کارگاه آموزشی

مدیریت اطلاعات علمی و منابع الکترونیکی

روش‌های یافتن اطلاعات در وب در فرایند پژوهش

حسن بشیری

آموزشکده فنی و حرفه‌ای
اردیبهشت‌ماه ۱۳۹۵

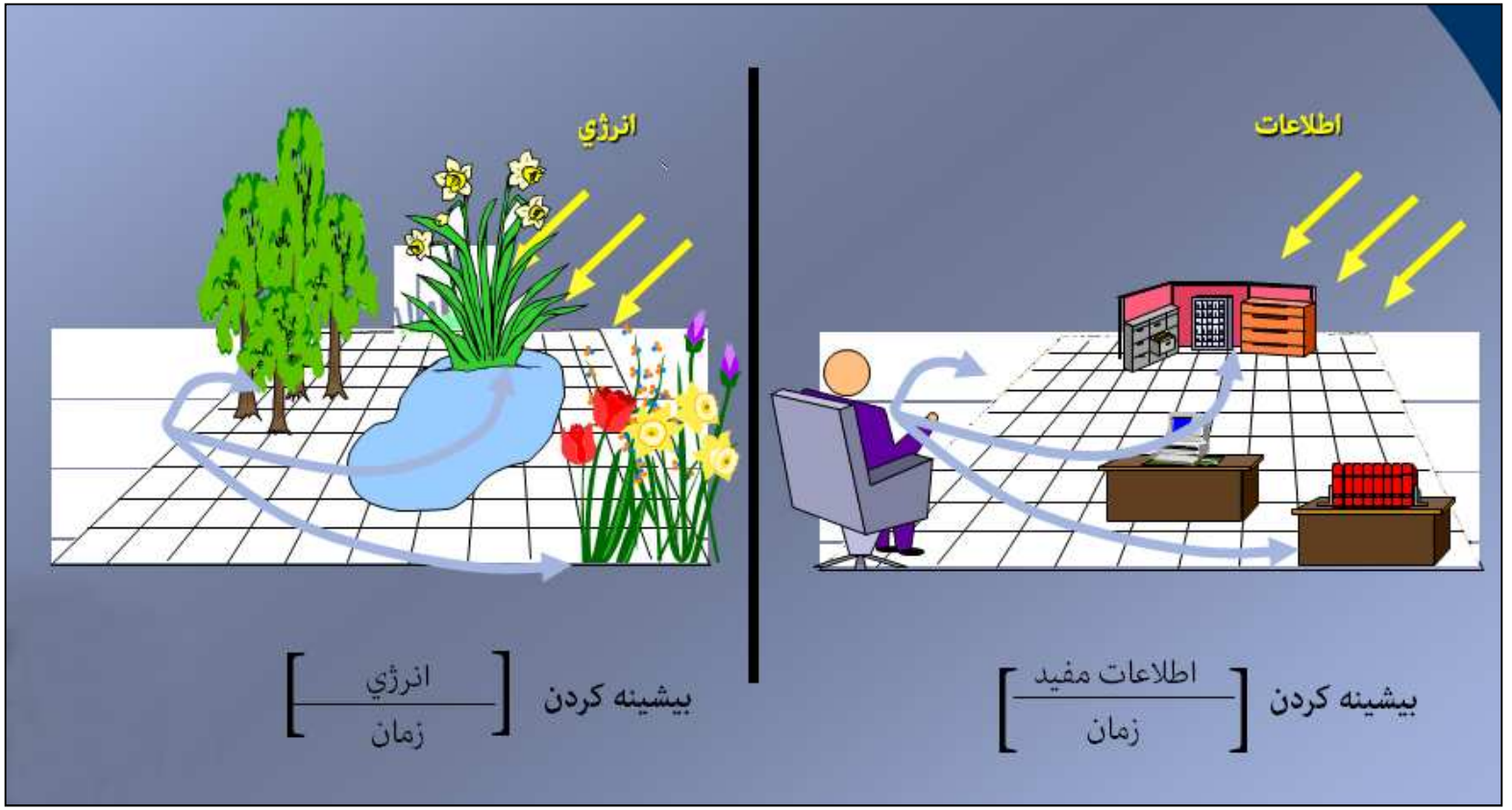
هدف دوره

- آشنایی با روش‌های مدیریت منابع الکترونیکی در پژوهش
  - مبانی اینترنت و منابع اطلاعاتی
  - ابزارهای جستجو در وب
- کاربست برخی ابزارهای پژوهش
  - شیوه‌های موثر جستجو کردن در وب
  - سازماندهی منابع الکترونیکی در کامپیوتر
  - کار با ابزار Microsoft Word
  - کار با ابزار EndNote

موضوعات مورد بحث

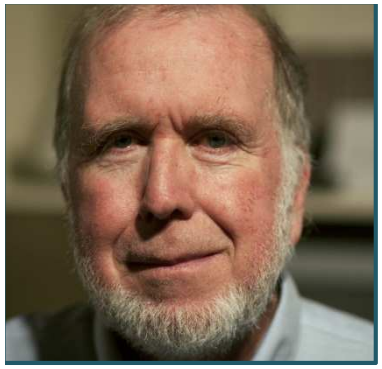
- اینترنت و بزرگی آن (درک درستی از چیزی که در آن جستجو می‌کنیم)
- شیوه کارکرد موتورهای جستجو (درک درستی از ابزاری که با آن جستجو می‌کنیم)
- ضرورت استفاده از روش‌های دیگر برای یافتن اطلاعات در وب

نیاز اطلاعاتی



داستان اینترنت

- کامپیوترها و شبکه‌سازی آنها
  - به اشتراک‌گذاری منابع سخت‌افزاری/نرم‌افزاری و اطلاعاتی
  - مرکز CERN، Tim Berners-Lee
  - صفحات HTML و ساختار گرافی وب
    - پروپوزال نوشته شده
    - اولین نمونه انجام شده



بزرگی اینترنت

- "The Web holds about a trillion pages. The human brain holds about 100 billion neurons," Kelly writes in his 2010 book *"What Technology Wants"*.

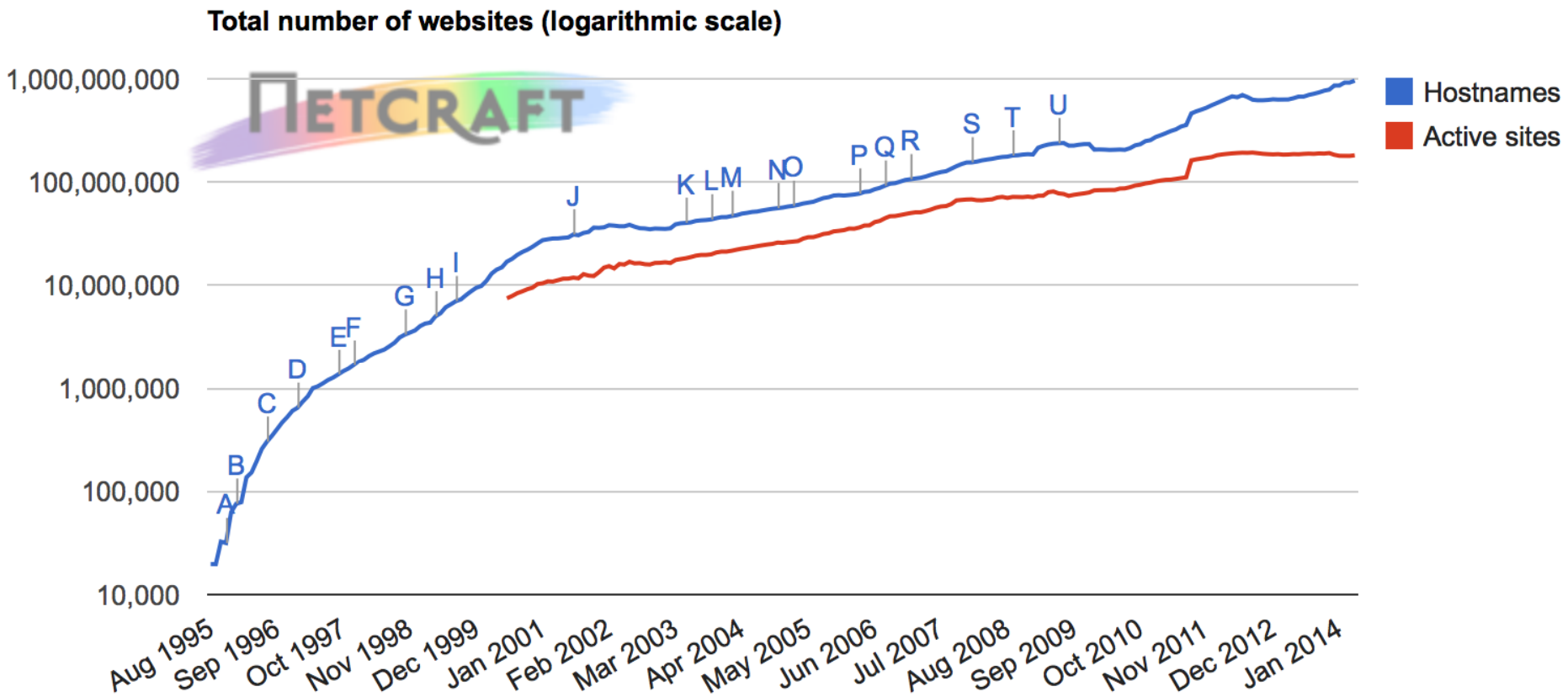
- گروه World Wide Web Foundation به رهبری Tim Berners-Lee و حمایت یک میلیون دلاری شرکت گوگل برای یافتن دقیق بزرگی اینترنت پژوهشی را آغاز کرده‌اند.
- اما تحلیل آماری از . . .

منبع: نتایج پژوهش‌های گوگل (۲۰۱۶)

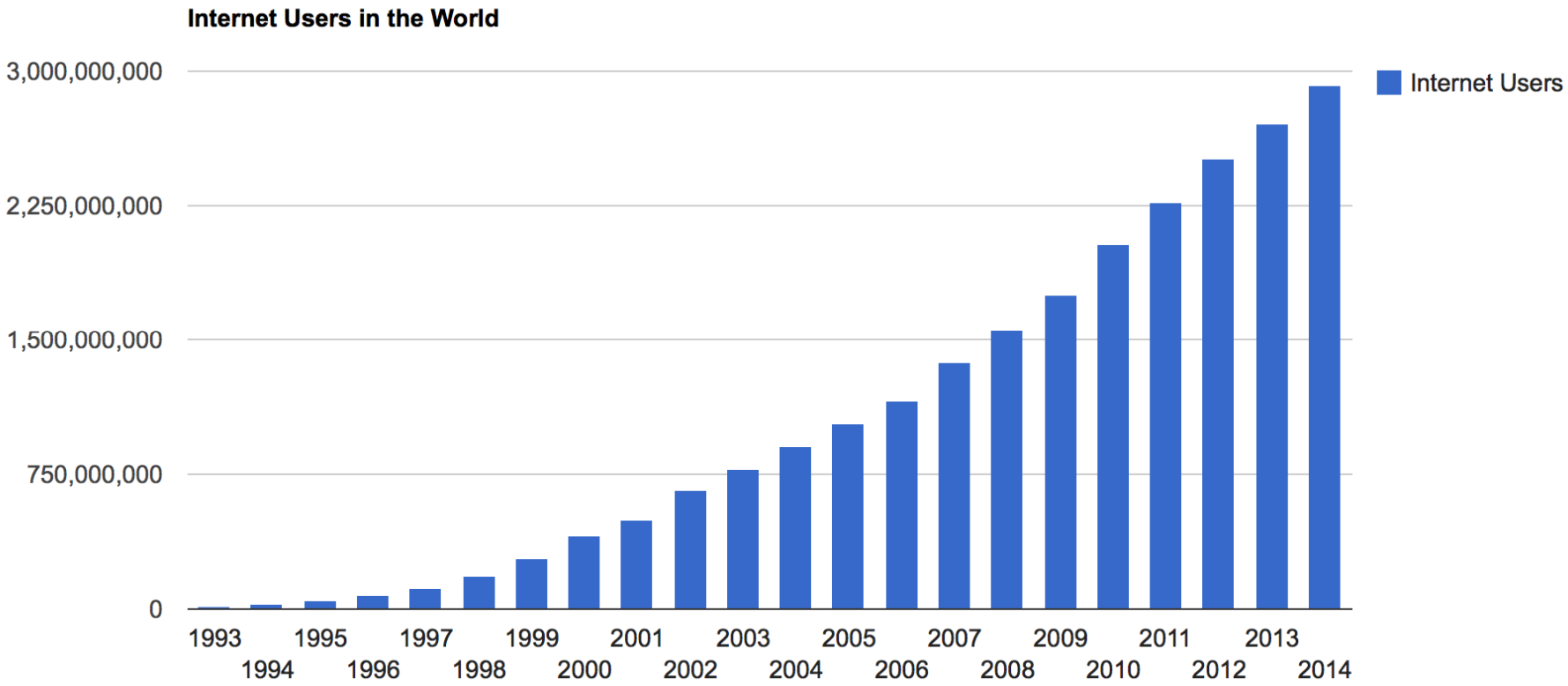
Year (June)	Websites	Change	Internet Users	Users per Website	Websites launched
2014	**968,882,453**	44%	2,925,249,355*	3	
2013	**672,985,183**	-3%	2,756,198,420	4	
2012	**697,089,489**	101%	2,518,453,530	4	
2011	**346,004,403**	67%	2,282,955,130	7	
2010	**206,956,723**	-13%	2,045,865,660	10	Pinterest
2009	**238,027,855**	38%	1,766,206,240	7	
2008	**172,338,726**	41%	1,571,601,630	9	Dropbox
2007	**121,892,559**	43%	1,373,327,790	11	Tumblr
2006	**85,507,314**	32%	1,160,335,280	14	Twttr
2005	**64,780,617**	26%	1,027,580,990	16	YouTube, Reddit
2004	**51,611,646**	26%	910,060,180	18	Thefacebook, Flickr
2003	**40,912,332**	6%	778,555,680	19	WordPress, LinkedIn
2002	**38,760,373**	32%	662,663,600	17	
2001	**29,254,370**	71%	500,609,240	17	Wikipedia
2000	**17,087,182**	438%	413,425,190	24	Baidu
1999	**3,177,453**	32%	280,866,670	88	PayPal
1998	**2,410,067**	116%	188,023,930	78	Google
1997	**1,117,255**	334%	120,758,310	108	Yandex
1996	**257,601**	996%	77,433,860	301	
1995	**23,500**	758%	44,838,900	1,908	Altavista, Amazon, AuctionWeb
1994	**2,738**	2006%	25,454,590	9,297	Yahoo
1993	**130**	1200%	14,161,570	108,935	
1992	**10**	900%			
Aug. 1991	**1**				World Wide Web Project

* estimate for July 1, 2014
Note: Each year's data for "Websites" refers to the total number at the end of June (mid-year)
Source: ***NetCraft and Internet Live Stats*** (elaboration of data by *Matthew Gray of MIT and Hobbes' Internet Timeline* and *Pingdom)*

تعداد وب‌سایت‌ها (ادامه)



تعداد کاربران اینترنت (به تفکیک سال)



تعداد کاربران اینترنت (به تفکیک کشور)

Internet Users by Country (2016)

#	Country	Internet Users (2016)	Penetration (% of Pop)	Population (2016)	Non-Users (internetless)	Users 1 Year Change (%)	Internet Users 1 Year Change	Population 1 Y Change
1	China	721,434,547	52.2 %	1,382,323,332	660,888,785	2.2 %	15,520,515	0.46 %
2	India	462,124,989	34.8 %	1,326,801,576	864,676,587	30.5 %	108,010,242	1.2 %
3	U.S.	286,942,362	88.5 %	324,118,787	37,176,425	1.1 %	3,229,955	0.73 %
4	Brazil	139,111,185	66.4 %	209,567,920	70,456,735	5.1 %	6,753,879	0.83 %
5	Japan	115,111,595	91.1 %	126,323,715	11,212,120	0.1 %	117,385	-0.2 %
6	Russia	102,258,256	71.3 %	143,439,832	41,181,576	0.3 %	330,067	-0.01 %
7	Nigeria	86,219,965	46.1 %	186,987,563	100,767,598	5 %	4,124,967	2.63 %
8	Germany	71,016,605	88 %	80,682,351	9,665,746	0.6 %	447,557	-0.01 %
9	U.K.	60,273,385	92.6 %	65,111,143	4,837,758	0.9 %	555,411	0.61 %
10	Mexico	58,016,997	45.1 %	128,632,004	70,615,007	2.1 %	1,182,988	1.27 %
11	France	55,860,330	86.4 %	64,668,129	8,807,799	1.4 %	758,852	0.42 %
12	Indonesia	53,236,719	20.4 %	260,581,100	207,344,381	6.5 %	3,232,544	1.17 %
13	Viet Nam	49,063,762	52 %	94,444,200	45,380,438	3.3 %	1,564,346	1.07 %
14	Turkey	46,196,720	58 %	79,622,062	33,425,342	5.1 %	2,242,750	1.22 %
15	Philippines	44,478,808	43.5 %	102,250,133	57,771,325	4.4 %	1,855,574	1.54 %
16	South Korea	43,274,132	85.7 %	50,503,933	7,229,801	1.2 %	522,375	0.42 %
17	Italy	39,211,518	65.6 %	59,801,004	20,589,486	1.7 %	666,922	0.01 %
18	Iran	39,149,103	48.9 %	80,043,146	40,894,043	7.7 %	2,784,831	1.18 %

www.internetlivestats.com

تعداد کاربران اینترنت (به تفکیک کشور)

Rank	Country	Internet Users	1 Year Growth %	1 Year User Growth	Total Country Population	1 Yr Population Change (%)	Penetration (% of Pop. with Internet)	Country's share of World Population	Country's share of World Internet Users
21	Poland	25,666,238	2%	571,136	38,220,543	0.01%	67.15%	0.53%	0.88%
22	Colombia	25,660,725	7%	1,739,108	48,929,706	1.26%	52.44%	0.68%	0.88%
23	Argentina	24,973,660	7%	1,600,722	41,803,125	0.86%	59.74%	0.58%	0.86%
24	South Africa	24,909,854	14%	3,022,362	53,139,528	0.69%	46.88%	0.73%	0.85%
25	Iran	22,200,708	9%	1,850,445	78,470,222	1.32%	28.29%	1.08%	0.76%
26	Australia	21,176,595	9%	1,748,054	23,630,169	1.23%	89.62%	0.33%	0.73%
27	Morocco	20,207,154	10%	1,851,335	33,492,909	1.47%	60.33%	0.46%	0.69%
28	Pakistan	20,073,929	9%	1,731,250	185,132,926	1.64%	10.84%	2.56%	0.69%
29	Thailand	19,386,154	8%	1,438,018	67,222,972	0.32%	28.84%	0.93%	0.66%
30	Saudi Arabia	17,397,179	11%	1,656,942	29,369,428	1.88%	59.24%	0.41%	0.60%

جولای ۲۰۱۴

نیاز اطلاعاتی برای سوال/پژوهش

یافتن اطلاعات در زمان مناسب: مساله این است؟

یافتن اطلاع در کتاب

- مطالعه همه کتاب

Other tree representations

We sometimes represent rooted trees in other ways. In Chapter 6, for example, we represented a heap, which is based on a complete binary tree, by a single array plus an index. The trees that appear in Chapter 21 are traversed only toward the root, so only the parent pointers are present; there are no pointers to children. Many other schemes are possible. Which scheme is best depends on the application.

Exercises

10.4-1
Draw the binary tree rooted at index 6 that is represented by the following fields.

index	*key*	*left*	*right*
1	12	7	3
2	15	8	NIL
3	4	10	NIL
4	10	5	9
5	2	NIL	NIL
6	18	1	4
7	7	NIL	NIL
8	14	6	2
9	21	NIL	NIL
10	5	NIL	NIL

10.4-2
Write an $O(n)$-time recursive procedure that, given an n-node binary tree, prints out the key of each node in the tree.

10.4-3
Write an $O(n)$-time nonrecursive procedure that, given an n-node binary tree, prints out the key of each node in the tree. Use a stack as an auxiliary data structure.

10.4-4
Write an $O(n)$-time procedure that prints all the keys of an arbitrary rooted tree with n nodes, where the tree is stored using the left-child, right-sibling representation.

10.4-5 ⋆
Write an $O(n)$-time nonrecursive procedure that, given an n-node binary tree, prints out the key of each node. Use no more than constant extra space outside of the tree itself and do not modify the tree, even temporarily, during the procedure.

یافتن اطلاع در کتاب (ادامه)

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8 **Sorting in Linear Time** *165*
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اطلاعات دروب

- **اطلاعات متني**

- **اطلاعات تصويري** (image)
  - شیوه جستجوی متنی تصویر
  - شیوه جستجوی تصویری تصویر

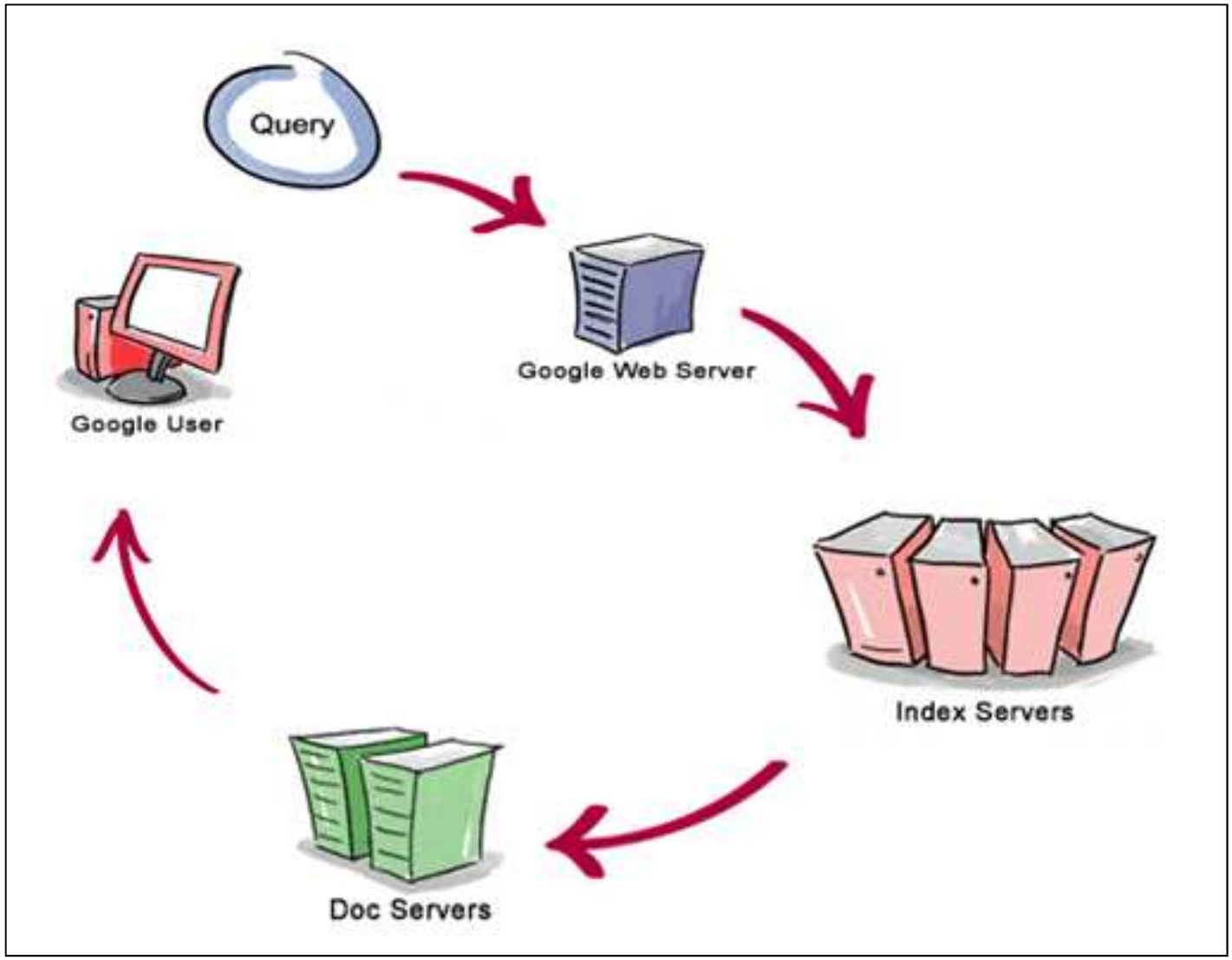
- **اطلاعات چند رسانه‌اي** (Multimedia)
  - جستجوی متنی صوت و ویدئو در موتورهای جستجو
  - جستجوی متنی صوت و ویدئو در سایت‌های چندرسانه‌ای نظیر یوتیوب

یافتن اطلاعات دروب

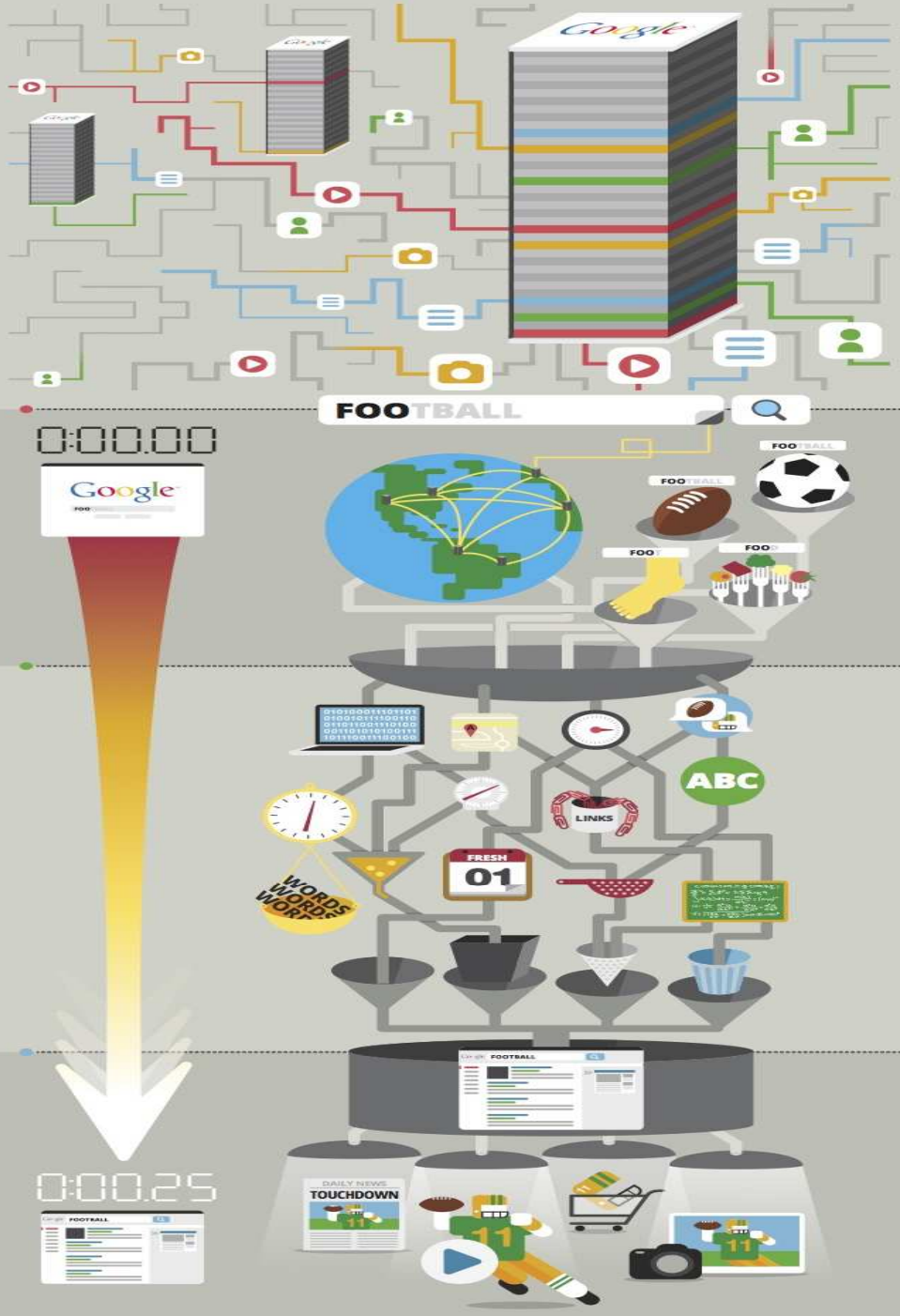
- از قبل بدانیم که اطلاعات مورد نظر در چه آدرسي قرار دارند!
  - کتابهای زرد (Yellow Pages)
- آدرس سايتهاي مرتبط با موضوع را بدانيم و از طريق دنبال کردن لينک آنها اميدوار به يافتن اطلاع باشيم.
- از ابزارهايي که براي يافتن اطلاعات تهيه شده‌اند استفاده کنيم. اين ابزارها همان موتورهاي جستجو هستند.

آمارها نشان مي‌دهد که بيش از ۸۰٪ کاربران براي يافتن اطلاعات خود به محض اتصال به اينترنت از موتورهاي جستجو استفاده مي‌کنند.

چرخه جستجو


Query
Google Web Server
Google User
Index Servers
Doc Servers

SPLIT SECOND SEARCH



1 BEFORE YOU SEARCH

The journey of a search query begins long before you type your search into Google. We use software robots, known as web crawlers or spiders, that find webpages to include later in Google search results. Google's software stores data about these pages in data centers. The web is like a book with trillions of pages, and our job is to index that book.

Our index is well over 100,000,000 gigabytes

We've spent over 1 million computing hours building the index so far

2 AS YOU SEARCH

When you start your search, that's when Google's algorithm begins to find the information you're looking for.

The search query travels on average 1,500 miles to get the answer back to you (and may hit different data centers around the world along the way), at a speed that's close to the speed of light, hundreds of millions of miles per hour.

As you type your query, you'll start seeing predictions of searches you might be looking for and results showing up, without you having to hit enter. It saves you time and gets you to your answer as quickly as possible.

This is what we call Google Instant

3 RANKING

The algorithm looks at your query and uses over **200 signals** to decide which of the millions of pages and content are the most relevant answers for that query. Google finesses its ranking algorithms with over **500 improvements per year**.

Examples of these signals include:

The freshness of content on a website

The number of other websites linking to a particular site & the authority of those links

Words on the webpage

Spell Check

Synonyms of your search keywords

Quality of the content on the site

URL & title of webpage

Whether the best result is a **webpage, image, video, news article, personal result, etc.**

Personalization

Results recommended by people you're connected to

4 RESULT

Results are ranked in order by relevance and displayed on the page. In addition to showing you results instantly, we also render a preview of those webpages which you can see by hovering on the arrows to the right of the result, so you can quickly decide if it's a site you want to visit.

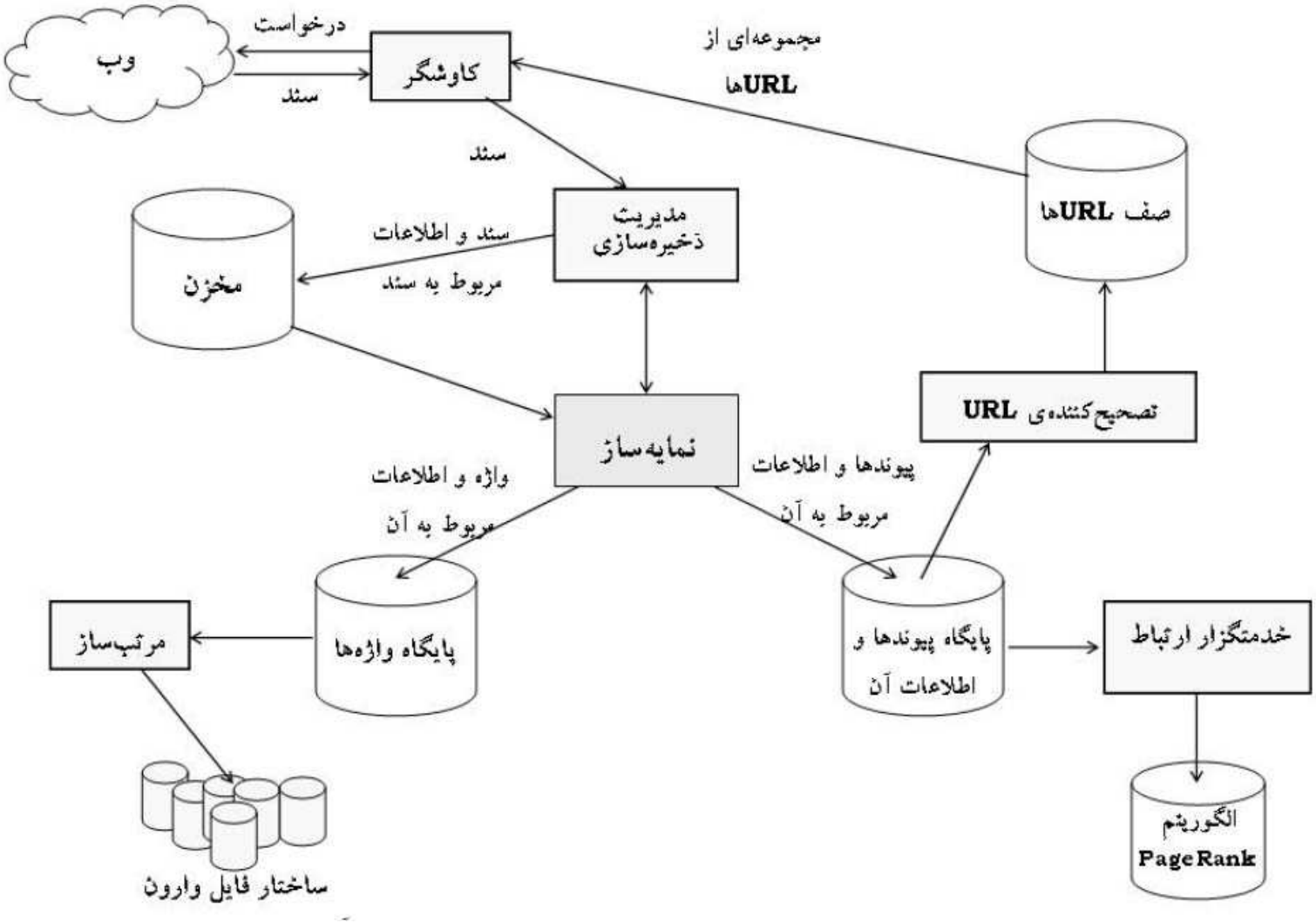
There are billions of searches each day on Google.

The Instant Previews load in 1/10th of a second on average

Since 2003 Google has answered 450 billion new unique queries. searches we have never seen before.

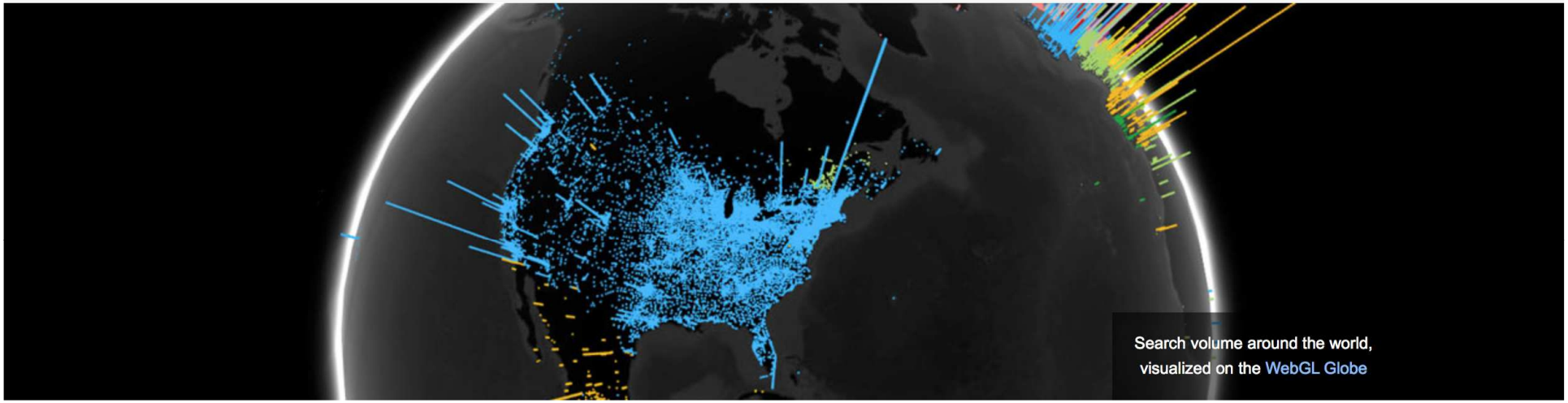
16% of searches we see every day are new.

نگاه دقیق‌تر به موتورهای جستجو

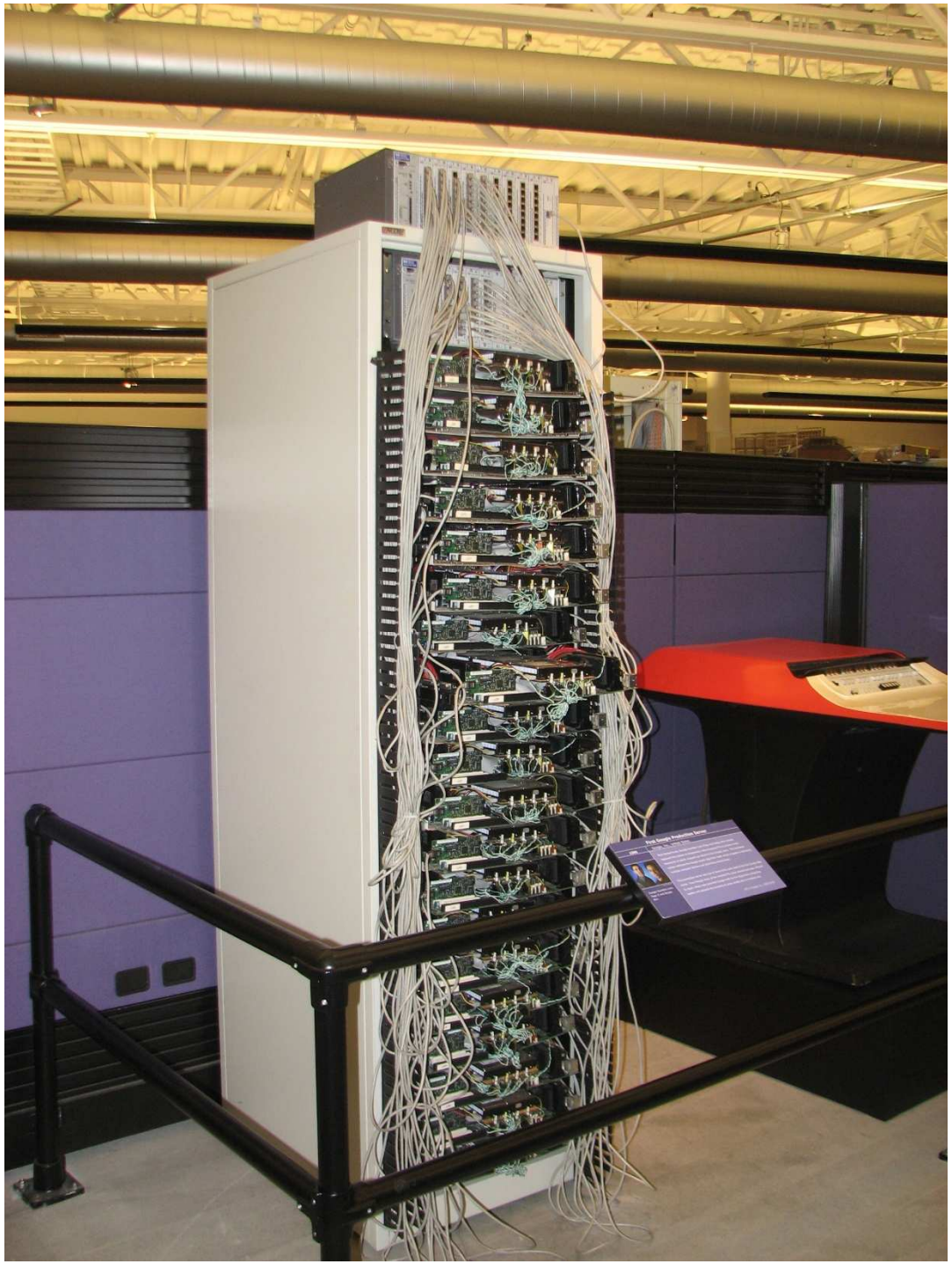


- **تاریخچه**
- **دلایل استفاده از Google به عنوان موتور جستجوگر برتر**
  - ایندکس کردن بیشترین صفحات وب (بیش از ۵۰ میلیارد صفحه)
  - سیستم رتبه‌بندی نتایج (رای‌گیری یا محبوبیت سایت)
  - انعطاف بالا در عمل جستجو
  - جستجو روی فایلهای مختلف (.pdf, .ppt, .xls, .html .doc, ...)
  - جستجو روی تصاویر، اخبار، آدرس و شماره تلفن افراد (US)
  - استفاده از Spell checker
  - بیش از ۵ میلیارد جستجو در روز (آمار سال ۲۰۱۵)
  - استفاده از طبقه‌بندی موضوعی

Google’s Mission Statement

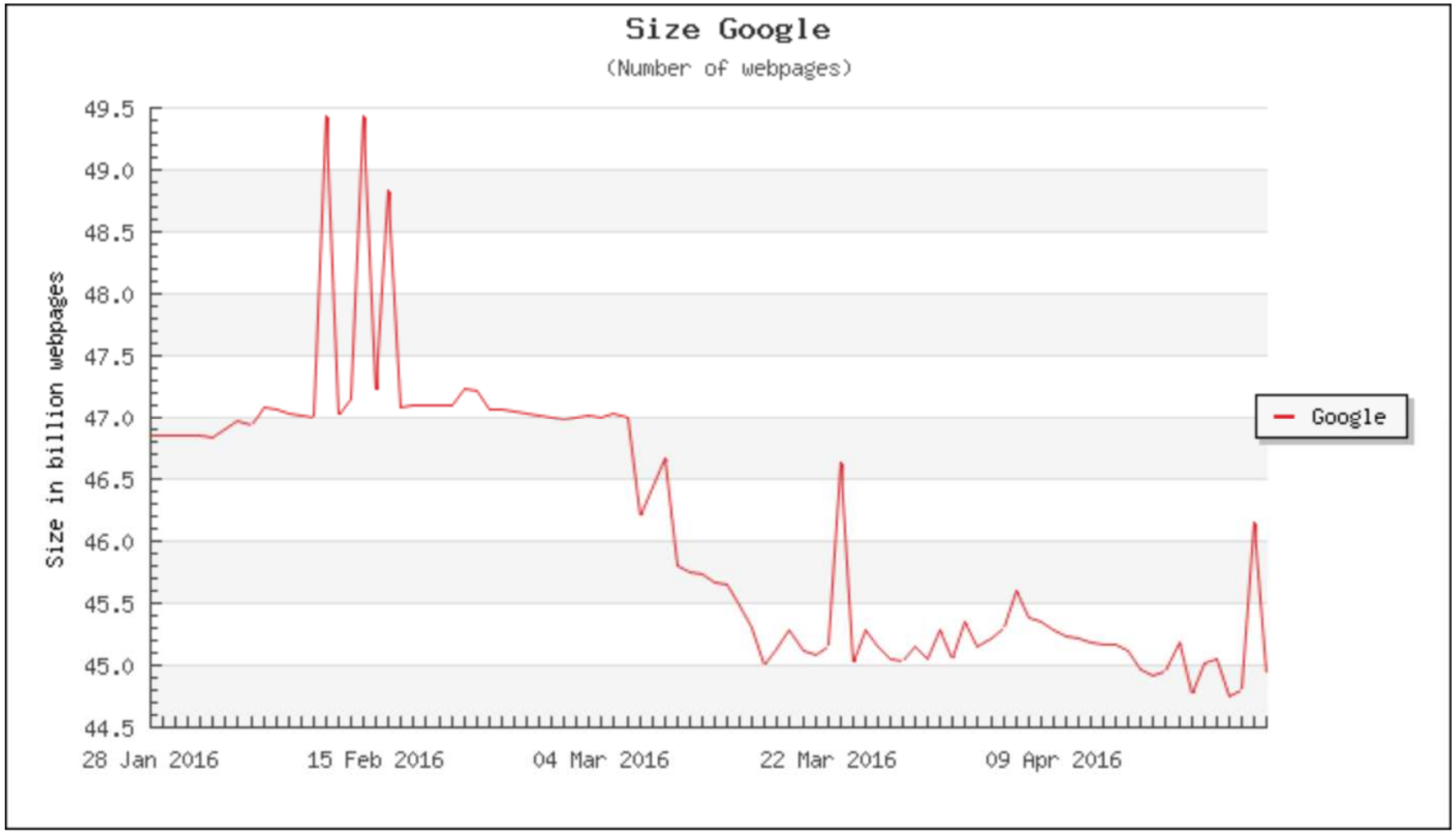


Google’s mission is to organize the world’s information and make it universally accessible and useful.



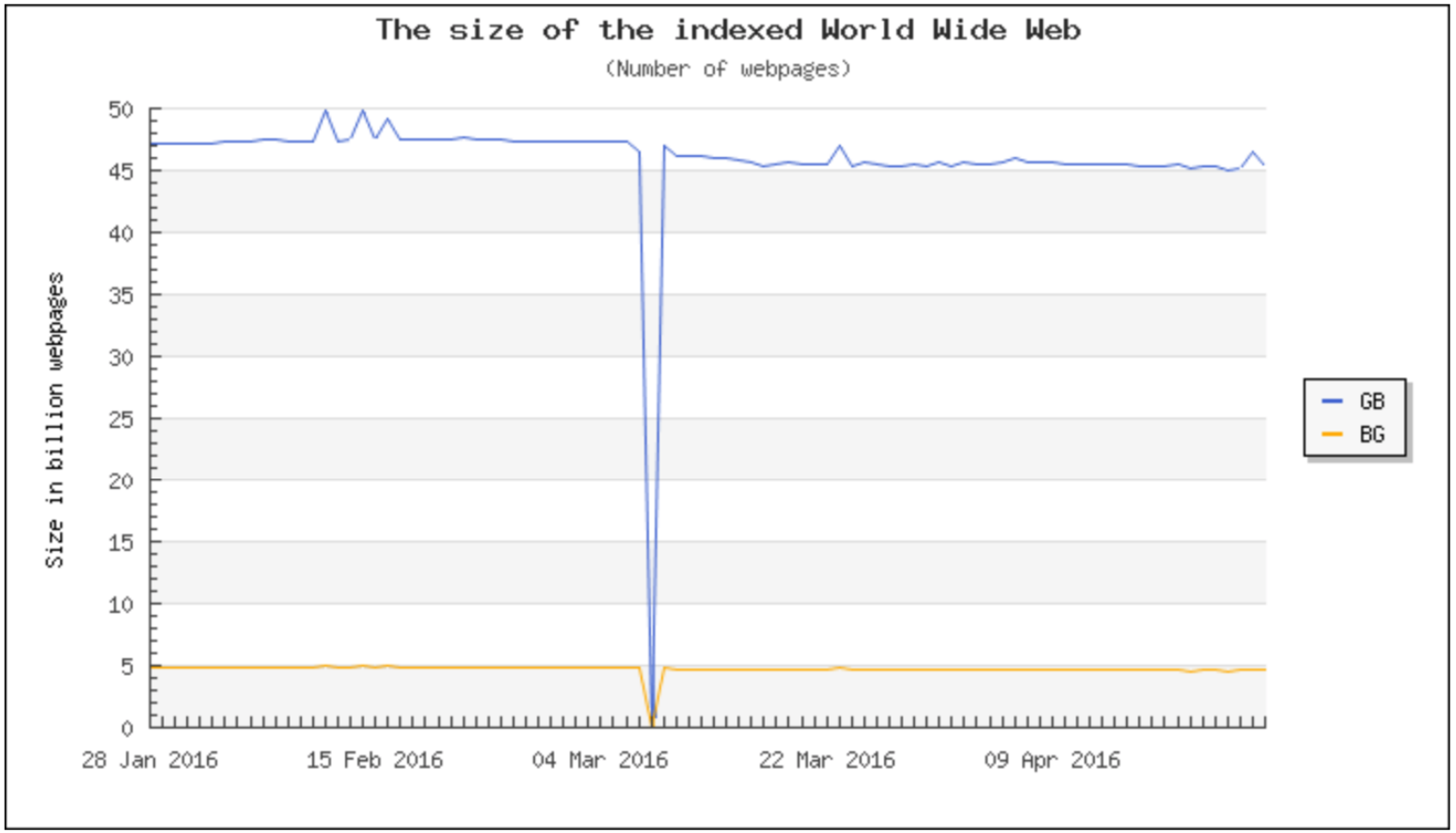
Google First Server
1998

حجم نمایه‌های گوگل



www.worldwidewebsize.com

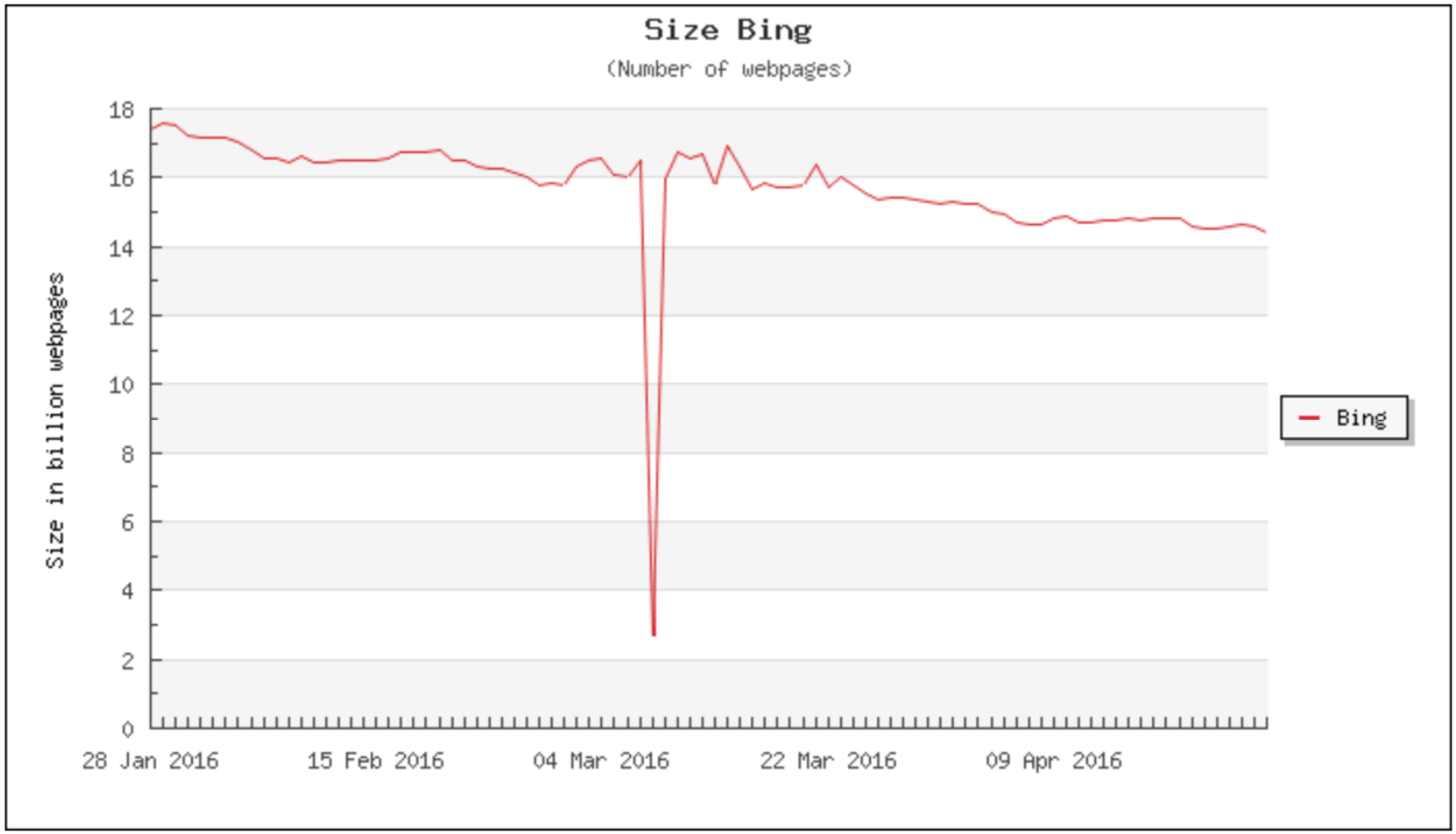
حجم نمایه‌های گوگل (ادامه)



GB = Sorted on Google and Bing

BG = Sorted on Bing and Google

حجم نمایه‌های Bing



آمارهایی از گوگل

Year	Annual Number of Google Searches	Average Searches Per Day
2014	2,095,100,000,000	5,740,000,000
2013	2,161,530,000,000	5,922,000,000
2012	1,873,910,000,000	5,134,000,000
2011	1,722,071,000,000	4,717,000,000
2010	1,324,670,000,000	3,627,000,000
2009	953,700,000,000	2,610,000,000
2008	637,200,000,000	1,745,000,000
2007	438,000,000,000	1,200,000,000
2000	22,000,000,000	60,000,000
1998	3,600,000 **Googles official first year*	9,800

منبع

www.statisticbrain.com

آمارهایی از گوگل (ادامه)

Google Server Statistics	Data
Total number of Google servers	920,000
Total size of Google's index data	100,000,000 GB
Percent of worldwide electricity used by Google's data center	0.01 %
Year	**Pages Indexed**
2014	30,000,000,000,000
2013	22,000,000,000,000
2012	17,000,000,000,000
2011	12,000,000,000,000
2010	6,000,000,000,000
2009	3,000,000,000,000
2008	1,000,000,000,000
2000	1,000,000,000
1998	26,000,000

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Year	Google	Yahoo!	Bing	Ask	AOL Search
2014	67.4 %	10 %	19.3 %	2 %	1.3 %
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2012	66.4 %	12.8 %	15 %	3.2 %	1.7 %
2011	65.6 %	16.1 %	13.1 %	3.4 %	1.6 %
2010	66.1 %	16.7 %	11.2 %	3.7 %	2.3 %
2009	65.6 %	17.5 %	10.3 %	3.8 %	2.8 %
2008	59.8 %	21.3 %	9.4 %	4.7 %	4.8 %
2007	55.2 %	23.5 %	12.3 %	4.7 %	4.4 %
2006	44.2 %	28 %	13.1 %	5.1 %	5.6 %
2005	36.9 %	30.4 %	15.7 %	6.0 %	–
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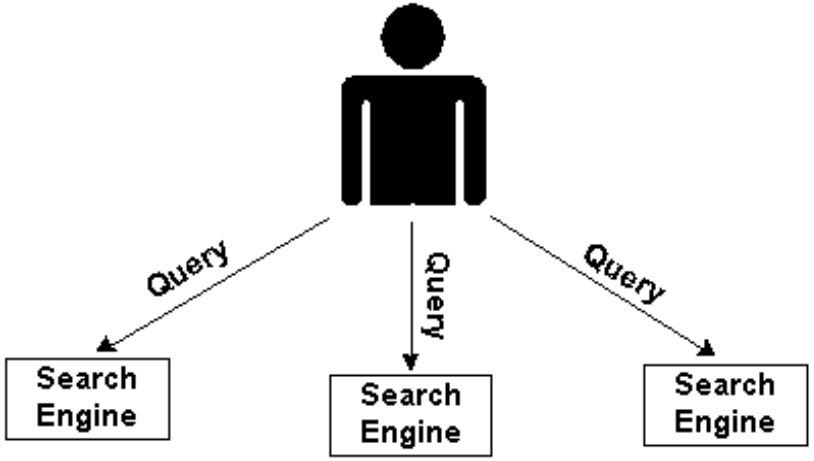

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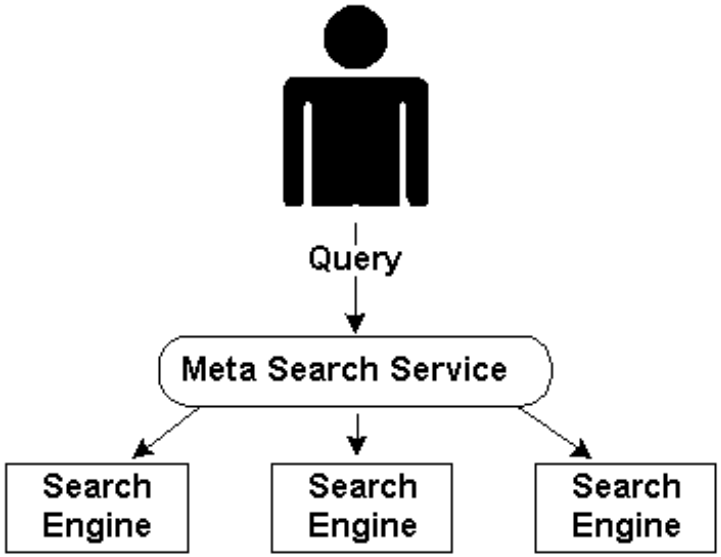

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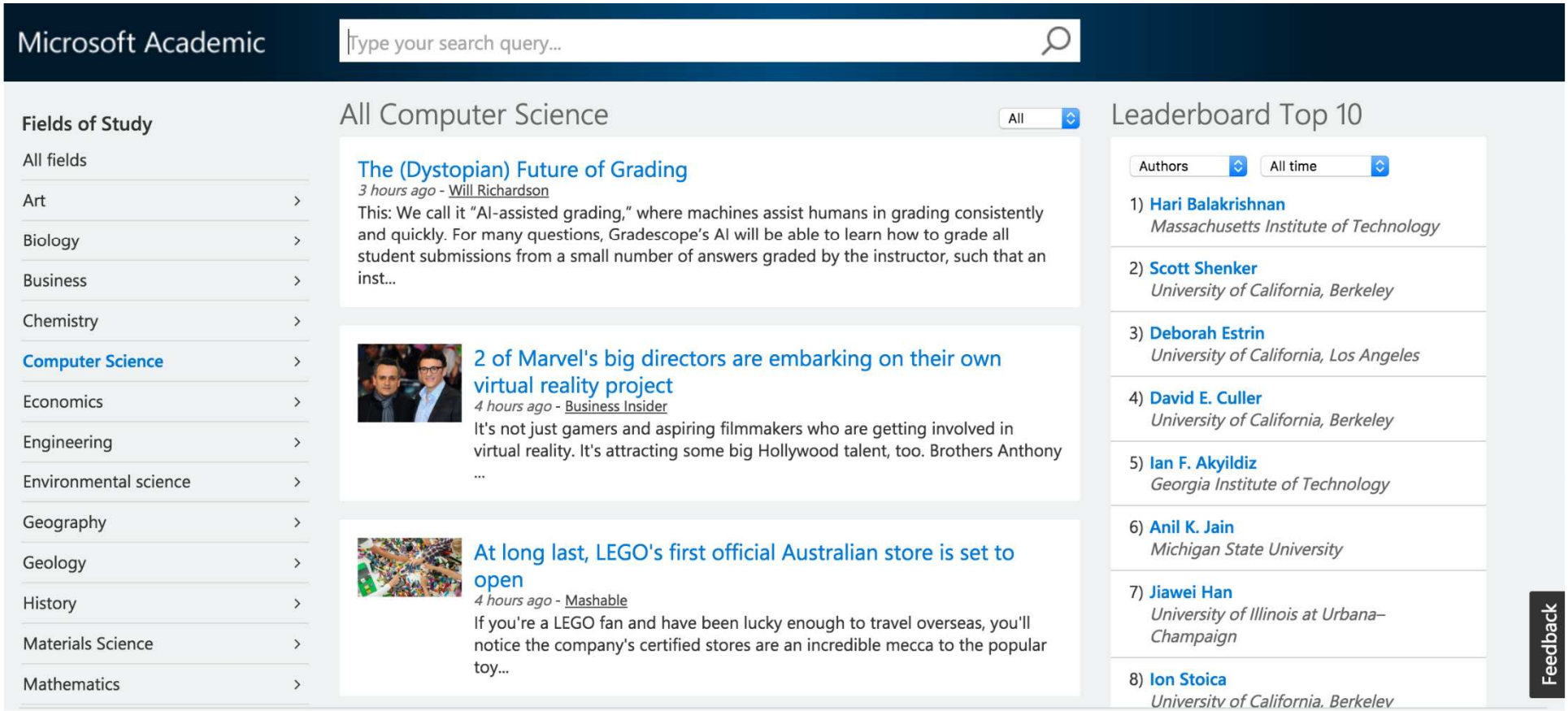

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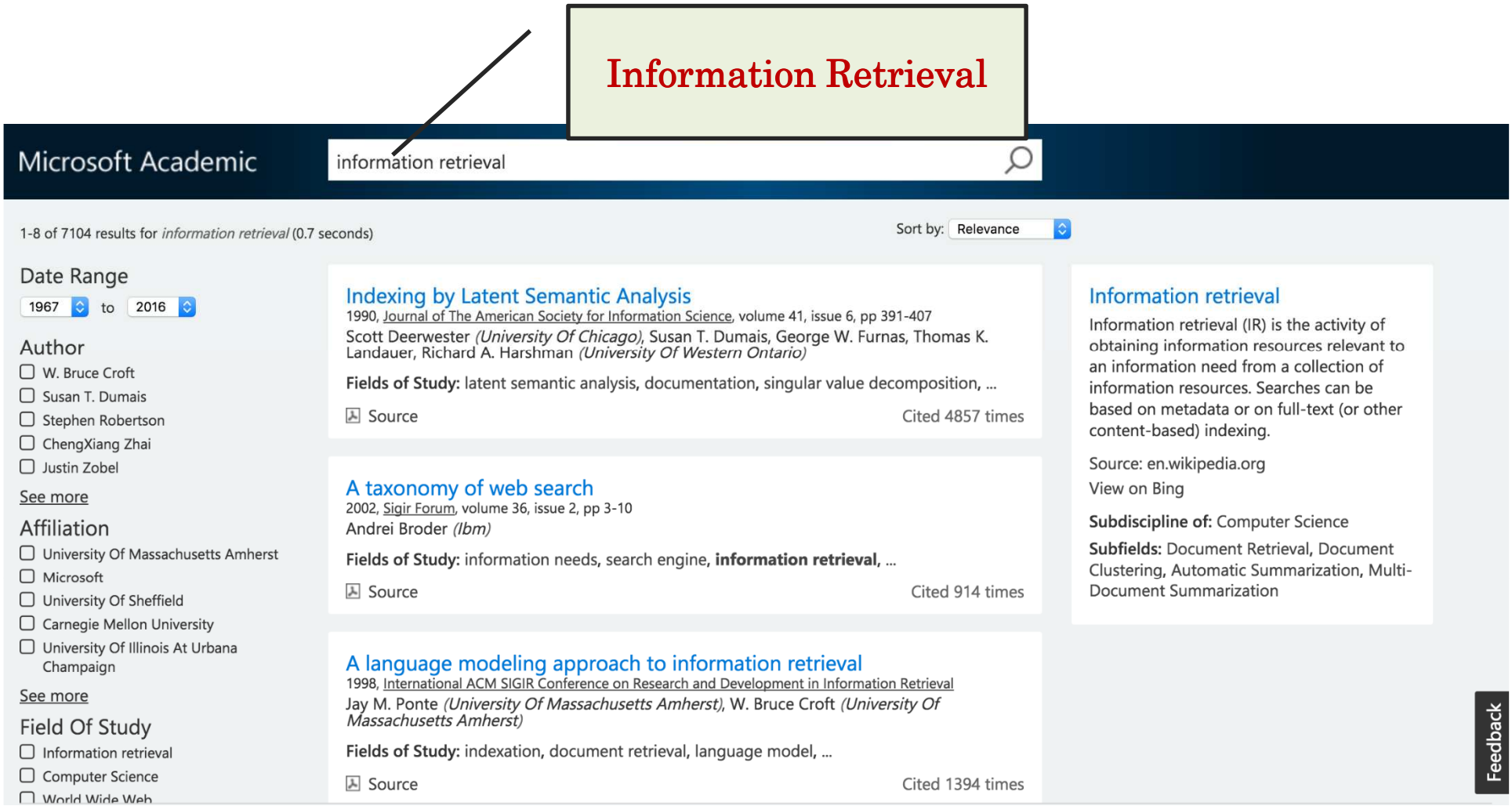

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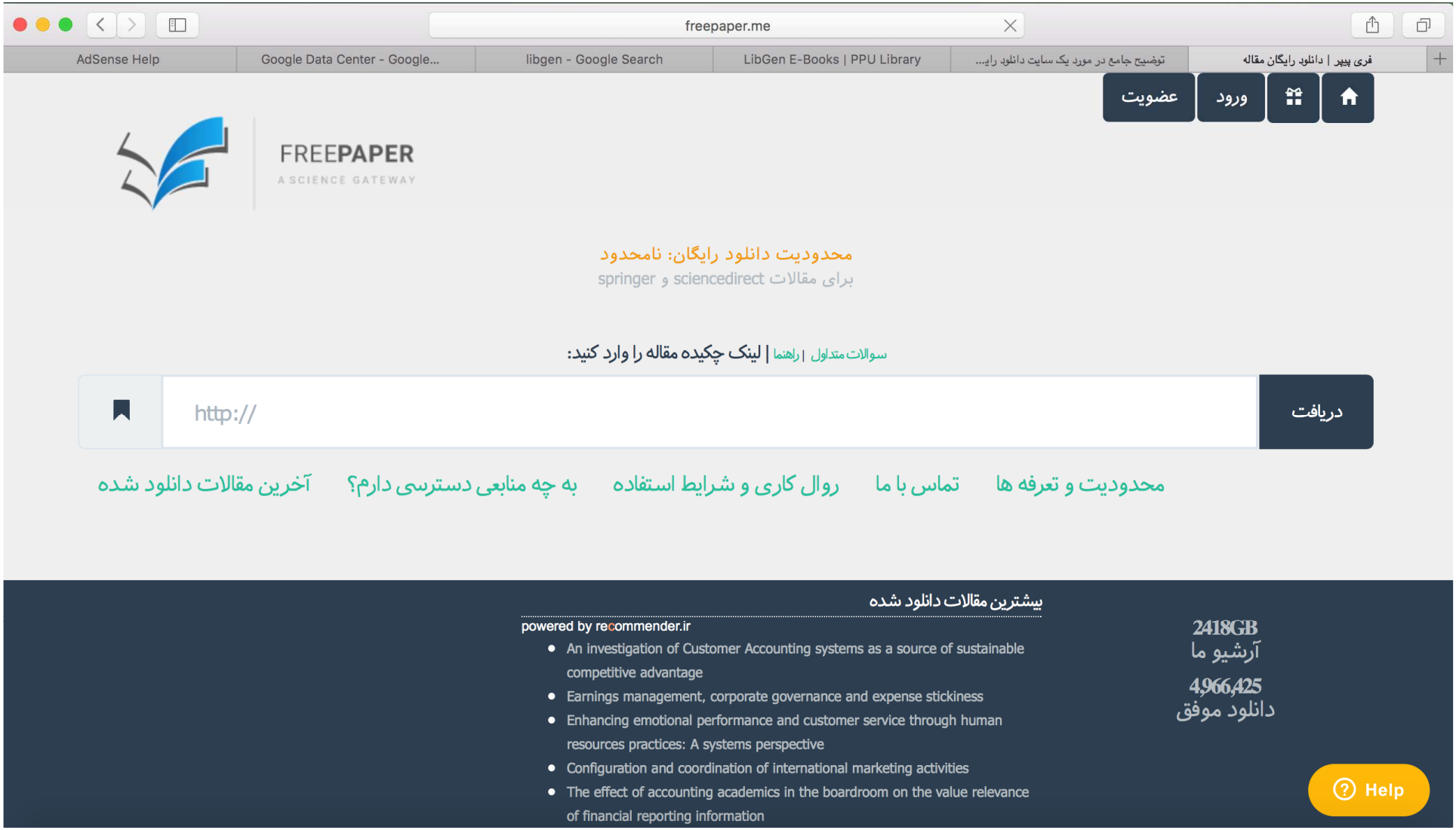

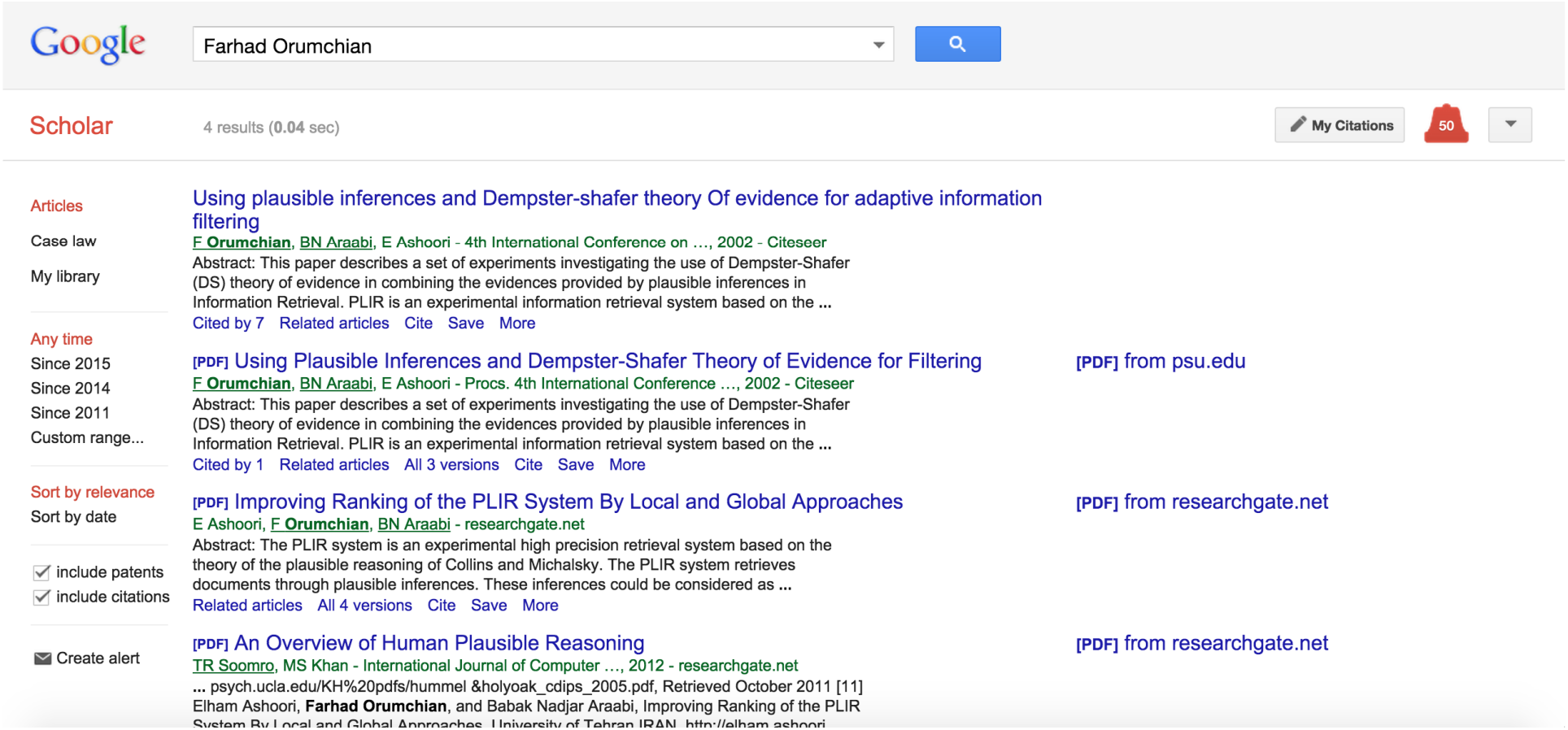
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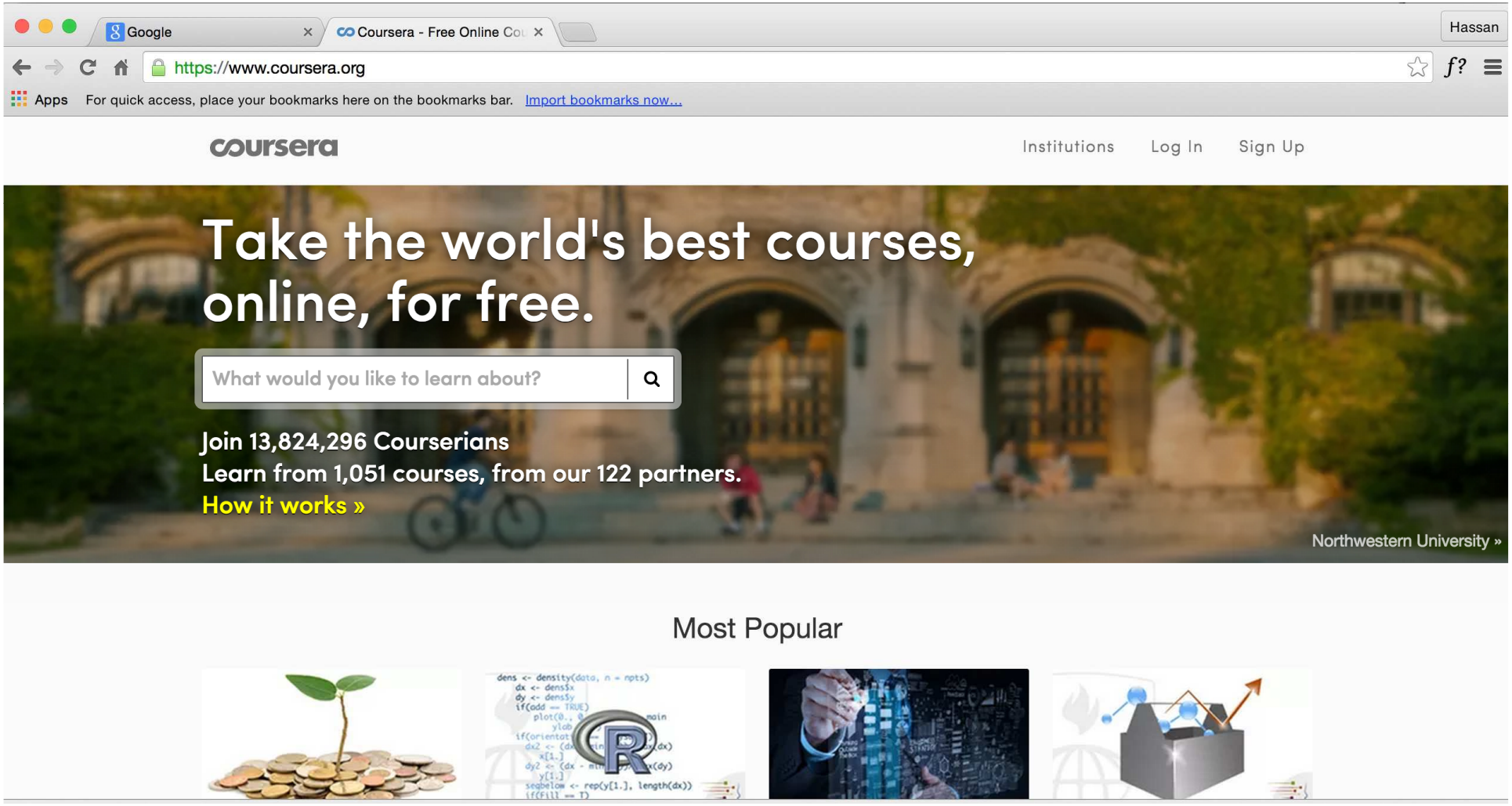
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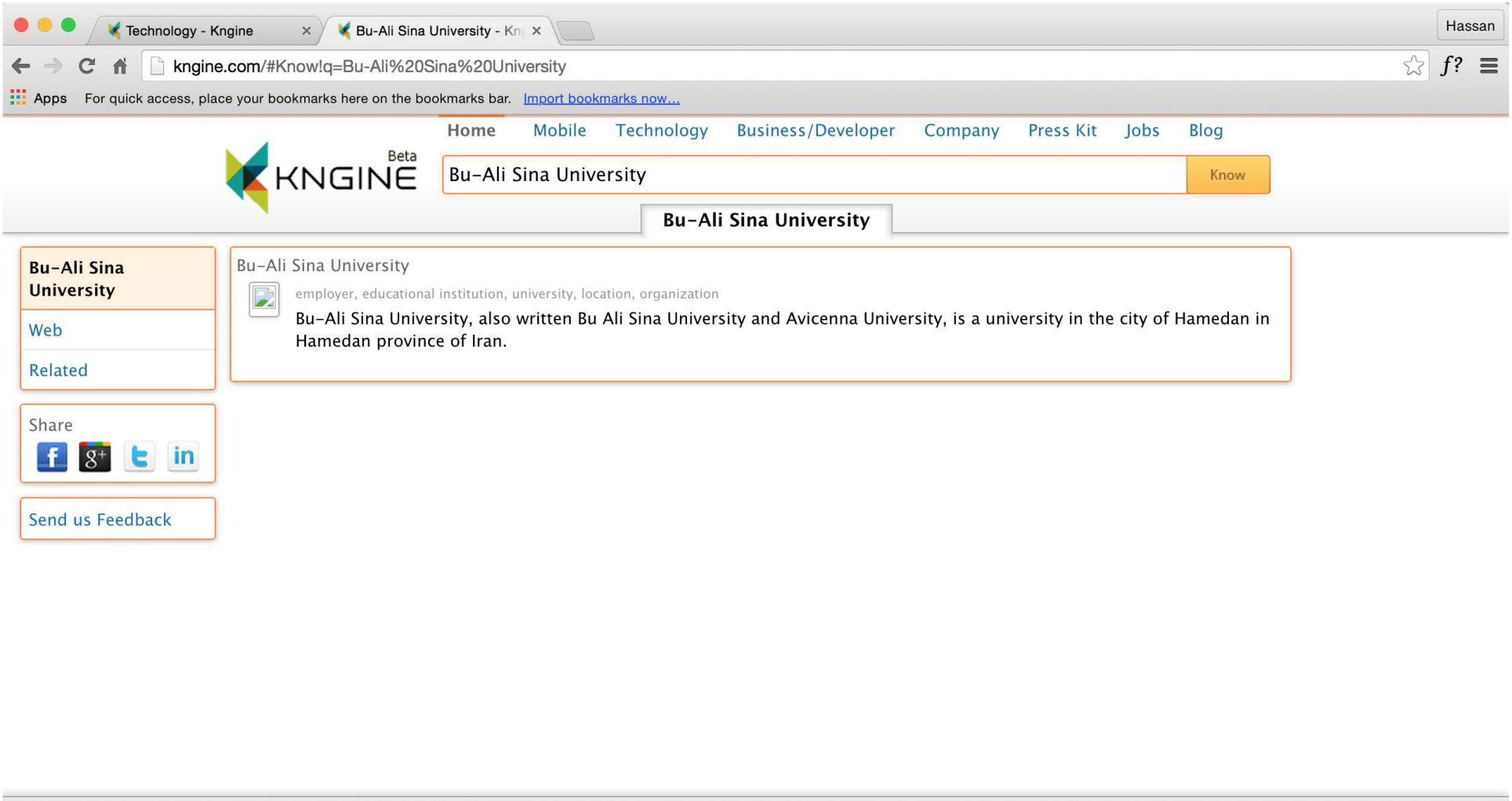
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In AUSTRALIA, POPULATION

What is the current population of Australia?

Answer by On the Wallaby CONFIDENCE VOTES 235K

One of my favourite past-times is driving and exploring with my husband (and my dog). In WikiAnswers, I am constantly "On the wallaby". Passionate about all things Australian, I roam all over WikiAnswers, answering questions that have the remotest connection to Australiana ... and some that don't ... as my interests are far and wide.

As of April 2015, the estimated population of Australia is **23 787 039.**

For up to the minute information, visit the Australian Bureau of Statistics 'Population Clock' at the link

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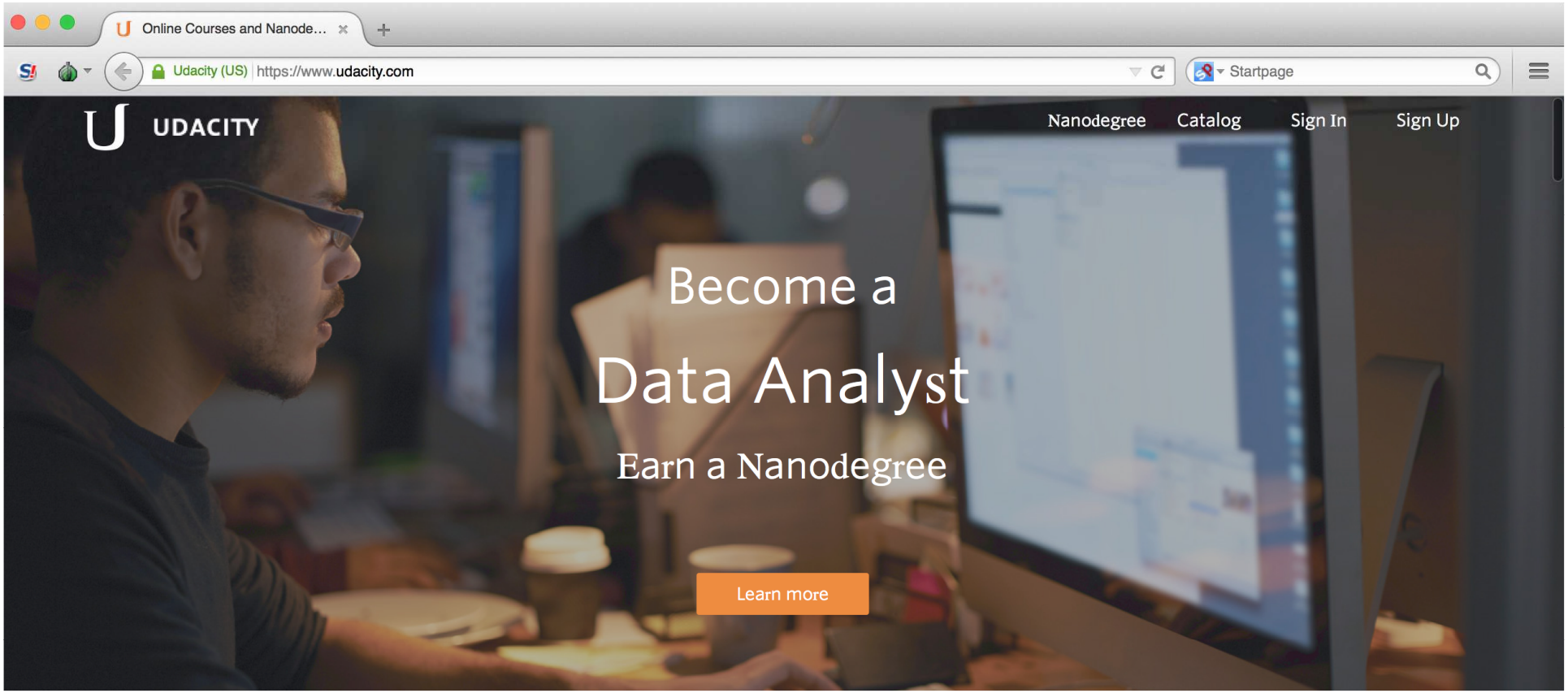

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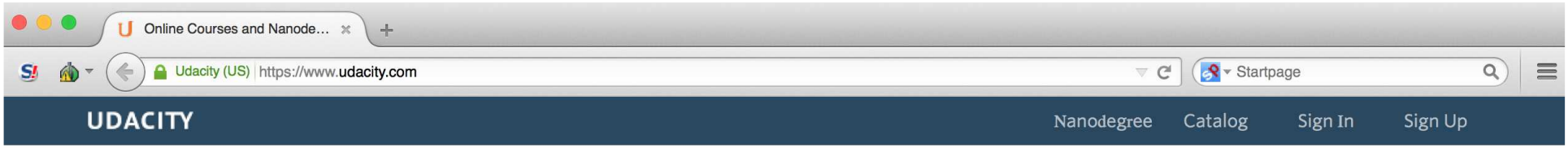

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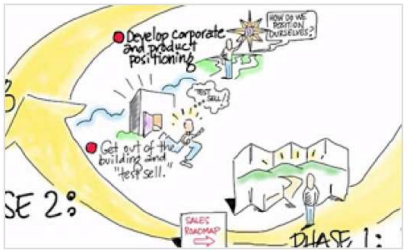

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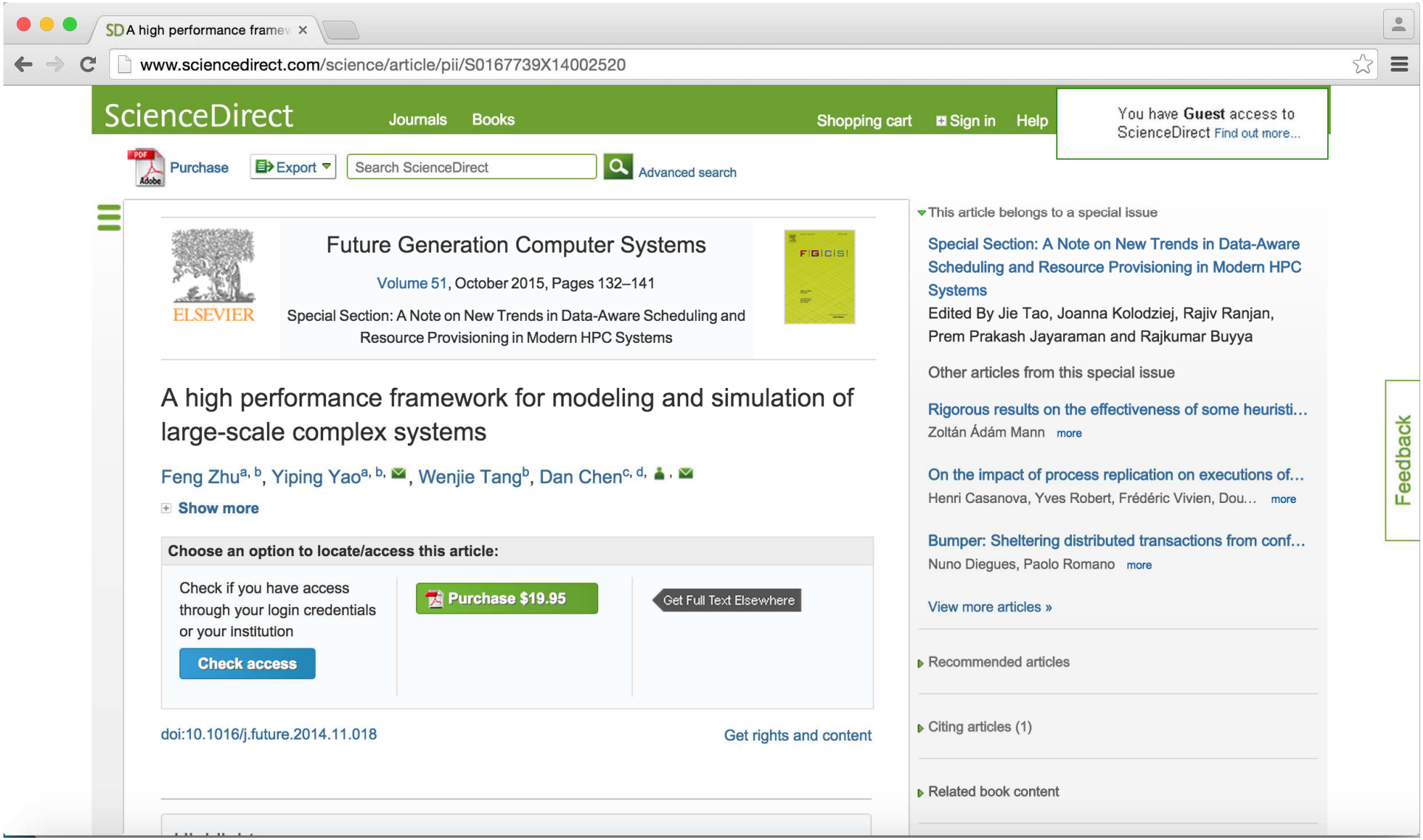
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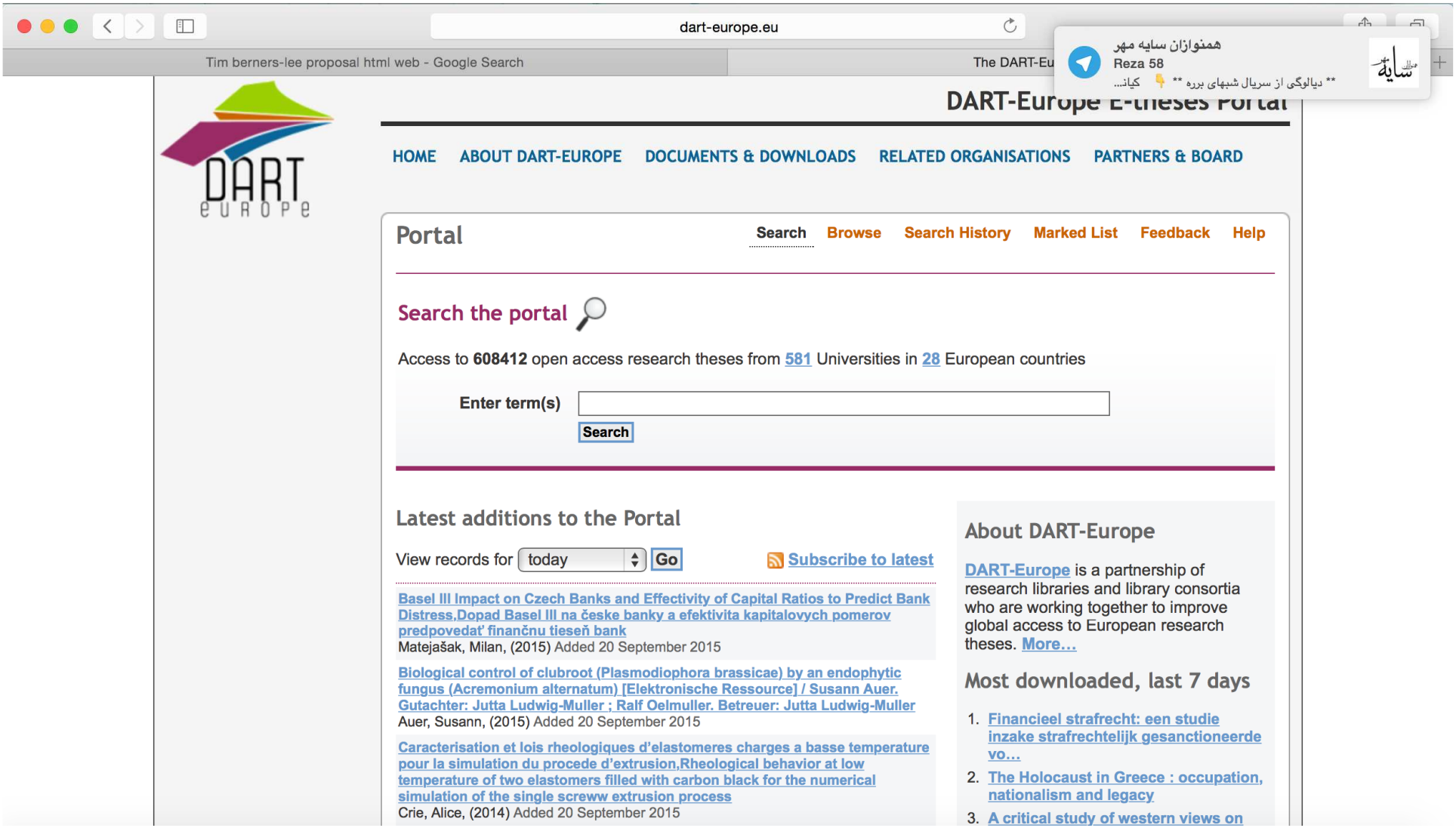
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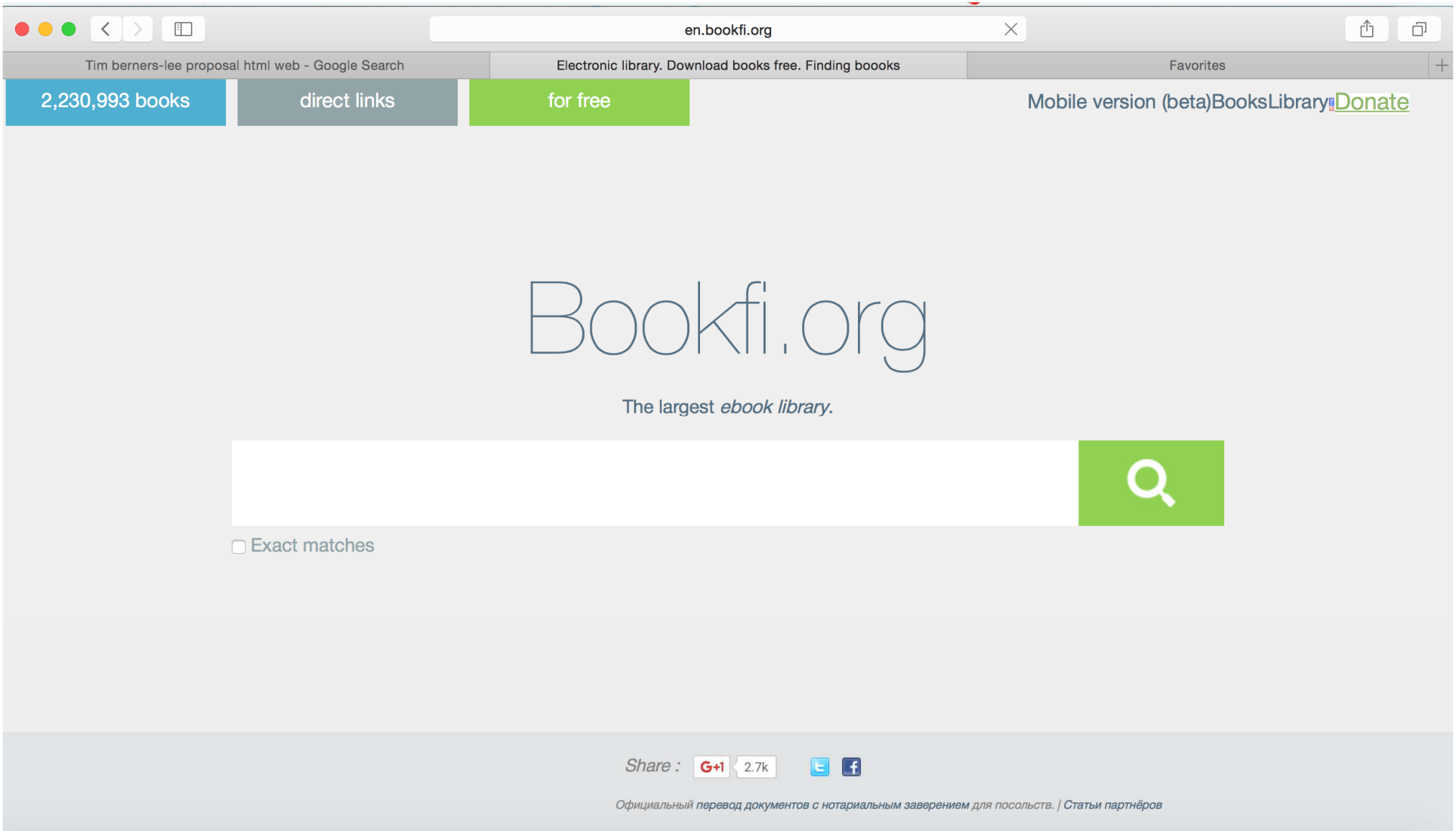
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