin lost $2000 in value since midnight... sell, sell sell!

How to Use Search (source)

- **Use Google Search as a Converter**
  - Ask Google search to define unfamiliar words (or two-word phrases) just by typing the word and define/definition. This will prompt Google to return a card with the definition, pronunciation, and—when available—a detailed etymology. Sometimes Google will define the word inside the autocomplete box before you press Search. Searched 'bowanga' – <mark>you DON'T want to know</mark>!

- **Track Packages in Google Search**
  - You can track (most) packages in your search bar. Just paste the tracking number into search and Google will recognize it and provide a link to the tracking page. (Doesn't seem to work with Amazon tracking numbers…)

How to Use Search ([source](#))

- **Google Voice Search**
  - To search by voice in your desktop browser, click the little microphone in the search box (assumes you have a microphone). This feature works much better on mobile devices, where the "OK, Google" trigger is more intuitive. If you ask basic questions, Google Assistant will even answer for you. This function is only supported in the Chrome browser at this time.

- **Search for the Time**
  - Calculating time difference is hard, so why not let Google do the work for you? Type *time [any location]*, which could be the name of a country, city or (if it's in the US) a ZIP code, to return a card with the up-to-date local time of your search. It beats having to manually figure out how many hours ahead or behind you are.

12:58 PM

Tuesday, November 16, 2021 (GMT)
Time in Timbuktu, Mali

How to Use Search ([source](#))

- **Search for Sunrise and Sunset**
  - Want to know when the sun will rise or set in your neck of the woods? Search *sunrise* or *sunset*. You can also search for the sunrise/set times for other locations, as well.

  4:42 PM

  Tuesday, November 16, 2021 (EST)
  Sunset in Doylestown, PA 18902

- **Search for the Weather**
  - You can find out the weather in your area by simply searching *weather*—Google Autocomplete will even give you today's current forecast as you type. Conduct a search and Google will present an interactive card with weather information courtesy of The Weather Channel.
  - By default, a search for *weather* will prompt an info card for the location of your [IP address](#). However, you can also search *weather [any location]* to get the weather report for just about anywhere in the world, e.g. *weather Toledo, OH* or *weather Kabul Afghanistan*.

  14 °F|°C Precipitation: 30%
  Humidity: 88%
  Wind: 0 mph

  Nur-Sultan, Kazakhstan
  Tuesday 6:00 PM
  Light snow

How to Use Search (source)

- **Real-Time Stock Quotes**
  - Type in any publicly traded company's ticker symbol and Google will present real-time price information on that company, e.g. *GOOG* (for Alphabet), *AAPL* (for Apple), or *AMZN* (for Amazon). Most of the larger exchanges are in real time, though Google offers a comprehensive disclaimer for which exchanges are on a delay.

- **Check Flight Times**
  - People may be flying less these days, but if you're headed to the airport or picking up a loved one, type in a flight number and Google will return a card with up-to-date times and terminal/gate information. If you're looking to book a flight, check out Google Flights to find the cheapest flights online.

Market Summary > Tesla Inc
NASDAQ: TSLA

1,013.39 USD -20.03 (1.94%) ↓ today
Closed: Nov 16, 8:02 AM EST · Disclaimer
Pre-market 1,003.00 −10.39 (1.03%)

1 day	5 days	1 month	6 months	YTD	1 year	5 years	Max

1,040

1,015.13 USD 3:35 PM

Previous close
1,033.42

1,020

1,000

980

12:00 PM   4:00 PM   8:00 PM

Open	1,017.63	Mkt cap	1.00T
High	1,031.98	P/E ratio	328.84
Low	978.60	Div yield	-

Best departing flights ⓘ
Total price includes taxes + fees for 1 adult. Additional bag fees and other fees may apply.

Sort by: ↑↓

F	9:57 PM – 7:41 AM⁺¹	12 hr 44 min	1 stop ⚠	445 kg CO$_2$	$128
	Frontier	PHL–SMF	5 hr 7 min LAS	-13% emissions ⓘ	round trip

Returning flights
Total price includes taxes + fees for 1 adult. Additional bag fees and other fees may apply.

Sort by: ↑↓

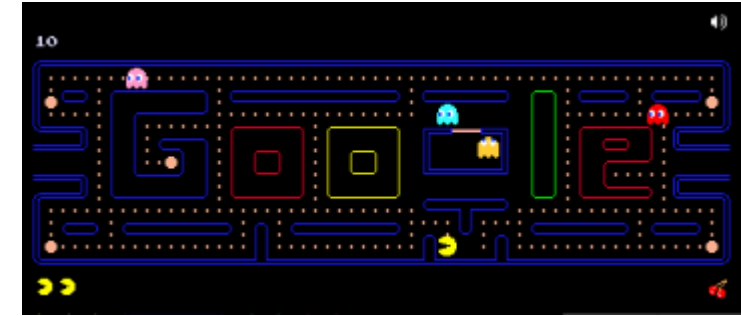| F	1:30 PM – 6:15 AM⁺¹	13 hr 45 min	1 stop	445 kg CO$_2$	$128
	Frontier	SMF–PHL	7 hr 38 min LAS	-16% emissions ⓘ	round trip

7 hr 38 min layover · Las Vegas (LAS)

Yikes! Great price though...

How to Use Search ([source](#))

- **Play Games in Google Search**
  - Google has a host of built-in games and tools you can access by Googling them, including [Pac-Man](#), tic tac toe, Solitaire, Minesweeper, and Snake. Search *flip a coin* and Google will do it for you; same thing with a die or spinner. Google also has a built-in calculator, metronome, breathing exercise, and a color picker that provides the Hex Code and Decimal Code for any shade.
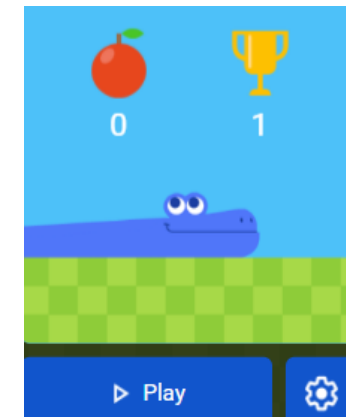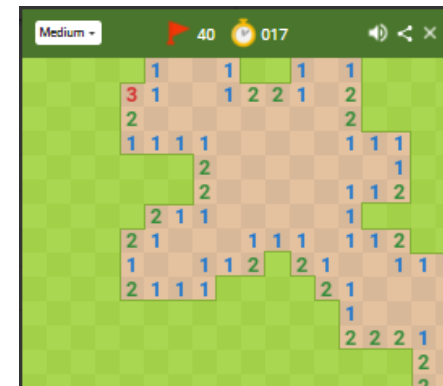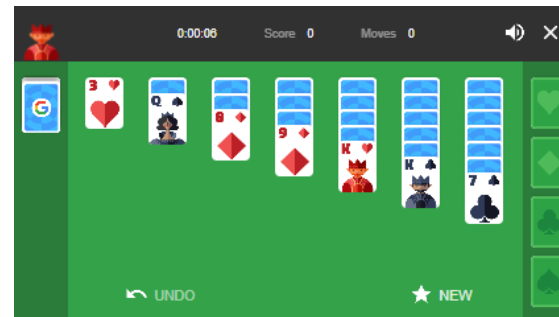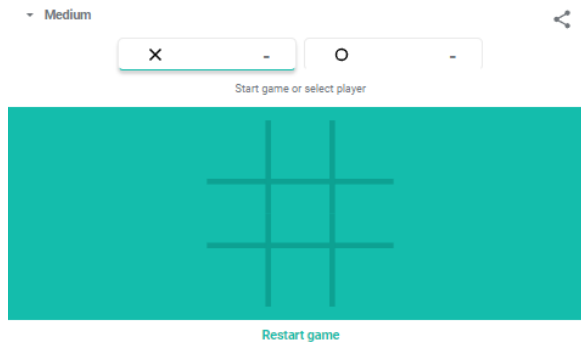
How to Use Search ([source](#))

- **Let Google Search for You**
  - With Google Alerts, you can create custom alerts that will notify you any time a new page is published containing your selected keywords. [Create an Alert](#) by first selecting an email address where these results will be sent, then add topics to track. Type in what you're looking for and Google will show you what the alert will look like with existing stories already indexed by the search engine. Choose how often you receive an update, the sources included, and a few other limitations

My alerts (9)

drone + ADS-B

drone + faa

drone + incidents

drone + law

drone + military

drone + racing

drone + regulation

drone + safety

drone + technology

Alerts

Monitor the web for interesting new content

dancing unicorns

This will create an email alert for glenmaxson@gmail.com.

Create Alert   Show options ▼

Alert preview

There are no recent results for your search query. Below are existing results that match your search query.

NEWS

App Army Assemble: **Unicorns** on Unicycles - Is **unicorn** jousting the next big sport? | Pocket Gamer

Pocket Gamer

Unicorns on Unicycles is a physics-based fighting game where you do battle with jousting **unicorns**. It practically explodes with vibrant colours, ...
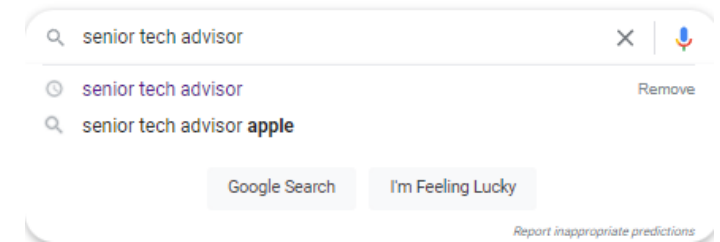
Dancing Unicorn Vector Art, Icons, and Graphics for Free Download - Vecteezy - Vecteezy

Kpopsies - **Unicorn** Pop Stars - Apps on Google Play - Google Play

Full Coverage

How to Use Search ([source](#))

- **I'm Feeling (Something Else)**
  - Remember Google's "I'm Feeling Lucky" button? ==Type in a search term and click I'm Feeling Lucky== to be immediately taken to the first search result. It's a good way to save time when you know exactly what you're looking for. However, Google has added a new wrinkle that can help you find something else.
  - ==Before you type anything into Google, hover over the I'm Feeling Lucky button and the wording will change==. It may change to "I'm Feeling Adventurous," which will provide you with a coin to flip. "I'm Feeling Hungry" will Google nearby restaurants. "I'm Feeling Trendy" will show you recent Google trends. Every day there are new suggestions with different results.

How to Use Search (source)

- **Google Search Easter Eggs**
  - As we've detailed in the past, Google's engineers apparently have a lot of extra time on their hands with which to implement all manner of Easter eggs and April Fool's pranks. And why should Google's main *raison d'etre* be left out of the fun? Here are just a few cool Easter Eggs you can uncover through search.
  - "askew" will tilt your screen
  - "Festivus" adds a Festivus pole to the left side of the screen
  - "do a barrel roll" or "z or r twice" will cause the screen to do a 360
  - "Google in 1998" will make the page appear as Google did in 1998

More Google Search Fun

- https://www.youtube.com/watch?v=Nsbp0GQHOGc
- https://www.youtube.com/watch?v=7tMePTGolT8
- https://www.youtube.com/watch?v=KW97J8Vgeag
- https://www.youtube.com/watch?v=hdYiwt5b6ZY

Tech in the News

- **Twitter launched its premium paid subscription product, [Twitter Blue](#), on Tuesday in the U.S. and New Zealand.** The service for iOS, Android, and the web includes an "undo" option that lets subscribers "preview and perfect" tweets before they post. It also provides bookmarks folders, customizable themes, a reader mode for threads, and [early access](#) to upcoming features.
  - Reports noted the product will help Twitter diversify its revenue streams, which rely primarily (89%) on advertising.
  - Twitter is seeking to reach 315 million monetizable daily active users by late 2023.
  - The service costs $2.99/month in the U.S. and $4.49/month in New Zealand.

Tech in the News

- **A federal judge on Tuesday denied Apple's request to delay changes to its App Store stemming from its Epic v. Apple lawsuit.** The decision means Apple may have to rewrite its policies allowing app makers to tell customers about non-Apple payment options as soon as December.
    - The original ruling stated that Apple cannot prevent developers from offering customers alternative payment options outside of Apple's own systems.
    - Apple sought to put that decision on hold while its appeal is ongoing, which would potentially push back the App Store changes by years.
    - In a new order Tuesday, Judge Yvonne Gonzalez Rogers said Apple must comply with the order allowing developers to add links and buttons to external payment options, which would enable them to bypass Apple's 15-30% sales cut.
    - Apple plans to appeal to the Ninth Circuit for a stay.

Tech in the News

- **The European Union's General Court [upheld the decision](#) to fine Google $2.8B in an antitrust case.** Wednesday's verdict agrees with a 2017 finding by EU competition regulators, who determined that the company favored its own shopping comparison services and downgraded those of rivals.
  - The General Court, the EU's second-highest court, dismissed an appeal from Google and parent Alphabet over that decision, which was the largest penalty ever handed out by the European Commission.
  - The company can appeal one more time to the European Court of Justice, the EU's highest court.
  - The decision [bolsters](#) antitrust regulations favored by the EU's competition commissioner, Margrethe Vestager, over major tech firms.

Tech in the News

- **AMD [announced](#) that it will supply its chips for use at Meta's data centers.** The companies jointly developed a processor, based on AMD's third-generation Epyc processor, as part of Meta's data center expansion.
  - Facebook parent Meta claims the fourth largest data center operation in the U.S., behind AWS, Microsoft Azure, and Google Cloud.
  - Landing Meta further cements AMD's growing market share and its competition against leader Intel. *Not happy!*

Tech in the News

- **Meta says it plans to restrict the ability of advertisers to target users based on "sensitive" topics like health, race, politics, religion, and sexual orientation.** The company said it made the decision after hearing concerns from experts that it results in "negative experiences for people in underrepresented groups."
  - The change, set to take effect on Jan. 19, impacts advertisers on Facebook, Instagram, Messenger, and Meta's audience network that places ads on other smartphone apps.
  - It involves the removal of "Detailed Targeting" keywords that target ads to specific users across categories.

They can change the name of their company overnight, but it takes 2 months to make a programming change!

Tech in the News

- Rivian priced its stock at $78, [well above expectations](), in an IPO that could now value the company at a fully-diluted $77B.
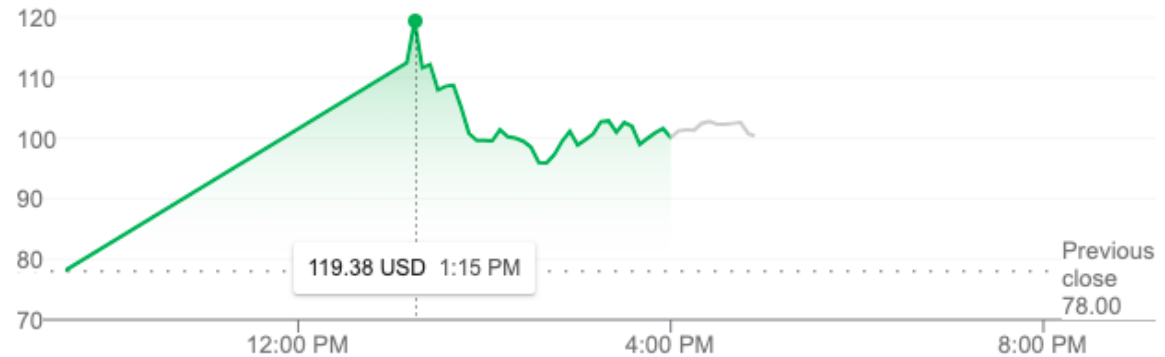

Market Summary > **Rivian Automotive Inc**
NASDAQ: RIVN

100.73 USD +22.73 (29.14%) ↑ today
Closed: Nov 10, 4:55 PM EST · Disclaimer
After hours 100.50 −0.23 (0.23%)

| 1 day | 5 days | 1 month | 6 months | YTD | 1 year | 5 years | Max |

119.38 USD 1:15 PM

Previous close 78.00

12:00 PM   4:00 PM   8:00 PM

Open	106.75	Mkt cap	-	52-wk high	119.46
High	119.46	P/E ratio	-	52-wk low	95.20
Low	95.20	Div yield	-		

Tech in the News (includes the kitchen sink!)

- **Shares of Rivian were up more than 18% on Thursday, a day after it made its public debut on the Nasdaq market.** The electric vehicle company ended Wednesday with a market capitalization of $86B, higher than Ford's $79B and close to GM's $88.8B. It's still behind Tesla's market cap of $1T+.
  - Rivian is backed by Amazon and Ford, with Amazon owning a 20% stake and Ford owning a 12% stake in the company.
  - In 2019 Amazon placed an order for 100,000 electric delivery vans from Rivian to be delivered by 2030.
  - So far, Rivian has produced 180 and delivered 156 of its R1T electric pickup trucks, and has a backlog of pre-orders for 55,400 of its R1T EV Pickup truck and R1S SUV, which it plans to deliver by the end of 2023.
  - The company expects to lose as much as $1.28B in Q3. Its revenue is expected to range from $0 to $1M. What?

Tech in the News

- A bipartisan group of U.S. governors sent a letter to Congress today asking for <mark>a bill to subsidize the semiconductor factories needed to increase U.S. production of computer chips</mark>.

- Apple says it will roll out a software update allowing for independent shops to do standard iPhone display repairs that don't disable Face ID.

- The $1T infrastructure package mandates that all new vehicles must have monitoring technology to prevent drunk driving as early as 2026.

- Google is facing backlash for its plans to build two data centers, which require large amounts of water to cool equipment, in a drought-stricken Oregon city.

Tech in the News

- **YouTube [said](#) on Wednesday that it will hide public dislike counts in an effort to combat "dislike mobs," which disproportionately affect smaller channels.** The dislike button will remain and creators can still view the metric privately.
  - YouTube said it saw a drop in "[dislike attacks](#)," when a group deliberately downvotes videos to drive up dislikes, after testing the change earlier this year.
  - The testing showed that smaller and newer channels are especially impacted, and creators have reported that they feel unfairly targeted and harassed.
  - The most disliked video of all time is the company's own "[2018 Rewind](#)" video, which has 19 million dislikes and 3 million likes.

Tech in the News

- **Tesla CEO Elon Musk sold ~$5B in shares in the company this week as he exercised stock options.** The stock sales came shortly after he asked his Twitter followers whether he should sell 10% of his stake, though regulatory filings show they were part of a pre-scheduled plan dating back to September.
  - Musk's net worth has fallen around $50B in two days due to a plunge in Tesla's share value, though he still remains the world's wealthiest person.
  - But what good is all that money if you don't eat right and exercise? Elon, get with the program an lose weight!

Tech in the News

- **Twitter has tapped cryptocurrency startup veteran Tess Rinearson to lead its new Twitter Crypto team**. The division is described as "a center of excellence for all things blockchain and web3," and will set the strategy for crypto's future on the platform.
  - The team will explore ways that the app's creators can accept cryptocurrencies or earn money.
  - It will start by supporting creators' interest in using decentralized apps to manage virtual goods and currencies.
  - They will also explore how crypto communities' ideas can help push boundaries of "what's possible with identity, community, ownership and more," she said.
  - Twitter CEO Jack Dorsey is a vocal supporter of cryptocurrencies and his Twitter bio contains only one word: "#bitcoin."

Tech in the News

- **Nvidia [announced](#) Omniverse Avatar, a platform for generating interactive AI avatars.** The news comes as the chipmaker is expanding more into software and services, including its Omniverse simulation/collaboration platform for creating 3D worlds that model the physical world.
  - <mark>Omniverse Avatar leverages computer vision, natural language understanding, and other technologies to create digital stand-ins for people</mark>.
  - The virtual agents can speak about many topics and comprehend "naturally spoken intent."
- During his [keynote](#), Nvidia CEO Jensen Huang showed off examples including:
  - Colleagues conversing with a toy replica avatar of himself.
  - A customer-service avatar taking orders at a restaurant kiosk.
  - A digital assistant helping a driver select the best route to reach his destination on time.
  - A [Project Maxine](#) demo showing the tech filtering out background noise in a <mark>video call. It transcribes and translates the speaker's words in multiple languages in the same intonation and voice</mark>.

Tech in the News

- SpaceX launched four astronauts to the ISS on Wednesday. The crew aboard a Crew Dragon spacecraft arrived Thursday evening.
- Bitcoin reached another all-time-high of $69,000.
- The U.S. government added 57 cryptocurrency addresses to its sanctions list (for facilitating ransomware and money laundering) this week, including one that controls NFTs that are still for sale on a digital marketplace.
- Public datasets with images of skin conditions lack information about ethnicity and skin color, which could result in biased algorithms that screen for skin cancer and more.
- Mexico City landed in the Guinness World Records for having the most hotspots—21,500—of any single free urban Wi-Fi network.

Tech in the News

- **China's Alibaba and JD.com reported record sales of $139B during the Singles Day online shopping event, with an emphasis on luxury items and electronics. JD said it sold roughly $15.64M worth of iPhones during the first two seconds of the event, which ended Thursday.**
  - Alibaba's sales grew 8.5% YoY over the 11-day event, down from the 26% increase it reported in 2020.
  - The e-commerce giant toned down its sales campaign this year amid pressure from the government and focused on sustainable growth and eco-friendly products.
  - JD.com reported sales of $54.6B, a 28% increase YoY.

Tech in the News

- **An iPhone X modified with a USB-C port sold on eBay for [just over $86,000](#).** Robotics engineering student [Kenn Pillonel](#) created the mod, which he called "the world's first USB-C iPhone," and [open-sourced](#) his work on Github.
  - The 64GB model phone sold on Thursday, with a total of 116 bids placed.
  - He had to source parts from China, reverse engineer the C95 connector, and create a custom circuit board before fitting the USB-C components into the phone.
  - Apple has said it has no plans to replace its proprietary Lightning port on the iPhone with a USB-C, which it's already done with the Mac and iPad.

Tech in the News

- **A [bipartisan bill](#) introduced in the House would require social media platforms to provide a version of their apps without algorithms that prioritize and filter content.** The "[Filter Bubble Transparency Act](#)" comes as lawmakers show renewed interest in taking action against algorithms that promote hateful and divisive content in the wake of Facebook whistleblower Frances Haugen's testimony.
  - The bill would ensure that social media users be allowed to turn off data-driven algorithmic recommendation systems, possibly through a toggle of some sort.
  - There are some exceptions, such as companies with annual gross receipts of less than $50M in three years and those that gather data on fewer than 1 million users every year.

Tech in the News

- **The Internet of Things is projected to generate $5.5T to $12.6T in value globally by 2030, according to a McKinsey Global Institute (MGI) report.** The institute defines IoT as sensors and actuators connected to computing systems via networks. Examples include wearable health monitors, smart home appliances, and connected cars.
  - China, in particular, is poised to become a "global IoT force" as a tech supplier, manufacturing hub, and end market for value creation.

Tech in the News

- **On Wednesday, Inside Transportation analyst Nicolas Saravia interviewed Jetson co-founder and president Peter Ternstrom, who discussed his predictions for the wider adoption of <mark>personal flying vehicles and eVTOLs</mark> (electric vertical take-off and landing aircraft).** You can watch the full interview [here](#).
  - The first commercial flying cars certified for city use are five to six years away, with certain cities opting out of regulatory constraints earlier.
  - Ternstrom believes that eventually, there will be <mark>rooftop landing areas for eVTOLs in residential areas</mark>.
  - There will be <mark>automated air traffic control</mark>, which would not depend on human communication for clearance, but a computer that would calculate the trajectory and direct traffic between locations.

Added to the 'what can go wrong' category!

And while we're on this topic

- The Speeder is a futuristic-looking flying motorcycle created by Ventura, Calif.-based [Jetpack Aviation](#).
  - The vertical take-off-and-landing aircraft will have jet turbine engines that provide vertical thrust. Once in the air, the engines would tilt backward and the aircraft would fly on small wings powered by net-zero-carbon fuel.
  - Two recreational models, priced starting at $385,000 each, are available for preorder.
    - One reaches speeds of over 150 mph, and flies for nearly an hour at more than 15,000 feet
    - An ultralight version that doesn't require a pilot's license to operate is limited to 60 mph and flies for 15 minutes. The company hopes to make them available in 2023.

Tech in the News

- Carnegie Mellon University opened a new "maker space" for students to experiment with AI projects and software. The space at CMU's Tepper School of Business in Oakland contains drones, robotics systems, smart appliances, and other hands-on tools.

- A former Hyundai engineer will receive a $24M payout from the U.S. government for reporting safety violations committed by the carmaker. It's the first reward to come out of the National Highway Traffic Safety Administration's whistleblower program, which took effect this year. The Hyundai violations involved a design flaw in car engines that seized up or caught fire.

Tech in the News

- [Astronauts take shelter as debris passes dangerously close to space station](#)
  - NASA did not specify what caused the debris field. The State Department confirmed that a Russian weapons test created more than 1,500 fragments of space junk in orbit.

Tech in the News

- **The Biden administration reportedly discouraged Intel from increasing chip production in China due to security concerns, [Bloomberg](#) reported.** Intel currently has "no plans" to manufacture silicon wafers in a Chengdu-based factory, which it had sought to do by the end of 2022.
  - Intel needs government funding to ramp up chip production amid the ongoing shortage.
  - Intel CEO Pat Gelsinger said he expected the chip shortage to improve every quarter in 2022, though he didn't expect supply to meet demand [until 2023](#).

Tech in the News

- **IBM [unveiled](#) Eagle, its largest quantum processor to date, with 127 quantum bits.** The company says Eagle can't be simulated on a traditional computer, implying that "it's more powerful than anything else," CEO Arvind Krishna [said](#).
    - Information in quantum computers is represented by quantum bits, or qubits, that are "entangled" with others in the processor.
    - In classical computers, bits must be either 1 or 0, but qubits can be both at the same time, giving them vastly more power.
    - To simulate Eagle on a classic supercomputer, it [would require](#) "more classical bits than there are atoms in every human being on the planet."

Tech in the News

- **Samsung is expected to <u>announce a decision soon</u> on the planned location of its $17B U.S. chip plant.** The reveal is expected to coincide with Samsung Electronics Vice Chairman Jay Y. Lee's <u>current visit</u> to the U.S. and Canada.
  - Lee said he will meet with "many U.S. partners" during his visit to North America, his first high-profile trip since he was <u>convicted</u> of bribery and embezzlement. He served 18 months and qualified for parole <u>in August</u>.
  - Samsung plans to make advanced logic chips at the new plant, with Phoenix, upstate New York, and a site near Austin, Texas under consideration.

Tech in the News

- **The FBI [said](#) hackers took advantage of a software misconfiguration in its Law Enforcement Enterprise Portal, or LEEP, to send out fake cyber alert emails late Friday, though no one's data or personal identifiable information was compromised.** The emails appeared to be sent from a legitimate FBI email address.
  - More than 100,000 people received emails telling them they were the victim of a "sophisticated chain attack" from an extortion group called the Dark Overlord.
  - The subject line read "Urgent: Threat actor in systems" and included a fake sign-off from the Department of Homeland Security.
  - The FBI says it has since fixed the software vulnerability and "confirmed the integrity" of its networks.

Tech in the News

- **Tesla owners <u>reported seeing</u> SpaceX Starlink dishes at Supercharger stations in several states, suggesting that the EV maker could be planning a larger rollout of the satellite internet connectivity for station users.** It comes several weeks after Elon Musk <u>confirmed</u> that the stations would get WiFi.
  - Starlink beams internet from orbiting satellites to dishes on the ground.
  - Placing Starlink antennas at Superchargers could allow Tesla owners to use the internet for free instead of paying $10/month for Tesla's LTE service subscription.

Tech in the News

- **Ohio's attorney general has sued Meta Platforms, alleging that the company violated federal securities laws by failing to disclose the harmful effects it has on young users.** The lawsuit was filed on behalf of the Ohio Public Employees Retirement System and Meta investors, who have lost a collective $100B in market share since Facebook whistleblower Frances Haugen first leaked internal documents about two months ago, according to AG David Yost.
  - The suit alleges that company executives violated securities law by making false claims about the "safety, security and privacy of its platforms" in an effort to boost company stock.
  - It claims that Meta executives were aware that its platforms encourage "dissension, illegal activity, and violent extremism."
  - The lawsuit is seeking to recover the $100B+ in damages and pension fund losses. It also wants to force Meta to make changes so it doesn't mislead investors again.

Tech in the News

- **Google on Tuesday said it will invest ~$740M in Australia over the next five years to launch a research hub and further expand its cloud infrastructure.** The tech giant's largest investment in Australia comes after it threatened to withdraw its search engine from the country earlier this year.
  - The company's program, the Digital Future Initiative, is expected to directly create 6,000+ jobs in areas like AI, engineering, and computing science.
  - In addition, Google says it plans to partner with Australian government scientists on topics like green energy, and work with Sydney-based Macquarie University on quantum computing.

Tech in the News

- **Google executives argued that a Pentagon cloud contract that the company is pursuing won't violate its weapons ban**. Google Cloud CEO Thomas Kurian confirmed last week that the company "will absolutely bid" on the Joint Warfighter Cloud Capability, if invited by the Pentagon to do so.
  - It comes three years after Google abandoned its Pentagon AI initiative, Project Maven, amid employee concerns that its technology would be used to support warfare and killings.
  - In a meeting last week with employees, Google executives claimed the contract would not violate the guidelines that the company adopted governing how its artificial intelligence tech is used.

Tech in the News

- **Honda and engineering firm Black & Veatch began testing the automaker's Autonomous Work Vehicle (AWV) at a solar energy site in New Mexico.** To maneuver without a driver, the second-generation prototype uses radar and lidar for object detection and 3D cameras for remote monitoring.
  - Honda unveiled the first AWV with advanced autonomous technology during the 2018 Consumer Electronics Show.
  - It also can be controlled by a remote operator using a cloud-based app.
  - It has a maximum range of 27.9 miles and is fully charged in six hours at 120 volts.

Tech in the News

- A decentralized autonomous organization ([DAO](#)) has been formed to buy a copy of the United States Constitution.
- According to a [Fermi estimate](#), ==one-fifth of all new GPUs in 2021 have gone to ethereum mining, and 0.5% of all global energy use went to crypto mining==.
- Barbados' government has [signed an agreement](#) with Decentraland to develop a metaverse embassy. What?
- President Biden [signed](#) the $1.2T bipartisan infrastructure bill into law on Monday. The bill allocates about $550B in new funds for transportation, broadband internet, and utilities. The funds will be released over five years.

Tech and the infrastructure bill

- **Crypto tax reporting**
  - [pay-for provision that would place stricter tax-reporting requirements on cryptocurrency transactions](#)
- **Broadband**
  - $42.5 billion grant program to fund broadband deployment in areas with the least amount of coverage
  - $14 billion will help subsidize internet costs for low-income Americans
- **Electric vehicles**
  - [Tesla plans to open its charging stations to other manufacturers' vehicles](#) this year, which would seem to make it eligible to receive the funds
- **Cybersecurity**
  - [$2 billion for cybersecurity purposes](#)

Question: Does it include tax credits for EV purchase? (YES!), but it's compicated... (source)

- The Build Back Better bill includes a $12,500 EV tax credit
  - The base amount remains $4,000, as it is today
  - With another $3,500 available if the EV's battery pack includes at least 40 kilowatt-hours of capacity.
  - In the case of plug-in hybrids, the gas tank cannot exceed 2.5 gallons. This is for cars placed in service before 2027.
  - EVs and consumers will be able to qualify for another $4,500 in the 'tax credit' if an automaker makes the EV in the US with a union workforce.
  - Another $500 comes into play for automakers using a US-made battery for a maximum of $12,500 available.
  - Today, the only car that would qualify for anywhere near the full proposed credit is the Chevrolet Bolt EV and Bolt EUV. This provision would, notably, exclude Tesla and even the Ford Mustang Mach-E, which is assembled in Mexico.

I told you it was complicated!

Tech in the News

Okay, let's go.

Chimp vs Human! | Memory Test | BBC Earth

1:50 / 3:42

Tech Resources

- https://www.wsj.com/news/technology

- https://www.wsj.com/news/tech/future-of-everything

- https://www.nytimes.com/section/technology

- And many others:
  - https://arstechnica.com/
  - https://techcrunch.com/
  - https://thenextweb.com/
  - https://www.wired.com/
  - https://www.cnet.com/

- **[What's Harder to Find Than Microchips? The Equipment That Makes Them](#)**
- The world is hungry for semiconductors, and not all of them need to be made with cutting-edge technology. The race is on to find older machines that can still crank out chips.

Here's Why Smart Home Technology Adoption is Rising Among Seniors

- Amazon (Alexa Smart Home), Apple (HomeKit), Google (Nest)
  - *Voice-activated smart home assistant speaker*
  - *Smart lights and lightbulbs*
  - *Smart locks*
  - *Smart doorbell*
  - **Senior living communities also are adopting smart technologies**
  - With the right smart home device set-up, seniors who are isolated, have mobility or dexterity challenges, or have memory issues can live in their home more safely, happily, and easily. This also has the potential added benefit of alleviating loved ones' and/or caregivers' concerns
  - *Plus wearables*
  - **Related:** How Technology Is Reducing Long-Distance Caregiver Burden

Where Are All the Truck Drivers?

- The American Trucking Associations, one of the largest trade bodies, estimates the industry is some 80,000 drivers short of the workers needed to keep goods moving freely this year—up from an estimated shortage of 61,500 drivers before the pandemic. New trucks, trailers and other equipment are in short supply, further limiting the movement of cargo.

- And there's a lack of efficiency in a model that hasn't changed much in several decades.

- And there are truckers quitting because of low pay and poor treatment by both employers and customers.

- Bottomline: "There is absolutely not a shortage of people licensed and trained to do that job," Mr. Viscelli said. "The industry has burned so many of them that they left."

- [What's Causing The Container Ship Traffic Jam Clogging Up Global Trade](#)

Who is [ClearView AI](#)?

https://www.nytimes.com/2021/10/28/technology/clearview-ai-test.html
https://www.nist.gov/programs-projects/face-recognition-vendor-test-frvt
https://pages.nist.gov/frvt/html/frvt11.html
https://cvrl.nd.edu/projects/data/ (For your Face recognition – and other biometric - training data sets)

[Seedlings](#)

Like

- [High-speed hyperspectral four-wave-mixing microscopy with frequency combs](#)
  - A four-wave-mixing, frequency-comb-based, hyperspectral imaging technique that is spectrally precise, potentially rapid, and can in principle be applied to any material, is demonstrated in a near-diffraction-limited microscopy application.

- [Real-time automated detection, tracking, classification, and geolocation of dismounts using EO and IR FMV](#)
  - The VideoPlus®-Aware (VPA) system enables autonomous video-based target detection, tracking and classification. The system stabilizes video and operates completely autonomously.

Options

GPS

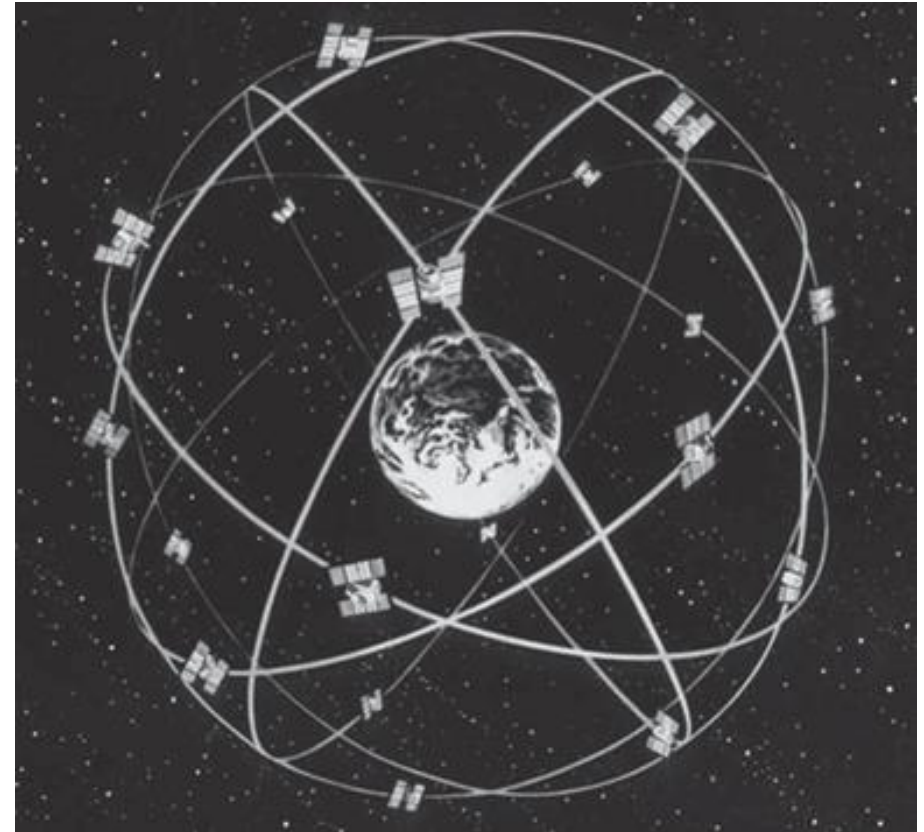# What is GPS and how does it work? ([source]() – video 2:10min)
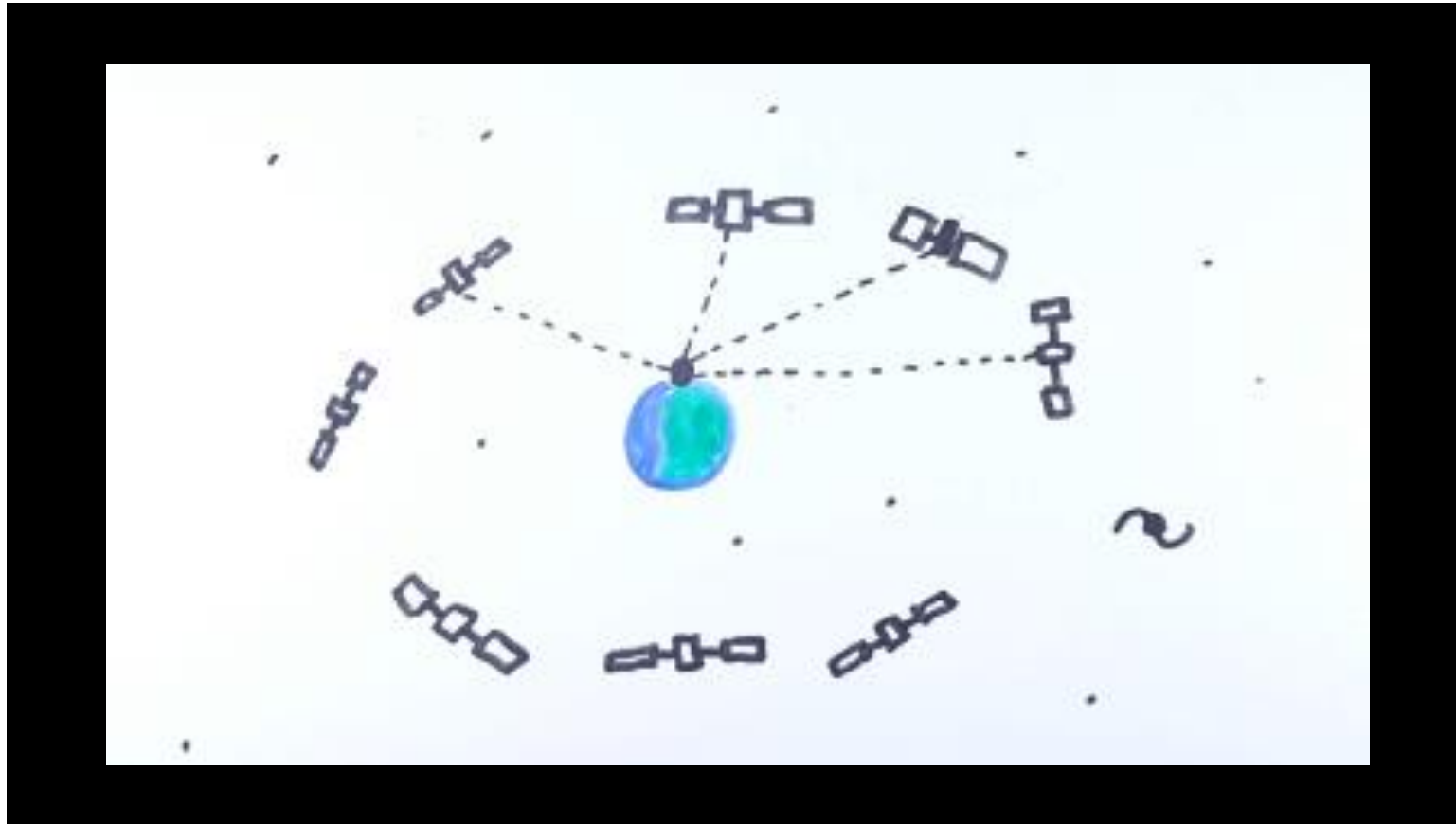
GPS

- [Two Decades of Development and Evaluation of GPS… (1999)](#)
- [GPS Future and Evolution](#)
    - The [GPS](#) is a space-based global navigation satellite system (GNSS) that provides reliable positioning, navigation, and timing services to civilian and military users on a continuous worldwide basis. GPS is a U.S.-owned utility, developed by the U.S. Air Force starting with the program in 1978.
    - The U.S. actively engages in bi-lateral cooperation: Europe, Japan, India, Russia and multi-lateral cooperation: International Committee on GNSS (ICG), Asia Pacific Economic Cooperation (APEC), [International Civil Aviation Organization (ICAO)](#), [International Maritime Organization (IMO)](#), [International Telecommunication Union (ITU)](#) International Civil Aviation Organization (ICAO), International Maritime Organization (IMO), International Telecommunication Union (ITU).

GPS

- The operational GPS satellite constellation consists of 24 NAVSTAR satellites arranged in six 55° planes around the Earth so that a minimum of four satellites would always be in view above the horizon.ce segment

- GPS satellites fly in medium Earth orbit (MEO) at an altitude of approximately 20,200 km (12,550 miles). Each satellite circles the Earth twice a day.

Space Segment Futures

LEGACY SATELLITES		MODERNIZED SATELLITES		
GPS IIA satellite	GPS IIR satellite	GPS IIR-M satellite	GPS IIF satellite	GPS III satellite
BLOCK IIA	**BLOCK IIR**	**BLOCK IIR-M**	**BLOCK IIF**	**GPS III/IIIF**
0 operational	8 operational	7 operational	12 operational	4 operational
• Coarse Acquisition (C/A) code on L1 frequency for civil users • Precise P(Y) code on L1 & L2 frequencies for military users • 7.5-year design lifespan • Launched in 1990-1997 • Last one decommissioned in 2019	• C/A code on L1 • P(Y) code on L1 & L2 • On-board clock monitoring • 7.5-year design lifespan • Launched in 1997-2004	• All legacy signals • 2nd civil signal on L2 (L2C) *LEARN MORE* ➡ • New military M code signals for enhanced jam resistance • Flexible power levels for military signals • 7.5-year design lifespan • Launched in 2005-2009	• All Block IIR-M signals • 3rd civil signal on L5 frequency (L5) *LEARN MORE* ➡ • Advanced atomic clocks • Improved accuracy, signal strength, and quality • 12-year design lifespan • Launched in 2010-2016	• All Block IIF signals • 4th civil signal on L1 (L1C) *LEARN MORE* ➡ • Enhanced signal reliability, accuracy, and integrity • No Selective Availability *LEARN MORE* ➡ • 15-year design lifespan • IIIF: laser reflectors; search & rescue payload • First launch in 2018
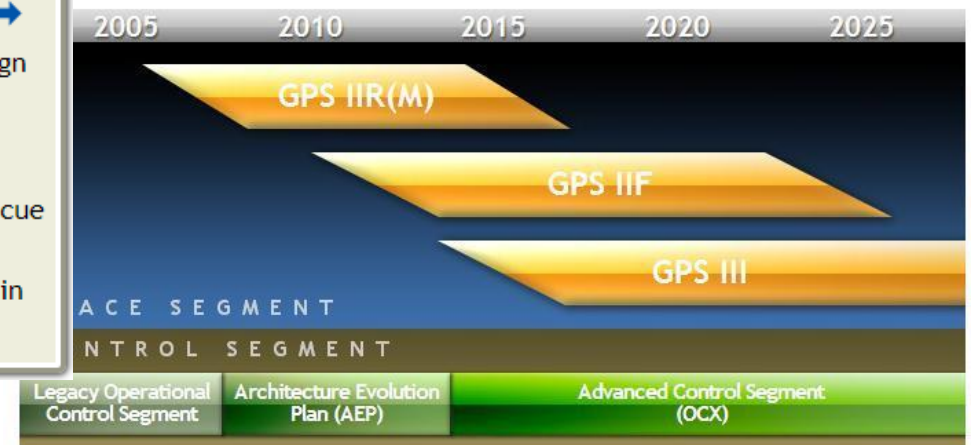
Who is Brad Parkinson?

- **The Origins of GPS, and the Pioneers Who Launched the System** May 1, 2010
- **GPS pioneers honored with Queen's award at Buckingham Palace** Dec 3 2019
  - Bradford Parkinson said: "Today marks a landmark moment in all of our lives—there is no prize for engineering greater than this, it is an honor. This recognition reflects the responsibility incumbent upon those developing technology today to strive to do so for the good of humanity. Day-after-day, we are astounded at the new ways in which people across the world use GPS. It is a 'System for Humanity' in each and every sense."
- My father in-law's classmate and companymate at the Naval Academy
  - Brad lived across the hall from me at USNA from 1953 to graduation in 1957. While in SLO for David's graduation Marilyn and I visited with Brad at his palatial home outside SLO. One of his sons is sheriff of the territory.

What's on your mind for next week?

Our brains on technology

Our brains on technology

- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7366948/#:~:text=Potential%20harmful%20effects%20of%20extensive,brain%20development%2C%20and%20disrupted%20sleep.

- https://wexnermedical.osu.edu/blog/how-internet-affects-your-brain

- https://www.scientificamerican.com/article/are-digital-devices-altering-our-brains/

Our brains on technology

- Some say our gadgets and computers can help improve intelligence. Others say they make us stupid and violent. Which is it?

  - **Research shows that by constantly distracting us**, the Internet affects cognitive performance but does not radically alter our brains.

  - **The findings also suggest that although video games** and brain training influence aggression and cognitive performance, respectively, the extent of that influence is much less than many would think.

  - **The risks of digital devices might be minimized** by educating people in ways to enhance concentration, self-control and critical-thinking skills.

Our brains on technology

- Discussion:
  - Are we becoming 'stupid'?
  - Have we become (better) multitaskers?
  - What about our 'attention span'?
  - Do video games increase aggression?
  - Is gaming better for our brains?

  Fact: young people must be taught to develop their concentration, self-control and critical-thinking skills!

Our brains on technology

- More on this topic can be found in this series of book reviews I taught in 2017:
  - Born Digital by Urs Gasser & John Palfrey
  - Alone Together by Sherry Turkle
  - Reclaiming Conversation by Sherry Turkle
  - The Shallows by Nicholas Carr
  - The Glass Cage by Nicholas Carr
  - What Technology Wants by Kevin Kelly
  - The Inevitable by Kevin Kelly
  - Irresistible by Adam Alter

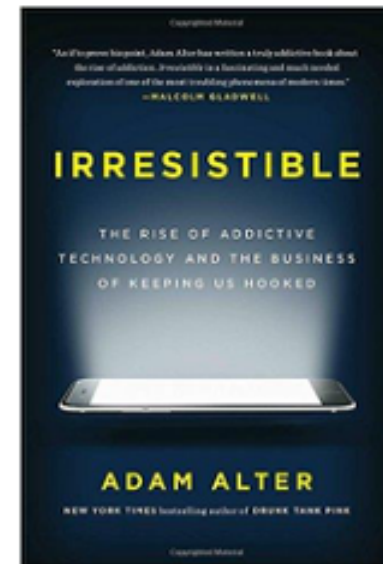# Extra Credit

Some slides from my 2017 class

Tech Talks: Tech for Seniors
Addiction by Adam Alter

Center for Learning in Retirement - Fall 2017

Glen Maxson

seniortechadvisor.com

Irresistible:

The Rise of Addictive Technology and the Business of Keeping Us Hooked

Review of a book by Adam Alter

Introduction

Adam Alter is an Associate Professor of Marketing at New York University's Stern School of Business, with an affiliated appointment in the New York University Psychology Department.

Adam is the *New York Times* bestselling author of two books: *Irresistible* (March, 2017), which considers why so many people today are addicted to so many behaviors, from incessant smart phone and internet use to video game playing and online shopping.

2017 TED Talk

Why our screens make us less happy
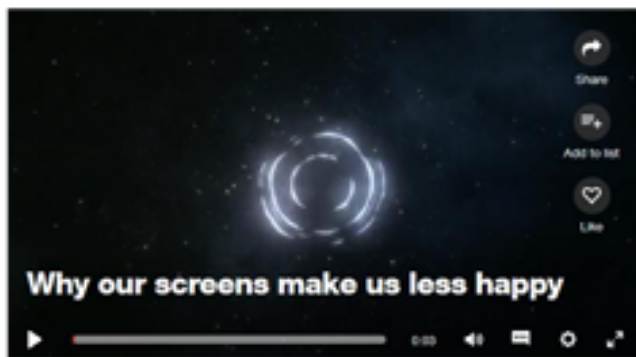
What are our screens and devices doing to us? Psychologist Adam Alter studies how much time screens steal from us and how they're getting away with it. He shares why all those hours you spend staring at your smartphone, tablet or computer might be making you miserable -- and what you can do about it.

NPR Interview (Mar. 13, 2017)

['Irresistible' By Design: It's No Accident You Can't Stop Looking At The Screen](#) **(30:20)**

Adam's definition of "addiction"?

It is something you enjoy doing in the short term, that undermines your well-being in the long term — but that you do compulsively anyway.

[Play Intro](#)

The Addicted Brain (Sept. 17 National Geography)

p. 41 – In the Grip of Gaming

In Seoul, e-stadiums and game parlors charge about a dollar an hour, and some venues are open around the clock. Soon after South Korea made super-high-speed Internet cheap and widely available, it became clear that some people were ruining their lives through obsessive game playing. The government now pays for treatment. The American Psychiatric Association hasn't recognized compulsive gaming as an addiction, but it lists Internet game disorder as 'requiring more study'.

Hijacking the Brain (continued)

A NATURAL HIGH
Our brains evolved a dopamine-based reward system to encourage behaviors that help us survive, such as eating, procreating, and interacting socially.

NEURON ACTIVITY

In a normal state
Neurotransmitters carry nerve impulses across synapses between cells to excite or inhibit activity.

Terminal of neuron · Dopamine stored in neurons · Dopamine transporters · Synapse · Dopamine · Dopamine receptors · Dendrite

In an excited state
Dopamine temporarily floods a synapse when a pleasurable activity, such as gambling, sex, shopping, or gaming, is anticipated or experienced.

Dopamine temporarily floods synapse · Dopamine transporters remove excess dopamine from synapse

Hijacking the Brain (continued)

A CHEMICAL RUSH

Different drugs interact with the reward system in unique ways to keep synapses artificially flooded with dopamine. That dopamine rush can rewire your brain to want more drugs, leading to addiction.

Cocaine blocks dopamine removal from synapse

On cocaine
By interfering with dopamine transport, cocaine prevents removal of excess dopamine from synapses.

Heroin blocks dopamine inhibitors

Dopamine inhibitor receptors

In VTA

Dopamine floods synapse

In brain reward system

On heroin
Synapses flood with dopamine when heroin blocks dopamine inhibitors in the VTA.

Meth displaces dopamine into synapse

On methamphetamine
The drug reverses the natural, controlled flow of dopamine into neurons, forcing dopamine to rush into synapses instead.

Common 'behavioral addictions':

- Exercise
- Video games
- Gambling
- Work
- E-mail (p 109)
- Social media
- Binge watching
- Hoarding
- ...

What do these have in common?

- Behavioral addiction is rooted in environment + circumstance
- Might fulfill a psychological need, obsession, compulsion
- May be detrimental to work, health, hygiene, social interaction...
- Often becomes something we 'want' versus something we 'like'

What makes tech so 'irresistible'?

By design,

- Goal setting, perfectionism – time and numbers (e.g. FitBit)
- Classic reinforcement – provide small doses of positive feedback (work)
- Uncertainty - Facebook, Instagram… (social media)
- 'Loss as motivation' – the gambler's paradox (slots)
- Mobile access – iPad and iPhone enabled (mobile devices)
- Ludic loops – complete one challenging element, then the next… (video games)
- 'Flow' - proximal (skill) development – skill vs. challenge (video games)
- Zeigarnik effect – incomplete experiences (e.g. cliff-hangers) (TV shows)
- MUDs & MMOs - immersion, achievement, social (connection) (video games)
- Absence of Stopping rules (all)

Bottomline: Every technique in the book is used to get and keep us hooked!

GDPR vs privacy US laws

- https://www.ispartnersllc.com/blog/us-nationwide-data-privacy-law-gdpr/

- https://edaa.eu/a-legislative-comparison-us-vs-eu-on-data-privacy/

- https://www.forbes.com/sites/forbestechcouncil/2020/07/29/the-privacy-mindset-of-the-eu-vs-the-us/?sh=57bff0597d01

The Privacy Mindset Of The EU Vs. The US

- The norm in the U.S. that online behavior gets tracked and used for a slew of subsequent manipulation. U.S. legislation isn't even close to providing adequate protection of consumer privacy interests.

- Americans choose to believe that their online behavior being tracked happens in their best interests or is a price to pay for getting free or discounted products.

- GDPR was adopted on April 14, 2016, and before it became enforceable on May 25, 2018, the U.S. Congress enacted the Clarifying Lawful Overseas Use of Data (CLOUD) Act on March 23, 2018. Rather than being compatible with the GDPR, the U.S. CLOUD Act overrules it.

The Privacy Mindset Of The EU Vs. The US

- Federal law requires U.S.-based software companies and IT service providers to ensure that authorities can have access to all stored data, including data stored on foreign servers. Furthermore, it guards U.S. service providers from having to tell customers whether authorities have requested their data.

- One lobbying group that represents internet companies is striving for a federal privacy law that would preempt more state regulations like the California Consumer Privacy Act (CCPA), which actually makes real progress. Its ideal federal privacy law would undermine the CCPA to essentially let companies return to business as normal and also make it impossible for other states to set the bar even higher.

What is GDPR, the EU's new data protection law?

- In May 2018, the EU implemented the General Data Protection Regulation (GDPR) which became the new legal backbone on data protection and privacy in the EU.
  - It imposes obligations onto organizations anywhere, so long as they target or collect data related to people in the EU.
    - **The GDPR applies to you even if you're not in the EU**
    - **Fines for violating the GDPR are very high**

What is GDPR, the EU's new data protection law?

- If you process data, you have to do so according to seven protection and accountability principles outlined in **Article 5.1-2**:
  1. **Lawfulness, fairness and transparency** — Processing must be lawful, fair, and transparent to the data subject.
  2. **Purpose limitation** — You must process data for the legitimate purposes specified explicitly to the data subject when you collected it.
  3. **Data minimization** — You should collect and process only as much data as absolutely necessary for the purposes specified.
  4. **Accuracy** — You must keep personal data accurate and up to date.
  5. **Storage limitation** — You may only store personally identifying data for as long as necessary for the specified purpose.
  6. **Integrity and confidentiality** — Processing must be done in such a way as to ensure appropriate security, integrity, and confidentiality (e.g. by using encryption).
  7. **Accountability** — The data controller is responsible for being able to demonstrate GDPR compliance with all of these principles.

What is GDPR, the EU's new data protection law?

- GDPR recognizes a litany of new **privacy rights for data subjects**, which aim to give individuals more control over the data they <u>loan</u> to organizations. Data subjects' privacy rights:
    1. The right to be informed
    2. The right of access
    3. The right to rectification
    4. The right to erasure
    5. The right to restrict processing
    6. The right to data portability
    7. The right to object
    8. Rights in relation to automated decision making and profiling.