

The Amazing World of the “non-standard” Search Engines

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[Images search](#)

[Google search by Images](#)

[TinEye Reverse Image Search](#)

[Search by Sounds](#)

[Shazam](#)

[ACRCloud](#)

[Video Search](#)

[FTP](#)

[Napalm FTP indexer](#)

[IoT Search Engines](#)

[Shodan](#)

[ZoomEye](#)

[Blockchain Search Engines](#)

[Desearch](#)

[Blockchain explorer](#)

[The Dark Web Search Engine](#)

[DuckDuckGo](#)

[Torch](#)

[Astalavista](#)

[In Conclusion](#)

In this article, we will explore an amazing world that may be unknown to the reader: the world of 'non-standard' search engines.

By 'non-standard', we mean that they act differently than the 'traditional' text-based search engines such as Google, Yahoo, Bing, and others. Some do not use text as keywords but multimedia elements instead, such as pictures, sounds, or videos for instance. Some others allow searching in strange locations such as IoT devices. We wish here to give the reader a tour of these uncommon search engines.

Images search

Some time ago, searching an online database of images via textual keywords was an innovation. Now it has become banal but an innovation is currently appearing.

With the recent development of Image recognition techniques, especially Convolutional Neural Networks, searching databases of images via... images is now possible.

Some search engines call it the 'reverse image search'. The principle is as follows:

- Upload an image to the search engine
- The search engine will propose one or more categories for the image and offer associated classical text results
- The search engine will display 'similar' images on the internet, e.g. images that 'match' the searched image
- The search engine will display websites where the same image is found, even if the image has been slightly edited or cropped

Google search by Images

Google allows now to search by images, This is a little-known feature of the giant search engine.


When uploading an image to Google, it will start to suggest one or more categories and will, also provide 'similar' images.

Let us try a few experiments!



Search by image ×

Search Google with an image instead of text. Try dragging an image here.

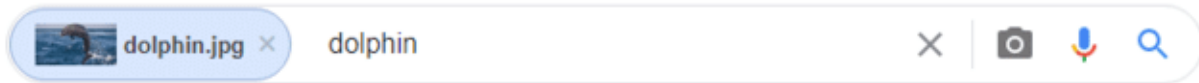
Paste image URL  **Upload an image**

Search by image

We first try to search with the image of a dolphin:



We get the following results:



Q All [Images](#) [Maps](#) [Shopping](#) [More](#) [Settings](#) [Tools](#)

About 211 results (0.97 seconds)



Image size:
318 × 159

Find other sizes of this image:
[All sizes - Medium](#)

Possible related search: [dolphin](#)

[dolphin-emu.org](#) ▾

[Dolphin Emulator - GameCube/Wii games on PC](#)

Official website of **Dolphin**, the GameCube and Wii emulator. Download the latest version (5.0-12745) now or ask questions on our forums for help.

As we see Google Images immediately identified the image and showed results from its textual search engine.

🖼️ Visually similar images



Report images

Pages that include matching images

www.strategy-business.com › [blog](#) › [Learn-to-pivot-lik...](#) ▾

Learn to pivot like a dolphin - Strategy+Business



1000 × 500 · Jun 3, 2019 — The key is for the **dolphin** to keep trying different actions

Much more interesting is the ability of the image search engine to offer similar (including identical) images on the web and provide the link where these similar/matching/identical images are found.

The true interest of the image engine can be the identification of people or paintings or sculptures for example.

For example, let us imagine that you receive a postcard from someone asking to meet him 'there', and all that you know is the postcard image:



Illustration: a postcard from an unknown place

?

But where is it? Egypt? Africa? India? Pakistan?

The place seems slightly familiar to a North African building but where can it be?

Now let us search with Google Search By images...



Q All **Images** Maps Shopping More Settings Tools

About 229 results (0.68 seconds)



Image size:
1935 × 1290

No other sizes of this image found.

Possible related search: ***pachacamac***

en.wikipedia.org › wiki › Pachacamac ▾

Pachacamac - Wikipedia

Pachacamac (Quechua: Pachakamaq) is an archaeological site 40 kilometres (25 mi) southeast of Lima, Peru in the Valley of the Lurín River. The site was first ...

Can you believe it? The search engine **immediately identified the place and named it ... *Pachacamac!***

Pachamac is the remains of an ancient town, an archaeological site, located in Peru, 40 Km southeast of Lima... South America.

Sometimes the search engine will not be able to identify what you are searching but it will provide links to similar or matching images that will tell you what it is that you are searching for.

TinEye Reverse Image Search

Let us try our unknown postcard with TinEye, a small but efficient 'reverse image search engine'.



13 results

Searched over 43.9 billion images in 0.9 seconds for: unknown_postcar

Using TinEye is private. We do not save your search images. TinEye is non-commercial purposes. For business solutions, learn about our te

Show only stock and collection results:

1 result found in stock.

Sort by best match ▾

Filter by domain/collection

< 1 of 2 >



STOCK · SPONSORED

depositphotos.com

[149835192/stock-photo-view-to-inca-ru...](#)

- First found on Nov 30, 2018



www.enigmaperu.com

[blog/](#) - First found on Nov 4, 2019

Filename: [Pachacamac-71-1-1160x773.jpg](#) (1160 x 773, 128.3 KB)

The search engine doesn't identify the place but finds links that allow us to identify it.

Let us try with that picture of an unidentified sculpture



If we submit this to the search engine, we know where the picture can be found and we identify it as ... a sculpture of Philippe IV of France ('lebel'), a king who reigned over a thousand years ago.

TinEye Search Technology Products About Log in

Upload, paste or enter Image URL

30 results
Searched over 43.9 billion images in 2.0 seconds for: unknownsculpture.jpg

Using TinEye is private. We do not save your search images. TinEye is free to use for non-commercial purposes. For business solutions, learn about our technology.

Show only stock and collection results:
 1 result found in collections.

Sort by best match Filter by domain/collection < 1 of 3 >

www.thefullwiki.org
Philip_IV_of_France - First found on Oct 12, 2016
Filename: 3922561939052870.jpg (210 x 287, 14.6 KB)

unkownsculpture.jpg Show all

There are other searches by image engines. For example:

- [Yandex search by images](#)
- [Bing search by images](#)

Search by Sounds

Searching for sound over the internet is not a new technology. Altavista - before it was a part of Yahoo! - used to offer a sound search engine. Sounds could be found via textual keywords. Now it is possible to find similar or matching sounds to a given sound. This allows us to identify unknown fragments of music for example.

Shazam


Shazam is an application running on mobile devices (iOS/Android). It allows users to identify matching music from the music that the user uploads.

ACRCloud

Identify Songs Online How to Develop Audio Recognition Apps Music Recognition Services

- The recognizing progress is **asynchronous**. You can **save the RECORD_ID** to check the result later.

You can submit **6** recordings today.



RECORD_ID
749a5e317b2c94f875dbdae158e68bd5

Status
Done.

Result
[[{"artist": "Bee Gees", "start_time": 0, "title": "Stayin' Alive(2009 Remastered Version)", "score": 80.0, "end_time": 0, "external_ids": [{"isrc": "USRH10903928", "iswc": "T-071.017.328-6", "upc": "603497956852"}, {"acrid": "99f5915de5e7bee0346c23ed0780b80"}]]

ACRCloud is a cloud platform where music can be searched online from a recording using the microphone. When playing the song 'Staying Alive' from the bee gees from another source or simply singing or even humming it, the search engine can identify it with good accuracy.

Other similar sound search engine includes:

- SoundHound
- Midomi

Last Minute! [Google just released "Hum to search"](#) a search by sound application.

Video Search

There isn't currently any video search engine that allows searching by video. The only workaround is to slide the video into images and search by images.

FTP

FTP search is also an old technique (comparatively to the age of the Internet). However, most people are generally unaware that FTP search engines can find results where Google (and others) cannot.

Napalm FTP indexer

Napalm FTP indexer is a powerful FTP search engine. Let us compare it with Google's textual search.



Searching **379,725,856** files (**9585.92 TB**) in **3,630** FTP servers

The capacity of the FTP search engine may seem feeble in comparison to Google but it may work well when looking for things like system files for instance.

In this example, we are searching for a PSD (Planetary Data System¹) file named "mvn_iuv_l2_apoapse-orbit02275-muv_20151130T205937.xml"

¹ "The Planetary Data System (PDS) is a distributed data system that NASA uses to archive data collected by Solar System missions".(source: Wikipedia)

PDS data PDS4 MAVEN iuvs derived bundle I2 disk 2015

Directory [/PDS/data/PDS4/MAVEN/iuvs_derived_bundle/I2/disk/2015/11/](#)

Last checked **2020-10-12 19:28**

Files **496, showing first 30**

File(s)	mvn_iuv_I2_apoapse-orbit02275-muv_20151130T205937_v07_r01.fits	1.0 MB	DOWNLOAD
	mvn_iuv_I2_apoapse-orbit02275-muv_20151130T205937.xml	27.7 KB	DOWNLOAD
	mvn_iuv_I2_apoapse-orbit02275-fuv_20151130T205937_v07_r01.fits	1.9 MB	DOWNLOAD
	mvn_iuv_I2_apoapse-orbit02275-fuv_20151130T205937.xml	30.4 KB	DOWNLOAD
	mvn_iuv_I2_apoapse-orbit02274-muv_20151130T162741_v07_r01.fits	1.0 MB	DOWNLOAD
	mvn_iuv_I2_apoapse-orbit02274-muv_20151130T162741.xml	27.7 KB	DOWNLOAD
	mvn_iuv_I2_apoapse-orbit02274-fuv_20151130T162741_v07_r01.fits	1.9 MB	DOWNLOAD
	mvn_iuv_I2_apoapse-orbit02274-fuv_20151130T162741.xml	30.4 KB	DOWNLOAD

Napalm can find it while Google search engine cannot.



[All](#) [Videos](#) [Images](#) [Maps](#) [News](#) [More](#)

[Settings](#) [Tools](#)

6 results (0.72 seconds)

No results found for "mvn_iuv_I2_apoapse-orbit02275-muv_20151130T205937.xml".

Results for [mvn_iuv_I2_apoapse-orbit02275-muv_20151130T205937.xml](#) (without quotes):

It looks like there aren't any great matches for your search

Tip: Try using words that might appear on the page you're looking for. For example, "cake recipes" instead of "how to make a cake."

Need help? Take a look at other [tips](#) for searching on Google.

IoT Search Engines

Video Camera surveillance, drones, medical devices. Smartphones and all the Internet Of Things devices can be searched via special search engines.

Shodan

Shodan is the world's leading IoT search engine. There you will find things that you cannot find anywhere else.

For example, here is what is returned for the query 'test' in Shodan.

The screenshot shows the Shodan search engine interface. The search bar contains the query 'test'. The results page displays the following information:

- TOTAL RESULTS:** 324,844
- TOP COUNTRIES:** A world map with red dots indicating search results. The top countries are listed in a table below.
- RELATED TAGS:** test
- 168.218.18.135:** Ryder System, Added on 2020-10-14 15:33:43 GMT, United States. A 'shodan' button is visible below the tag.
- 220 Ryder OCI QA/System Test Server:** 530 Login incorrect. 214-The following commands are implemented:
 - ABOR ACCT APPE AUTH CCC COUP CWD DELE
 - EPRT EPSV FEAT HELP LIST HOTH HKD MODE
 - NLST NOOP OPTS PASS PASV PBSZ PORT ...
- 168.81.44.165:** OSOA Corporation., LTD, Added on 2020-10-14 15:34:14 GMT, United Kingdom, London. A 'shodan' button is visible below the tag.
- HTTP/1.1 400 Bad Request:** Server: squid/3.5.25, Mime-Version: 1.0, Date: Wed, 14 Oct 2020 15:33:11 GMT, Content-Type: text/html;charset=utf-8, Content-Length: 16, X-Squid-Error: ERR_INVALID_URL @, X-Cache: MISS from test-elad-jp-2, X-Cache-Lookup: NONE from test-elad-jp-2:80, Via: 1.1 test-elad-j...

Shodan allows you to search SmartTV, power plants, fridges ... Well, technically, any sort of IoT device that is connected to the internet.

A search will often lead to results that are not intended to be public. For example, here we searched for 'pidgin' and we got access to that list of links ... not intended to be public.

This is why Shodan is massively used by security researchers and other people to find hidden websites that Google cannot reference, and this implies of course finding potential vulnerabilities in websites and devices in general.

Some security researchers have used Shodan in the past to unveil that huge databases could be found there with a lot of private data for users.

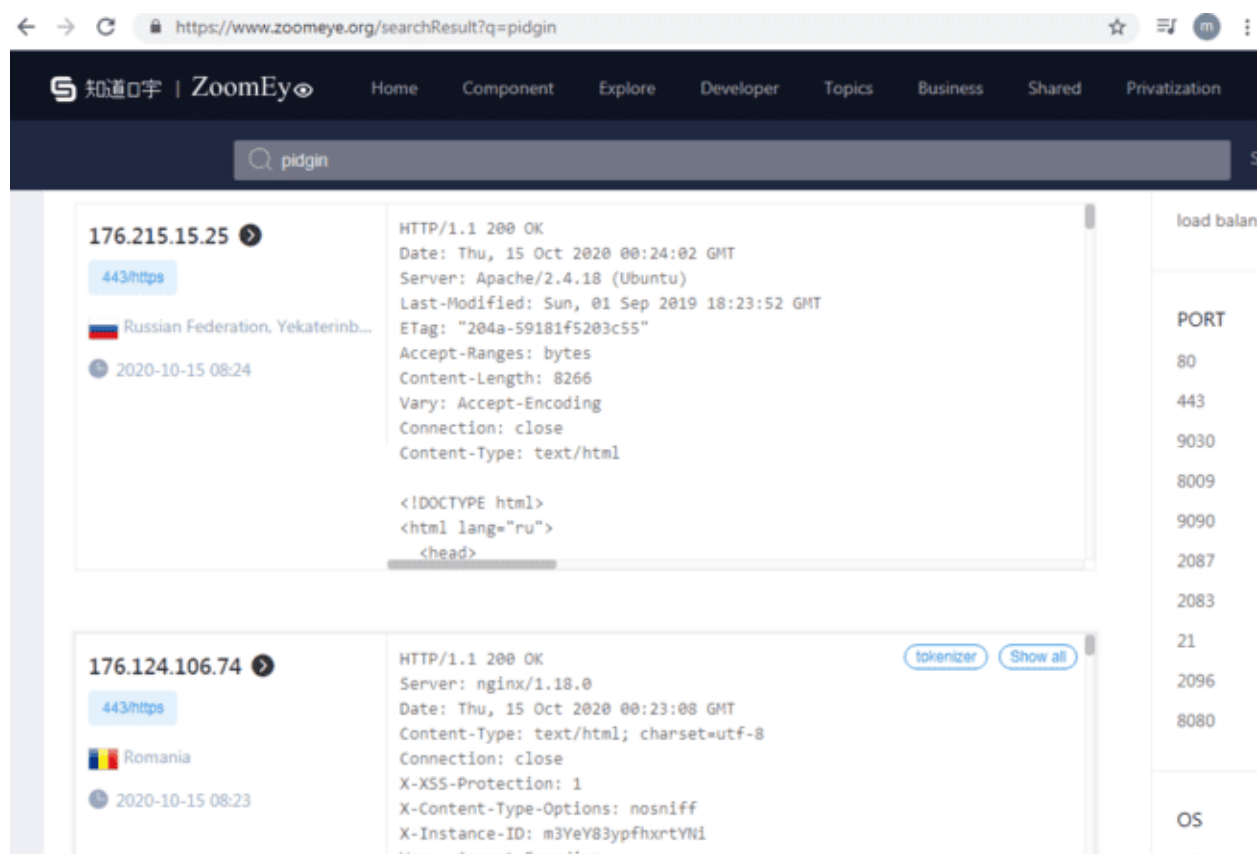


Illustration: a sample result from Shodan

ZoomEye

ZoomEye is a competitor of Shodan.

Here is a sample of what we get when we search for 'pidgin' :



The search can be filtered by device/or port and/or by OS etc ...

The Zoomeye interface is very similar to Shodan but is much more oriented toward finding security holes in devices than Shodan.

Blockchain Search Engines

With the rise of blockchain technology, blockchains became larger and larger. For instance, the BTC blockchain is approximately 280 Gigabytes (and counting...)

This means that a search engine is needed to find transactions or smart contracts or other information in the blockchains.

Note that there are also *blockchain-powered* search engines but they don't offer searches in blockchains and are focused on using a different technique for searching the internet.

Desearch

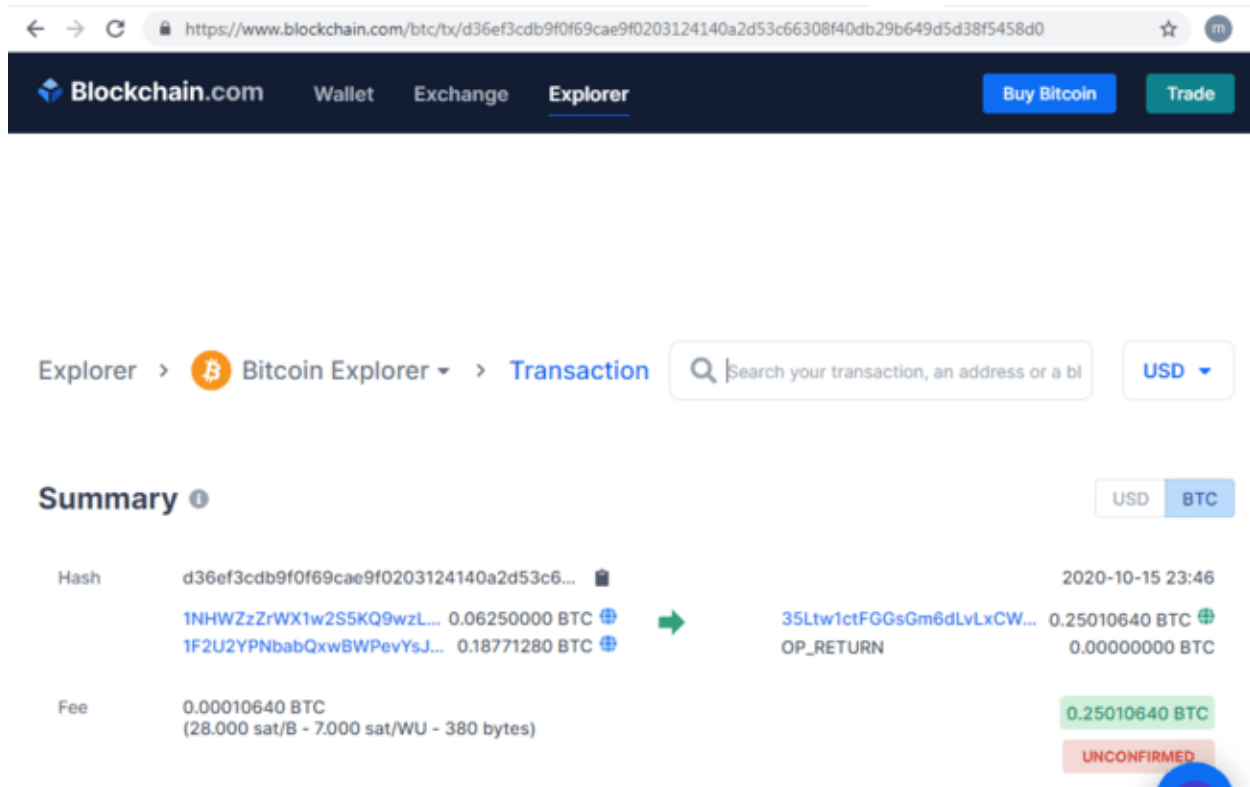
Desearch is the world's first cryptocurrency-oriented search engine.

Blockchain explorer

This is a famous blockchain search engine.

Here is the result of searching the transaction hash

'd36ef3cdb9f0f69cae9f0203124140a2d53c66308f40db29b649d5d38f5458d0' :



The screenshot shows the Blockchain.com website interface. At the top, there is a navigation bar with 'Blockchain.com', 'Wallet', 'Exchange', and 'Explorer' (highlighted). There are also buttons for 'Buy Bitcoin' and 'Trade'. Below the navigation bar, the page title is 'Explorer > Bitcoin Explorer > Transaction'. A search bar contains the text 'Search your transaction, an address or a bl' and a dropdown menu is set to 'USD'. The main content area is titled 'Summary' and shows transaction details. The hash is 'd36ef3cdb9f0f69cae9f0203124140a2d53c6...'. The transaction date and time are '2020-10-15 23:46'. The input side shows two addresses: '1NHWZzZrWX1w2S5KQ9wzL...' with 0.06250000 BTC and '1F2U2YPNbabQxwBWPEvYsJ...' with 0.18771280 BTC. A green arrow points to the output side, which shows '35Ltw1ctFGGsGm6dLvLxCW...' with 0.25010640 BTC and 'OP_RETURN' with 0.00000000 BTC. The fee is '0.00010640 BTC (28.000 sat/B - 7.000 sat/WU - 380 bytes)'. A green box highlights the output amount '0.25010640 BTC', and a red box below it says 'UNCONFIRMED'.

Field	Value	Unit
Hash	d36ef3cdb9f0f69cae9f0203124140a2d53c6...	
Date	2020-10-15 23:46	
Input 1	1NHWZzZrWX1w2S5KQ9wzL...	0.06250000 BTC
Input 2	1F2U2YPNbabQxwBWPEvYsJ...	0.18771280 BTC
Output 1	35Ltw1ctFGGsGm6dLvLxCW...	0.25010640 BTC
Output 2	OP_RETURN	0.00000000 BTC
Fee	0.00010640 BTC (28.000 sat/B - 7.000 sat/WU - 380 bytes)	

The blockchain explorer allows you to search for past transactions in a lot of different blockchains: BTC, ETH, etc ...

The Dark Web Search Engine

There are areas of the web that are hidden and where no sane search engines would dare venture. This is the darknet. **We do not recommend the reader to go there** but we mention the existence of specific darknet search engines. Usually, these search engines will function via the onion router protocol, and as such they need a specific browser like Tor browser to be accessed.

DuckDuckGo

This is a search engine that is focused on the privacy of its users. DuckDuckGo has a 'public' version and a 'darknet' version which differ.

Torch

Torch can only be accessed by using the onion protocol. It has indexed around 300,000 onion web pages

Astalavista

This is a very ancient group of search engines for hackers and contains a lot of links to viruses, serial numbers, and hacked software.

In Conclusion

We have seen that there are by now a lot of various search engines using various techniques that complement the search engine giants like Google, Bing, and others ...

We should see the rise of Image-based search engines which may provide new ways of finding useful information.