## **Search Flavours**



Recent updates and Trends

**Yossi Matias** 

Israel R&D Center, Google

**SIGIR 2010** 

## Wish list for idealized search "agent"



- Knows everything about the world
- Language agnostic
- Updated
- Context sensitive
- Understand me
- Good sense of timing
- Good sense of scope
- Smart about interaction
- Etc..



#### geneva

About 37,700,000 results (0.32 seconds)



💿 Images

More

#### Any time Latest Past 2 days

#### All results

Sites with images Fewer shopping sites More shopping sites

More search tools

Something different lisbon copenhagen oslo zurich brussels

#### Geneva Switzerland maps.google.com



Hotels - Restaurants - Jet D Eau - Lausanne - Lake Geneva - Annecy - League of Nations

#### Geneva - Wikipedia, the free encyclopedia

Geneva (Arpitan: Genèva, IPA: ['d͡zənɛva]; French: Genève, IPA: [ʒənɛv]; German: Genf, IPA: ['gɛnf] ( listen); Italian: Ginevra; Romansh: Genevra) is the ... Etymology - History - Geography and climate - Cityscape en.wikipedia.org/wiki/Geneva - Cached - Similar

#### Geneva Tourism - Genève - Genf - Ginevra - Ginebra ☆

Informations pratiques et touristiques pour votre séjour à Genève: forfaits hôteliers, réservation d'hôtels on-line, manifestations, plan de ville, ... Discover - Prix Week-end 2010 - Visite audio-guidée - Contact www.geneva-tourism.ch/ - Cached - Similar

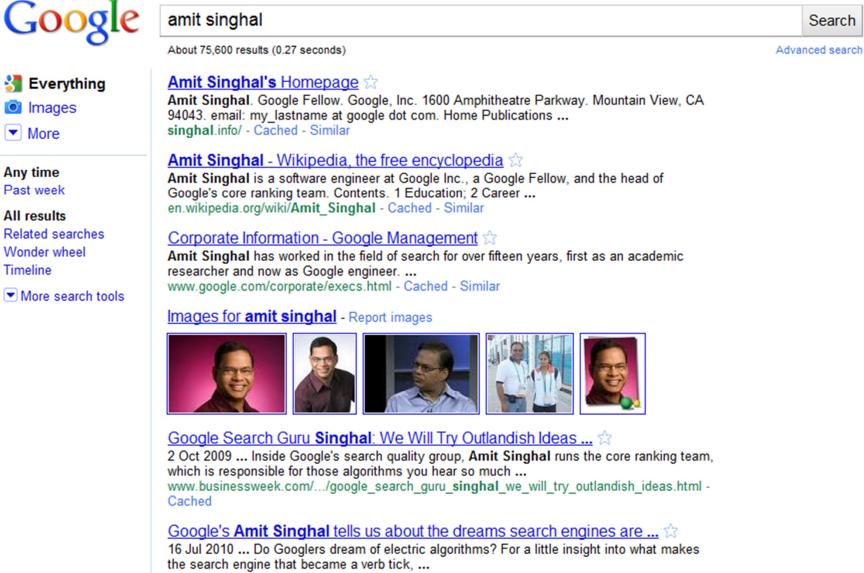
Geneva College - A Christian College in Western Pennsylvania (PA) Home Geneva College is a comprehensive Christian college of the arts, sciences and professional studies. 3200 College Avenue, Beaver Falls, PA 15010. www.geneva.edu/ - Cached - Similar

#### City of Geneva, Illinois 🖄

This is the official web site of the City of Geneva, Illinois. Geneva welcomes you! We are located west of Chicago along the beautiful Fox River.

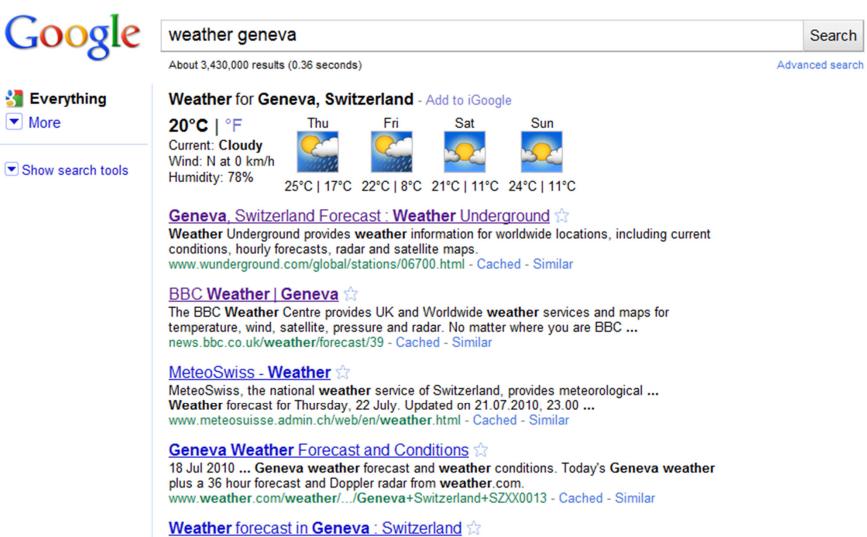


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	Google Search I'm Feeling Lucky	

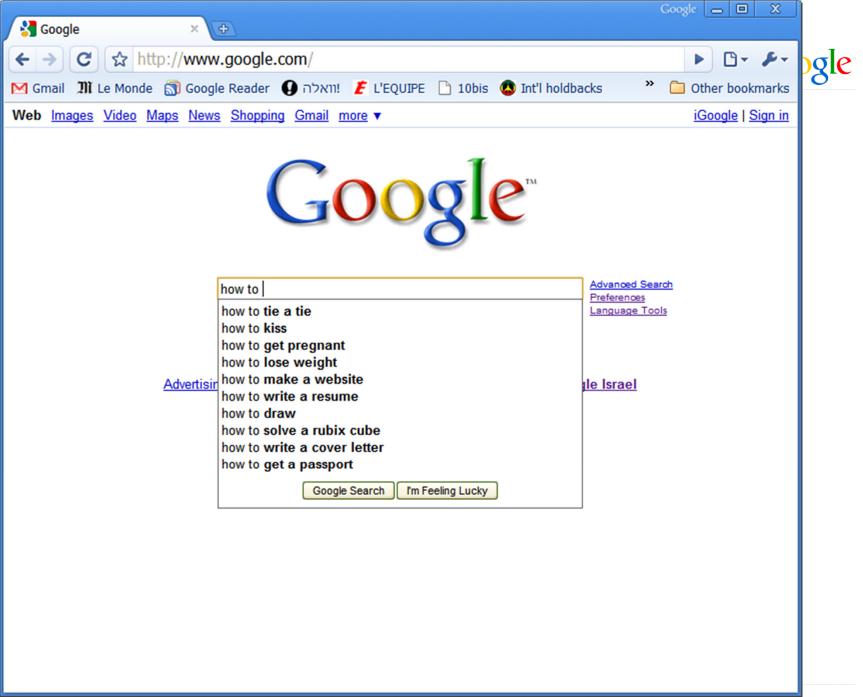


www.engadget.com/.../googles-amit-singhal-tells-us-about-the-dreams-search-engines-a/ -





Weather in Geneva, Switzerland : 5 day Forecast, Temperature, humidity, rain , sun forecast for Geneva. Monthly average weather in Geneva through out the ... www.weatherforecastmap.com/switzerland/geneva/ - Cached - Similar





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ua 10 <b>th result</b>				
ua 10 result				
ua 10th class result				
Track status of UA 10 from San Francisco (SFO) to New York (JFK) 21 Jul 2010 - On schedule Departed: 10:53 AM, Estimated arrival: 7:05 PM www.flightstats.com				
	Google Search	I'm Feeling Lucky		





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<b>100 euros = 128</b> . 100 eur usd	1700 US dollar	<b>'S -</b> Disclaimer	
	Google Search	I'm Feeling Lucky	



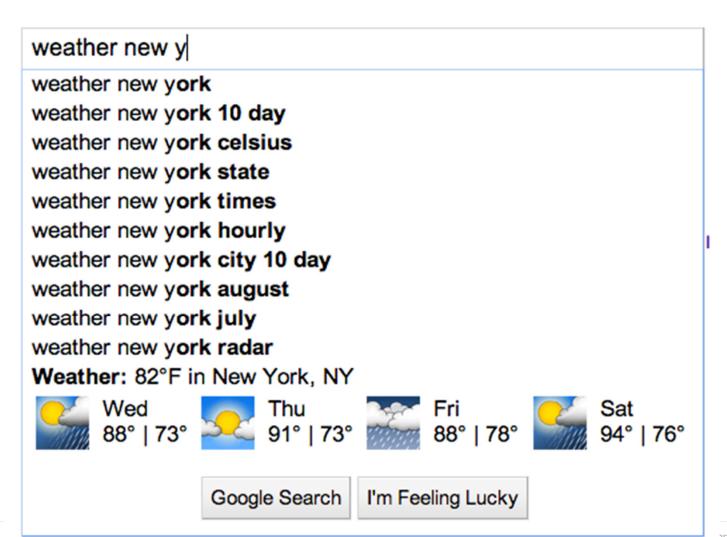


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Google



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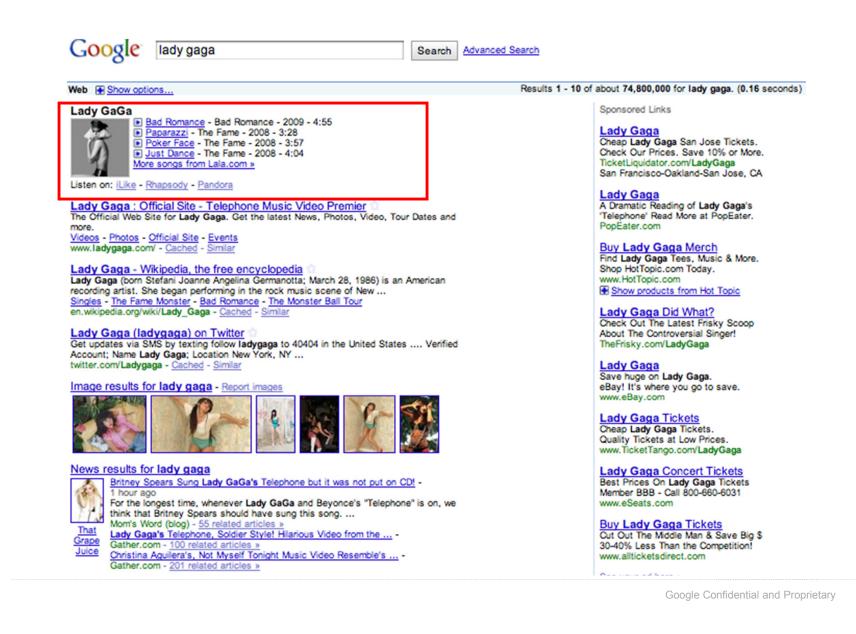


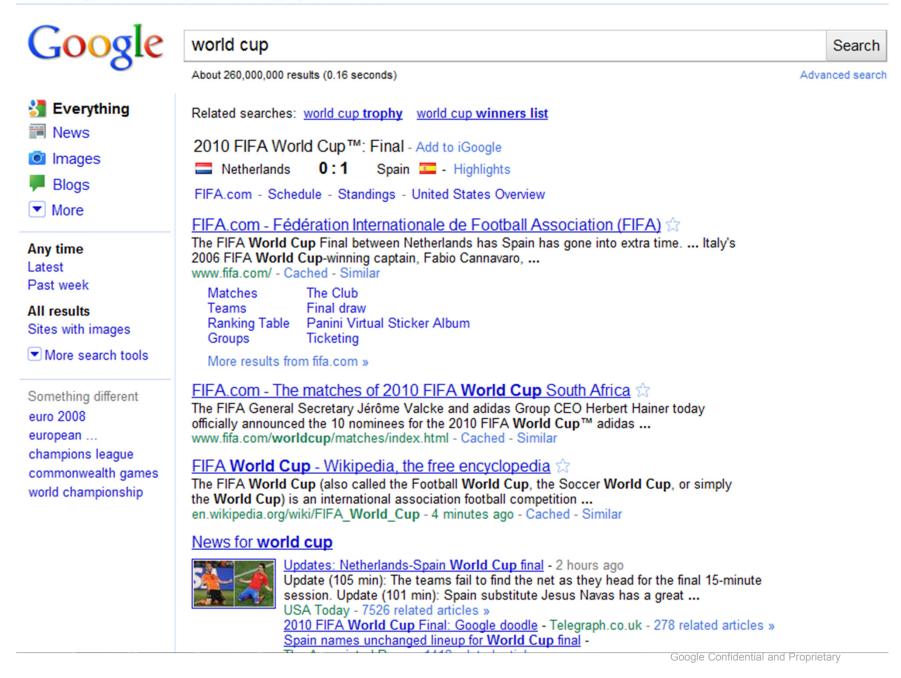


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## **Greater Depth With Music**

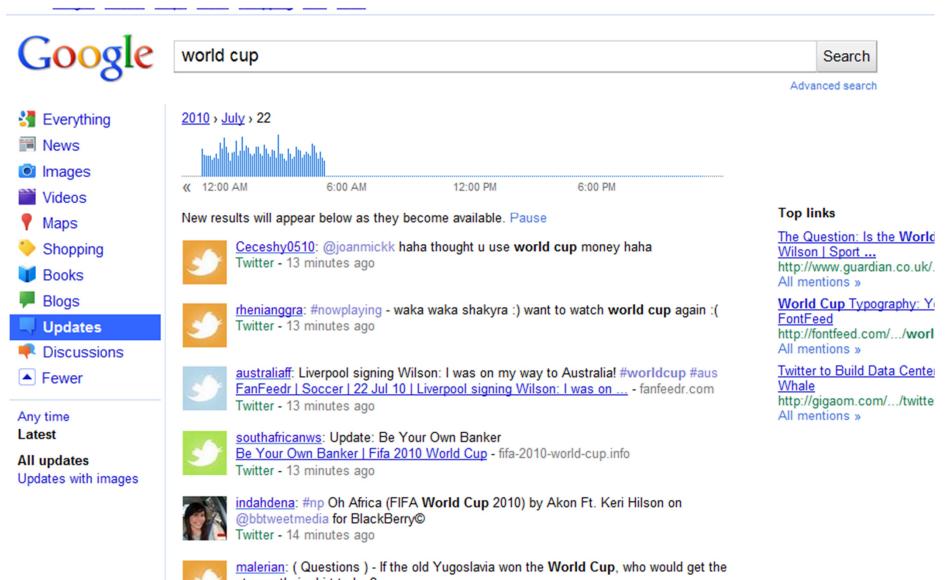






#### Coode

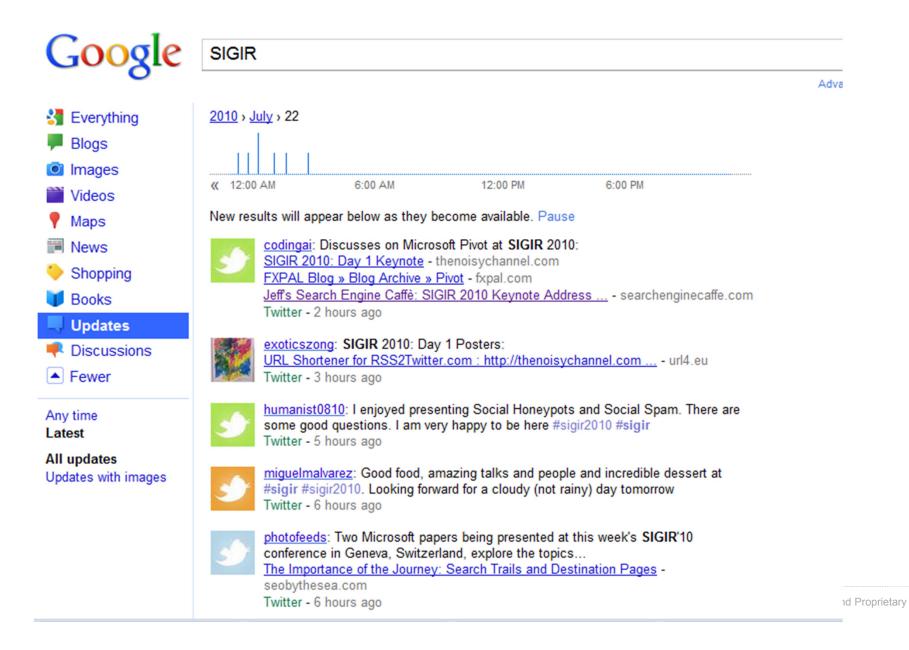
Google	world cup	Search
0	About 259,000,000 results (0.30 seconds)	Advanced search
Everything News	2010 FIFA World Cup <sup>™</sup> : Final - Add to iGoogle Metherlands 0:1 Spain □ - Highlights	
More	Winners: 1st place Spain - Overview	
Any time Latest Past week	2nd place Netherlands - Overview 3rd place Germany - Overview FIFA.com - Awards - Highlights - Statistics - Brazil 2014	
All results Timeline ▼ More search tools	FIFA.com - Fédération Internationale de Football Association (FIFA) ☆ 16 Jul 2010 A cat is the new FIFA Women's World Cup 2011 Official Mascot Get free and unlimited access to the 2010 FIFA World Cup mode in EA SPORTS www.fifa.com/ - 10 hours ago - Cached - Similar	
Something different euro 2008 european champions league	MatchesThe ClubTeamsFinal drawRanking TablePanini Virtual Sticker AlbumGroupsTicketingMore results from fifa.com »	
commonwealth games world championship	FIFA.com - The Official Website of the FIFA World Cup™ ☆ Official site. Features news, information about venues, photo gallery, and organizing committee details. www.fifa.com/worldcup/ - Cached - Similar	
	FIFA World Cup - Wikipedia, the free encyclopedia 🖄 The FIFA World Cup (also called the Football World Cup, the Soccer World Cup, or simply the World Cup) is an international association football competition en.wikipedia.org/wiki/FIFA_World_Cup - 10 hours ago - Cached - Similar	
	News for world cup	



star on their shirt today? -<u>video world - World Cup Questions</u> - 4u09.com Twitter - 14 minutes ago

Google





#### Any time Latest Past 2 days

#### All results Wonder wheel Sites with images

More search tools

Something different porpoise polar bear walrus sea lion great white shark



#### Whale - Wikipedia, the free encyclopedia 🏫

Whale is the common name for various marine mammals of the order Cetacea. The term whale sometimes refers to all cetaceans, but more often it excludes ... en.wikipedia.org/wiki/Whale - Cached - Similar

#### Whales - What is a Whale?- EnchantedLearning.com

The biggest whale is the blue whale, which grows to be about 94 feet (29 m) ... Baleen is a comb-like structure that filters the baleen whales' food from ... www.enchantedlearning.com/subjects/whales/ - Cached - Similar

#### <u>WHALE</u> 😭

WHALE Orgone · Wilhelm Reich · Don & Carol Croft · Laozu · Google. www. Whale.to. "Authentic journalism is telling people something that the government ... www.whale.to/ - Cached - Similar

#### Latest results for whale - Pause

South African Whale Encounter Stuns The World - wcbstv.com 😒 It is an amazing picture of man and nature getting a little too close for comfort. Whale watchers got more than they bargained for when a 40-ton marine ... wcbstv.com/national/whale.leaps.on.2.1818322.html - 1 minute ago

<u>lizarnold</u>: RT @thoughtsongirls: a portrait of my last few relationships. ... <u>Yahoo! Search - Web Search</u> - yahoo.com Twitter - 1 minute ago

Killer Whale jumps on a boat : video - SportsNews - SportsNews SportsNews - 2 minutes ago

#### Videos for whale



Beached Whale 2 min - Apr 14, 2008 Uploaded by TheBeanPictures www.youtube.com



Whale Wars: The Crash That Made Headlines 3 min - 5 days ago animal.discovery.com

1d Proprietary

Search

#### Google whale About 25,300,000 results (0.16 seconds) Advanced searc 🚼 Everything News for whale News Southern right whale crashes sailing party -- literally - 3 hours ago South African sailing instructors Paloma Werner and Ralph Mothes got a whale-sized Images shock Sunday -- a 33-foot, 40-ton shock, to be specific -- when a ... Los Angeles Times (blog) - 365 related articles » Updates The 'Super Skimmer' That Wasn't - New York Times (blog) - 394 related articles » Telegraph.co.uk Twitter to Build Data Center to Beach the Fail Whale -Videos GigaOm (blog) - 15 related articles » Books Images for whale - Report images More Any time Latest Past 2 days All results Wonder wheel Whale - Wikipedia, the free encyclopedia 😭 Sites with images Whale is the common name for various marine mammals of the order Cetacea. The term More search tools whale sometimes refers to all cetaceans, but more often it excludes ... en.wikipedia.org/wiki/Whale - Cached - Similar Whales - What is a Whale?- EnchantedLearning.com Something different The biggest whale is the blue whale, which grows to be about 94 feet (29 m) ... Baleen is a porpoise comb-like structure that filters the baleen whales' food from ... polar bear www.enchantedlearning.com/subjects/whales/ - Cached - Similar walrus

#### WHALE 😭

sea lion

great white shark

WHALE Orgone · Wilhelm Reich · Don & Carol Croft · Laozu · Google. www. Whale.to. "Authentic journalism is telling people something that the government ... www.whale.to/ - Cached - Similar



		Search Trends
Tip: Use	commas to compare multiple s	search terms.
Examples		
denmark cartoons	<u>sudoku</u>	slashdot, digg
ebay.com, craigslist.org	apple.com, microsoft.com	toyota.com, honda.com, ford.com, gm.com
Newl (104)		
Hot Topics <sup>New!</sup> (USA)		Hot Searches (USA)
1. <u>whale</u>		1. <u>very vera</u>
2. unemployment benefits		2. <u>alex king</u>
3. shirley sherrod		3. <u>12 angry men</u>
4. comic con		4. <u>train band</u>
5. chris paul		5. campbell brown leaving cnn
6. breitbart		6. nicki minaj your love video
7. <u>bernanke</u>		7. justin bieber converts to scientology
8. barack obama		8. norma lopez moreno valley
9. <u>tiger</u>		9. tempe town lake dam break
10. phillies		10. merle haggard
More Hot Topics:		More Hot Searches »

## Greater Depth With Real-Time



Google earth	quake	Search March
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Recent earthquakes		
Time Magn	itude Location	
12 hours ago 4.1	Gulf of California Map	
2 days ago 6.8	Solomon Islands Map	
2 days ago 6.7	East of the South Sandwich Islands Map	
earthquake.usgs.gov		
ews results for earthq		
Reuters Reuters Reuters Aid is headin tsunami and damage on ti Stuff.co.nz - Over.1000 ht Xinhua - 502 4.0 earthqua	non earthquake victims - 23 hours ap ing to the isolated areas in the Solomon Islands stru- continual earthquakes. Assessment teams ince i he <u>1641 related articles a</u> <u>curses destroyed in Tajkistan earthquake -</u> <u>related articles a</u> ike in northern Mexico - ercury News - 77 related articles a	
	California and Nevada - Index Map	
	coom views, with location and magnitude information	on. Updated
ourly.		
	<ul> <li>2-degree map - Earthquake list</li> </ul>	
uake.usgs.gov/recenteqs/ -	Cached - Similar	
Click on an earthquak about 5 minutes of an	kes for Los_Angeles ke on the above map for more information Maps earthquake or once an hour teqs//Los_Angeles.html - 15 hours ago - <u>Cacher</u>	
Show more results	from guake.usgs.gov	
S. Geological Survey	Earthquake Hazards Program	
	Program, responsible for monitoring, reporting, and	d researching
arthquakes and earthquak		a reaction mig
orld - USA - Info by State -	Did You Feel It	Nour
arthquake.usgs.gov/ - Cac?	hed - Similar	New
Latest Earthquak	es in the World - Past 7 days	
	dwide earthquakes with M 4.5+ located by USGS a	and Contributing
Agencies Mans are	updated whenever a new earthquake by been lo	cated
	- World M 5+ Earthquake list - Asia region	
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arthquake! « Watermark Ye		
atermark Youth Group - 1 r		
	010 10:15 am by Pat. There's nothing like a good e	arthquake to
mind you how big God is		
arthquake Here in San Jos		
reuzer's Korner - 2 minutes		
arthquake Here in San Jos	e. We're on the 9th floor in downtown San Jose an	d it was
haking like crazy here! Prob	bably not as bad in reality	

## ~10:10 AM

An earthquake happened. (The USGS says the earthquake happened at 10:09:35 AM)

## **10:11 AM**

The USGS government web site started to track the earthquake, with a "?" magnitude.

**10:12 AM** Google's realtime onebox triggers.

**10:13 AM** USGS web site marked the magnitude as 4.1.

**10:20 AM** USGS site updates their feed.

~10:25 AM Google's earthquake onebox gets updated earthquake info.

## **Social Circle Personalization**



#### **New Zealand**

Offers travel information including Background Notes, entry and exit requirements, safety and security, crime, health and transport. travel.state.gov/travel/cis pa tw/cis/cis 984.html - Cached - Similar

#### Results from people in your social circle for new zealand

#### dogmouth photography : new zealand



<u>Jeremy Ginsberg</u> - connected via Gmail **new zealand**. home > photography > **new zealand**. Doubtful Sound 14 photos. Routeburn Track 14 photos. Milford Track 12 photos. The Catlins 13 photos ... dogmouth.net/photos/nz/ <u>More results from Jeremy Ginsberg</u> »

#### Akaroa, New Zealand - Simon's Photos- powered by SmugMug



si - connected via friendfeed.com Simon > Portfolio > road to arthurs pass **new zealand** · Simon > Portfolio > near lyttelton **new zealand** · Simon > Akaroa, **New Zealand** ... si.smugmug.com/gallery/1674201/1/114390527\_JuQmb <u>More results from si</u> »

#### Book results for new zealand

<u>New Zealand</u> - by Carolyn Bain, George Dunford - 772 pages <u>New Zealand: its present condition, prospects</u> - by E. Brown Fitton - 364 pages <u>New Zealand</u>: being a narrative of travels and ... - by Joel Samuel Polack De

## **Friend-Augmented Search**



#### Why I think Amazon app store will be a be a better deal for ...



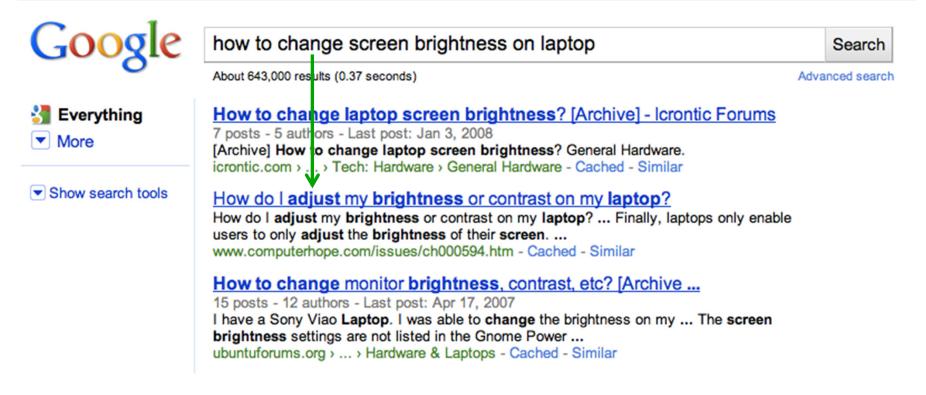
Lou Franco - connected via Gmail iPad · iPhone · Personal · Presentations · Software Development · Western MA ... www.loufranco.com/blog/files/amazon-kdk-better-for-developers.html Debugging memory based crashes on iPhone | iPhone | Lou Franco ... iPad · iPhone · Personal · Presentations · Software Development ... loufranco.com/blog/files/debugging-memory-iphone.html More results from Lou Franco »



## What does Change mean?

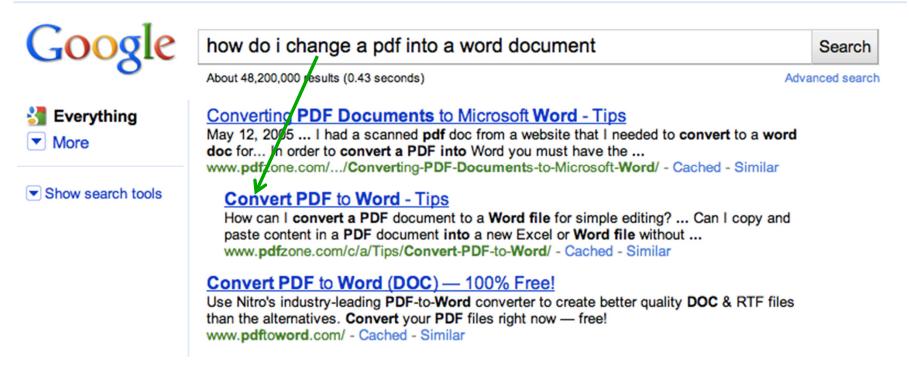
## Change = to adjust





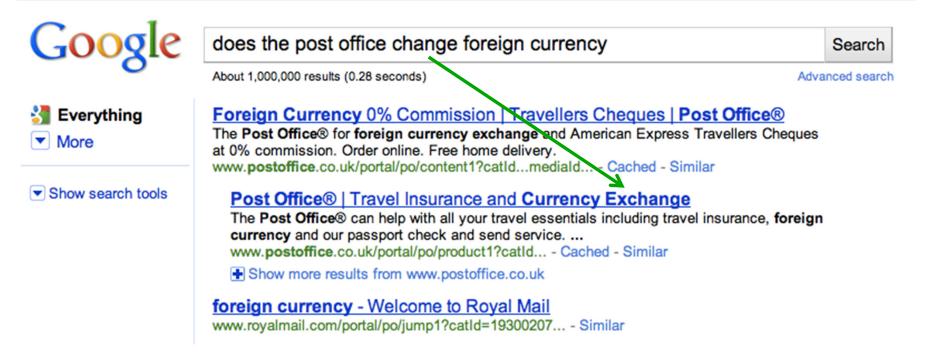
## Change = to convert





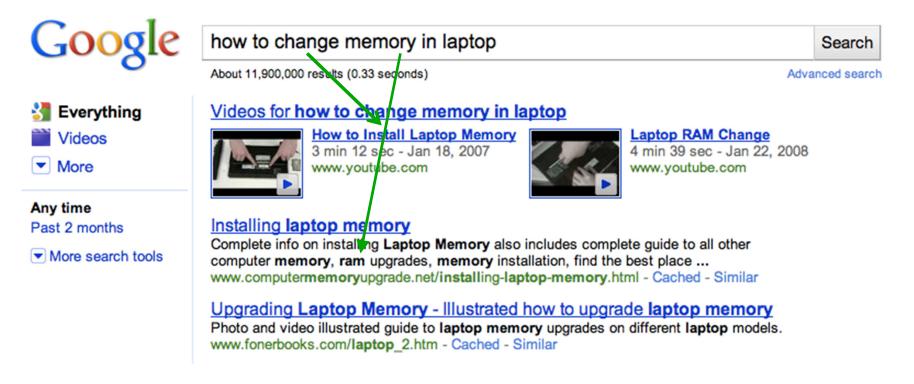
## Change = to exchange





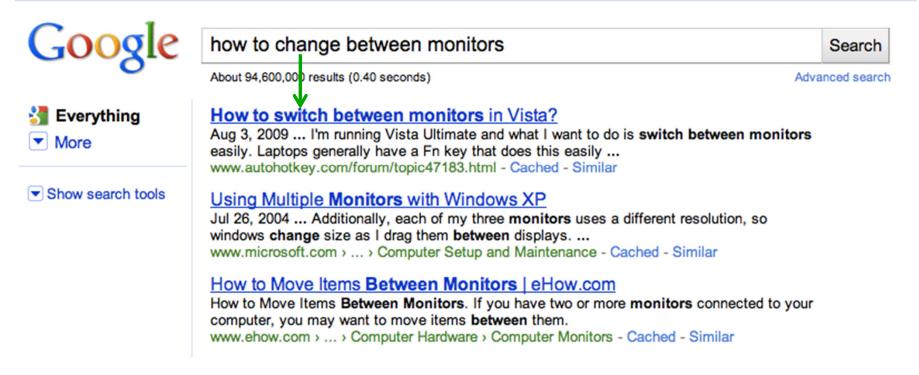
## Change = to install



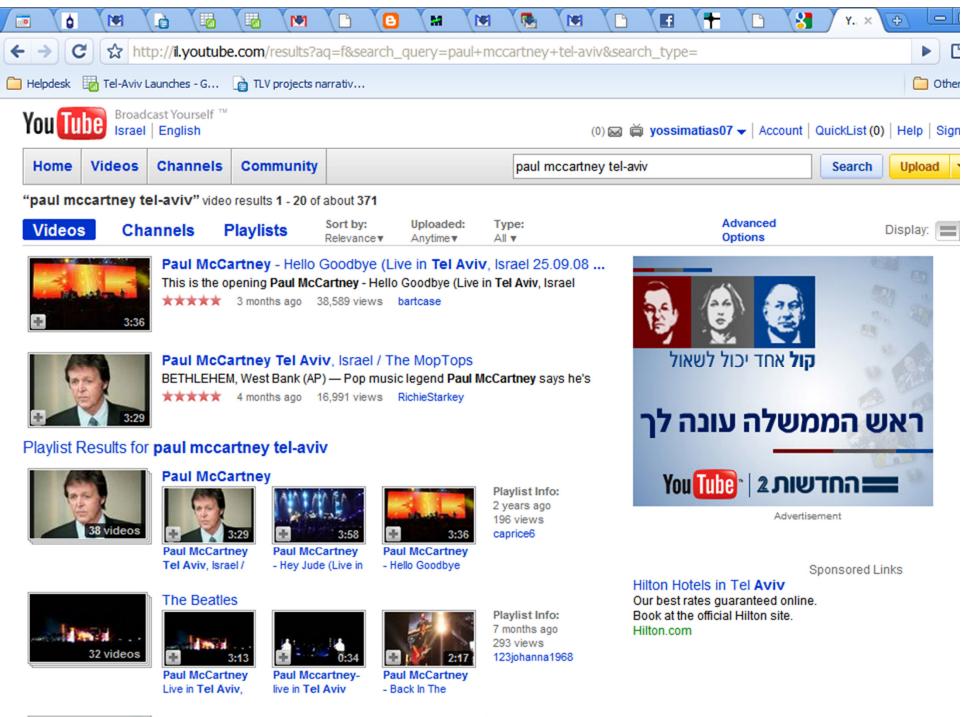


## Change = to switch









Paul McCartney Tel Aviv 9/25/2008 - Live and Let: Die ....

Pau

### Web Translation



Google

33



#### Google translate

Translation	Search websites in other languages	
Translated Search	where to float in the dead sea Translate and Search	
Translator Toolkit	Search pages written in: Hebrew Translated to: שם לצוף בים המלח - <u>Not quite right? Edit</u>	
Tools and Resources	My language:	
	Terreslated aroute from Unbergrouph anone	
	Translated results from Hebrew web pages	Results 1 - 10 of about 61,700 for שם לצוף בים המלח.
	English translation	Original Hebrew - Hide Hebrew results
	Dead Sea - Wikipedia In 1977, the drying process caused the Dead Sea crossing in half in the "language", where exposedThe high specific weight of the water allows people to float easily in the sea, a feature that makes sea bathing he.wikipedia.org/wiki/122 - אים_המלח - <u>Cached</u>	<mark>ים המלח –</mark> ויקיפדיה ב-1977 גרם תהליך הייבוש לחציית י <mark>ם המלח</mark> לשניים באזור "הלשון <mark>", שם</mark> נחשפה משקלם הסגולי הגבוה של המים מאפשר לאנשים <mark>לצוף בים</mark> בנקל, תכונה שהופכת את הרחצה <mark>בים</mark> 122k - ים_המלח/wikipedia.org/wiki
	Salty protest: Hundreds come floating in the Dead Sea - Walla! News Salty protest: Hundreds come to float in the Dead Sea - Hundreds of people attended a mass at the Dead Sea expectedHundreds of people are expected to attend mass expected today at the Dead Sea, to protest the decline in water levelSalty protest: Hundreds come to float in the Dead Sea. Recipient's name: Send to e-mail: Your Name: news.walla.co.il/?w=//1676806 - 148k - <u>Cached</u>	<u>מחאה מלוחה: מאות יבואו <b>לצוף בים המלח - וואלה! חדשות</b> מחאה מלוחה: מאות יבואו <b>לצוף בים המלח</b> - מאות אנשים ישתתפו בציפה המונית <b>בים המלח</b> מאות אנשים צפויים להשתתף היום בציפה המונית <b>בים המלח</b>, במחאה על ירידת המפלס מחאה מלוחה: מאות יבואו <b>לצוף בים המלח. שם</b> הנמען: שלח ל- e-mail-: שם השולח: 148k - 148k ה- news.walla.co.il/?w=//1676806 - 148k</u>
	Instead of the Dead Sea, let's float magnesium box Who might float a magnesium box, but surely come out a lot more relaxedTags: Dead Sea salt from NASA athletes expected to float spiritual experience alternative therapies www.mako.co.il//body/ Article-3d7df78cc505811006.htm - 118k - <u>Cached</u>	<u>במקום <b>ים המלח,</b> בואו <b>לצוף</b> בקופסת מגנזיום</u> שם אולי תצופו במי מגנזיום בקופסה, אבל בטוח שתצאו הרבה יותר רגועים תגיות: <b>ים המלח מלח</b> מים ציפה <b>לצוף</b> ספורטאים נאס"א חוויה רוחנית טיפולים אלטרנטיביים www.mako.co.il//body/ Article-3d7df78cc505811006.htm - 118k – <u>עותק שמור</u>
	<pre>poc; Dead Sea (CS excerpts) File Format: Microsoft Word - <u>View as translated HTML</u> The mud is filled with seaweed (a special type of plants), and color is a red sea. Source: the three things, Part I, Grade D - FriOption to float - or drown in the world - the Dead Sea: " www.amalnet.k12.il/ meida/habaa/docs/haba0090.doc</pre>	[pocj <mark>ים המלח (ל</mark> קט קטעים) פורמט קובץ: Microsoft Word - <u>צפה כ- HTML</u> הבוץ מתמלא באצות (סוג מיוחד של צמחים),וצבע הים שם נעשה אדמדם. מקור: על שלושה דברים, חלק א', כיתות ד'-ו' האפשרות לצוף – ולא לטבוע לעולם – בים המלח: www.amaInet.k12.il/ meida/habaa/docs/haba0090.doc
	Accommodation in the <b>Dead Sea</b> - Recommendations Yes, you can smother your body in mud, or, alternatively, to <b>float</b> on your back while reading a book. Accommodation in the <b>Dead Sea</b> , spa hotels offer length pampering experience,Can you not be impressed by the story behind her, or the caves of Qumran where the <b>Dead Sea</b> Scrolls were discovered? www.reader.co.il//1096/57 - <u>artytion-thon-grag-grage-</u>	צימרים <b>בים המלח - המלצות</b> כן, גם אתה יכול לחנוק את הגוף בבוץ, או, לחלופין, <b>לצוף</b> על הגב שלך תוך כדי קריאת ספר. צימרים <b>בים המלח</b> , מלונות ואתרי ספא לכל אורכו מציעים חוויה מפנקת, אתה יכול שלא להתרשם מן הסיפור מאחורי מצדה, או במערות קומראן שם התגלו מגילות ים המלח? 57k - צימרים-בים-המלח-המלצות /71096//?

🗹 Google.com Mail - your 🛛 🔿 Fidelity Investments: Stat 🛪 😵 indite - Google Search 👘 🕺 🚱 Global Warm	ing G20 Pitt × +
> C 😭 http://translate.google.com/translate_s?hl=en&clss=&q=Global+Warming+G20+Pit	ttsburgh&tq=&sl=en&tl=ja
) CorpMail 🛅 Corp. Cal. 🚳 WSJ 👸 NYT 🐌 MNRR 🚾 Weather 🛅 Home Cal. 🦔 Moma 濻 GSites 🖪 Blo	oom 🔓 Google Docs 🧭 Fin Data. 🐻 Mtgs/Calls 🜞 Wolfram 🕒 G1 🛂 iGoogle 🛛 🔹 🎽 🗀 Other bookm
/eb Images Videos Maps News Shopping Mail more ▼	Hel
Google translate Home Text and Web Translated Search Tools	
0	
Translated Search	
Search for: Global Warming G20 Pittsburgh Translated to: 地球温暖化	対策G20のビッツバーグ - <u>Not quite right? Edit</u>
My language: English Search pages written in: Japanese	
Translate and Search	
Translated results from Japanese web pages	Results 1 - 10 of about 15,700 for 地球温暖化対策G20のビッツバーグ.
English translation	Original Japanese - Hide Japanese results
G20, G8 Summit, such as - ~ Study Group On Global Tax Committee «G20 for @» Pirates of the Union declared globalGlobal Warming "Fukuda Vision" in "Study of environmental tax" proposed by the G20, G8 and the summit / 2008-06-16 blog.goo.ne.jp/global-tax/c/30f609fd7661fe3055de1c23f67504d2 - 59k - Cached	<u>G20、G8サミットなど - グローバル・タックス研究会 ~ Study Group On</u> ≪G20に向けて②≫グローバル・ユニオンの <b>ビッツバーグ宣言 地球温暖化対策</b> 「福田ビジョンで「地球環境税の研 究」を提唱 - G20、G8サミットなど / 2008-06-16 blog.goo.ne.jp/global-tax/c/30f609fd7661fe3055de1c23f67504d2 - 59k - <u>キャッシュ</u>
Reduce greenhouse gas emissions, considering financial assistance G20 - NIKKEI NET Nikkei Ecolomy: Environment 地球温暖化、エネルギー問題、環境経営、エコプロダクツなど環境問題をビジネスと経済の視点から考えるFinancial support to developing countries combat global warming, aims to bridge the gap between developed and developing countries over the country's reduction target. For the G20 summit in Pittsburgh, work out the debate eco.nikkei.co.jp/news/nikkei/article.aspx?id=AT3S0501X%2005092009 - 27k - Cached	<ul> <li>温暖化ガス抑制、資金協力を検討 G 20 - NIKKEI NET 日経Ecolomy: 環境</li> <li>地球温暖化、エネルギー問題、環境経営、エコブロダクツなど環境問題をジネスと経済の視点から考える 途上国の温暖化対策を資金面で支援し、削減目標を巡る先進国と 途上国の溝を埋める狙い。米ビッツバーグでの G 20首脳会議に向け、議論を詰める。</li> <li>eco.nikkei.co.jp/news/nikkei/article.aspx?id=AT3S0501X%2005092009 - 27k - キャッシュ</li> </ul>
G20 financial summit in Japan late claim (Sankei Shimbun) - Yahoo! News General Conference in Pittsburgh in 20 countries (G20) summit (Summit Financial)Past year, this time before the end of the agreed policy framework for global warming, Japan headlines.yahoo.co.jp/hl?a=20090918-00000515-san-bus_all	<u>G20 会融サミット日本の主張遅かった(産経新聞) - Yahoo!ニュース</u> 総会、米 <b>ビッツバーグ</b> での20カ国・地域(G20)首脳会合(金融サミット) 年が過ぎ、 <b>地球温暖化対策</b> の 枠組み作りの合意期限を年末に控えたこの時期、日本 headlines.yahoo.co.jp/hl?a=20090918-00000515-san-bus_all
<b>G20</b> financial summit in Japan late claims / Glacier Kigunasu "Pittsburgh's G20 financial summit in Japan, the United States and Europe say that improved performance from beginning to endHow will global warming? Environment Minister Amari Ozawa Tadashi Shima sharp. (09/16) rhjuathrta.cos-live.com/Entry/17/ - 20k - <u>Cached</u>	<u>G20金融サミット日本の主張遅かった/キグナス氷河</u> 「ビッツバーグのG20金融サミットで日本は、パフォーマンスに終始する欧米諸国と発言権の向上を… 温暖化対 策はどうなる? 直嶋経産相・小沢鏡環境相. (09/16) … rhjuathrta.cos-live.com/Entry/17/ - 20k - <u>キャッシュ</u>
Hatena bookmarks - NIKKEI NET (Nikkei Net): anti-global warming fund NIKKEI NET (Nikkei Net): global warming, capital allowances "G20" on the agenda the Chairman of EU meetingNihon Keizai Shimbun in an interview near the financial effort to combat global warming in January 9 in PittsburghCorrect understanding of global warming - because of global warming theory is not misled by false p://translate.google.com/translate?hl=en&langpair=jalen&u=http://eco.nikkei.co.,. iched	<u>はてなブックマーク - NIKKEI NET(日経ネット):温暖化対策、資金…</u> NIKKEI NET(日経ネット):温暖化対策、資金手当て「G20」議題にEU議長が会見…近郊で日本経済新聞の取 材に応じ、気候 <b>温暖化対策</b> への資金面での取り組みが9月に米ビッツバーグで…正しく知る地球温暖化—誤った地 球温暖化論に惑わされないため… b.hatena.ne.jp//news/kaigai/20090830AT2M2802Z29082009.html - 41k - <u>キャッシュ</u>
	lobal Warming 📲 todo080401.bt 🔹 💽 🔿 🖅 🖉 🔍 🔻 💷 🚺 🕼 🕻 👘 5:43

## YouTube Caption Translation





# **Voice Search**









# Searching By Voice... Any Voice

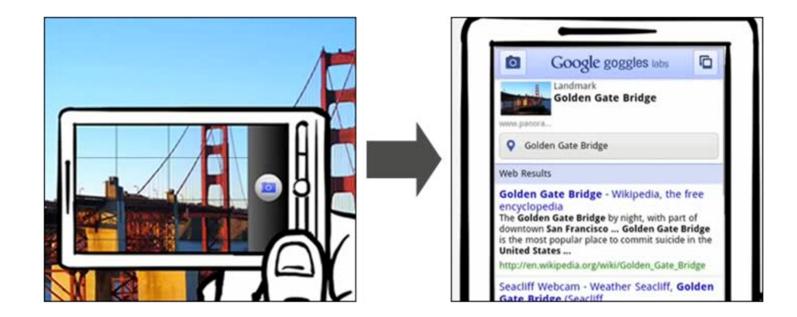




# Searching By Sight







#### The power of data





- 1.6 billion internet users
- Many searches a day on Google worldwide



### **Trendonomics**

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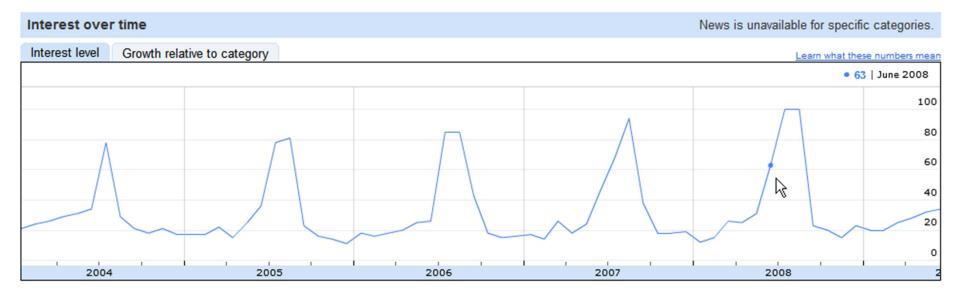
Compare by	Search terms	Filter	
<ul> <li>Search terms</li> <li>Locations</li> <li>Time Ranges</li> </ul>	Tip: Use quotation marks to match an exact phrase. ("table tennis")	Web Search  United States  All subregions  All metros 2004 - present Health	Search

#### Web Search Volume: jelly fish

Google<sup>-</sup>Insights for Search

United States, 2004 - present	Totals	(?)
All Categories > Health	jelly fish	32
Subcategories: Medical Literature & Resources (0-10%), Health Conditions (0-10%), more		

A Less than 10% of searches containing 'jelly fish' belong to the Health category. Learn more

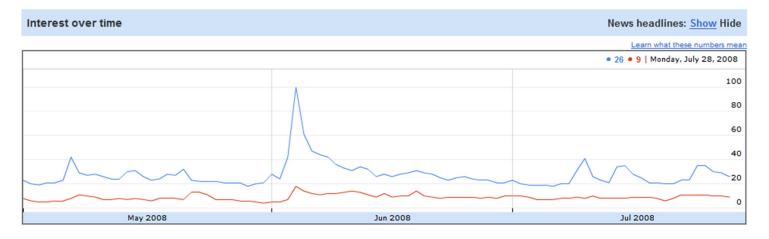


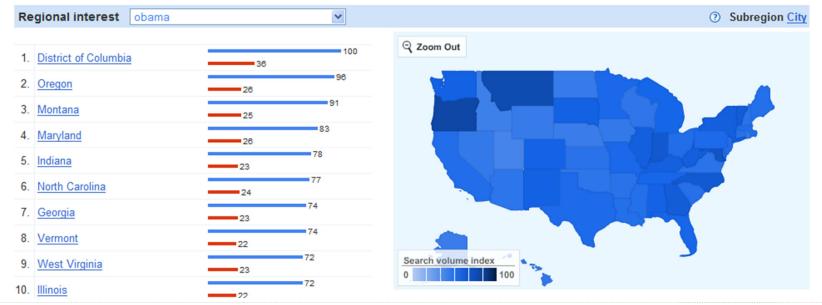
#### Visualizing political stories



Search Volume: obama vs. mccain United States, Last 90 days







## **Regular Patterns of Search Behavior** Google

Google <sup>®</sup> Ir	nsights for Searc	h ya ta	ir.shimshoni@gmail.com   <u>My Account</u>   <u>H</u>	lelp   Sign out   🧰 Download as CS\
Compare by	Locations		Filter	
<ul> <li>Search terms</li> <li>Locations</li> <li>Time Ranges</li> </ul>	<ul> <li>United Kingdom</li> <li>Australia</li> <li>Add location</li> </ul>	All subregions		₽
			All Categories	Search

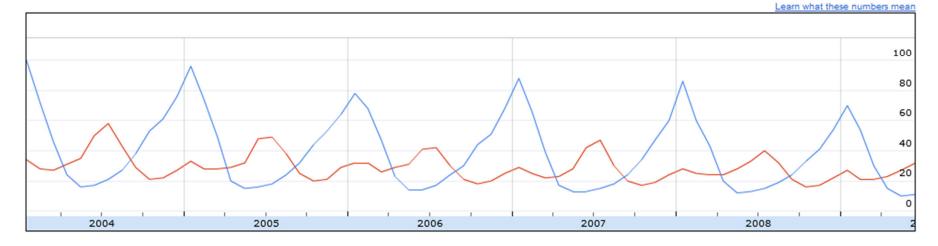
#### Web Search Volume: United Kingdom vs. Australia

for ski, 2004 - present Categories: <u>Sports, Local, Travel, Automotive, Shopping, Entertainment</u>



#### Interest over time

News headlines: Show Hide





#### Google Insights for Search yair.shimshoni@gmail.com | My Account | Help | Sign out | III Download as CSV Compare by Search terms Filter Search terms Tip: Use the minus sign to exclude terms. (wimbledon -tennis) Web Search \* All search terms O Locations United States 👻 All subregions 🕶 All metros ۷ + Add search term O Time Ranges 2004 - present \* Travel Search -6

#### Web Search Volume: Travel

United States, 2004 - present All Categories > Travel

#### Interest over time

News is unavailable for specific categories.





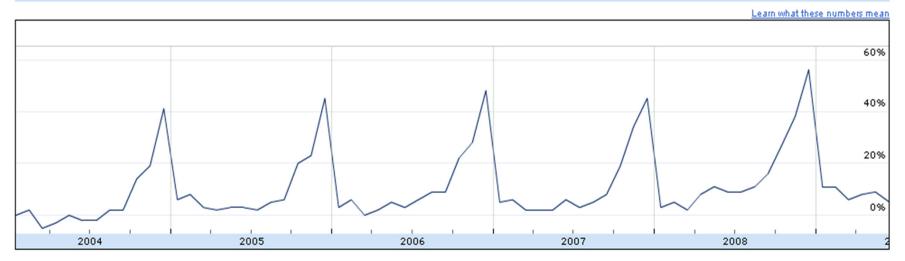
Google	nsights for Search	yair.shimshoni@gmail.com   <u>My Account</u>   <u>Help</u>   <u>Sign out</u>   🧰 <u>Download as CS</u> V
Compare by	Search terms	Filter
<ul> <li>Search terms</li> <li>Locations</li> <li>Time Ranges</li> </ul>	Tip: Use quotation marks to match an exact phrase. ("table tennis") <ul> <li>All search terms</li> <li><u>Add search term</u></li> </ul>	Web Search  United States  All subregions  All metros 2004 - present Shopping  Shopping

#### Web Search Volume: Shopping

United States, 2004 - present <u>All Categories</u> > Shopping

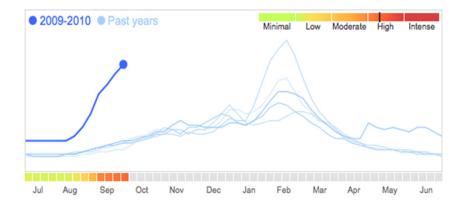


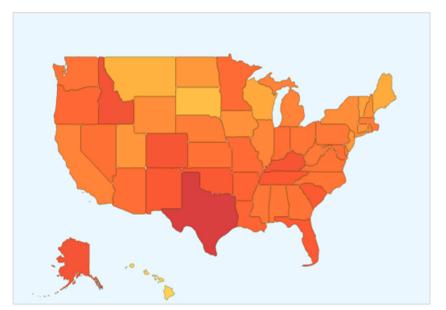
News is unavailable for specific categories.



### **Google Flu Trends**





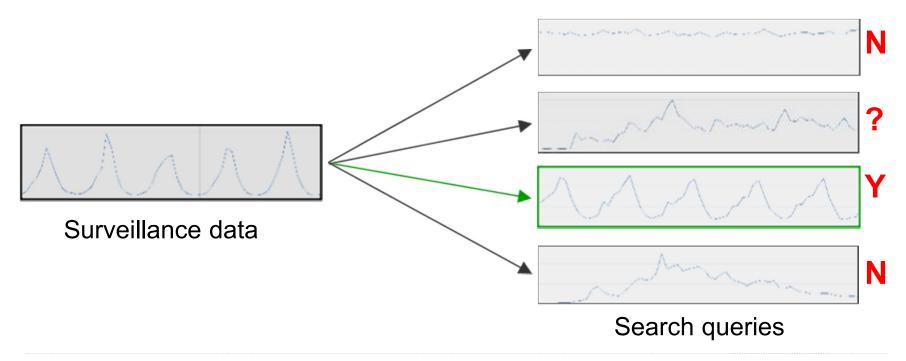


- Google Flu Trends estimates levels of flu using aggregated Google search queries
- Google Flu Trends may provide a helpful indicator of pandemic flu activity.
- Estimates are available in near real time with raw data available for download.

### Methodology



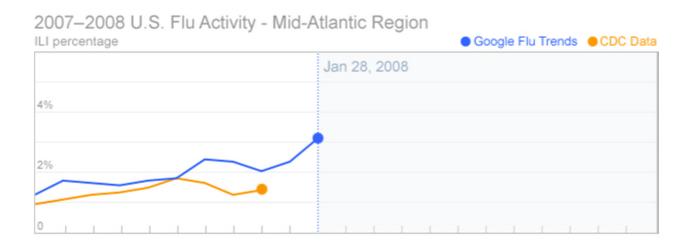
- Obtain historic weekly surveillance data for multiple regions
- Build database of weekly search query frequencies in every region, for every possible search query
- Define search queries whose weekly frequencies closely fit the surveillance data
- Derive the charts



#### **Timeliness**



- Google Flu Trends estimates are up to 1-2 weeks ahead of published CDC reports
- Not a replacement for traditional surveillance, but an additional information source that can help public health officials make informed decisions



### Predicting the present



#### **Google Domestic Trends**

Google Domestic Trends track Google search traffic across specific sectors of the economy. Changes in the search volume of a given sector on google.ci individual trend indexes by clicking on the left-hand navigation. The indexes are currently calculated only for US search traffic. Note: the indexes measure relative query volume compared to the total number of searches on google.com. Thus, an index that is decreasing does not in number of queries could be increasing, just not as quickly as overall search volume.

#### Interesting Examples

#### Google Retail Index and clothing store sales

From the graph below you will see that actual clothing store sales (source) and the Google Retail index has been decreasing over time. There are seasor a pronounced decrease.

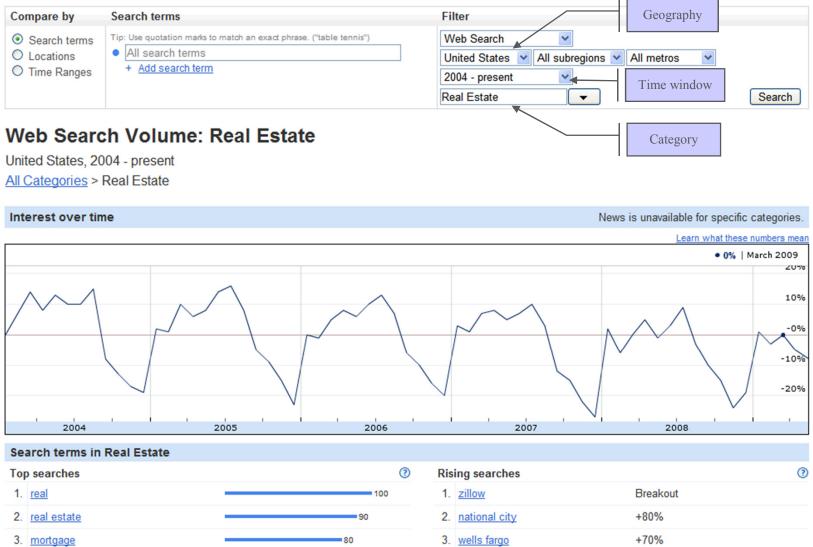


Actual Sales in Billions of USD

Google Retail Index

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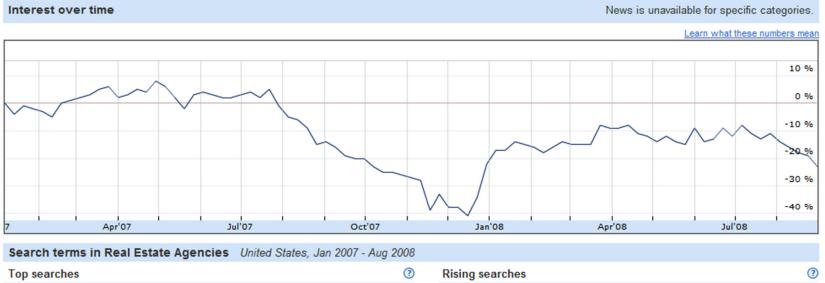
### Search on Real Estate Agencies



Compare by	Search terms	Filter	
<ul> <li>Search terms</li> <li>Locations</li> <li>Time ranges</li> </ul>	Tip: Use a comma as shorthand to add comparison items. (tennis, squash) <ul> <li>All search terms</li> <li><u>Add search term</u></li> </ul>	United States  All subregions Jan  2007  - Aug  2008  Reset Real Estate Agencies	Search

#### Search Volume: (Real Estate Agencies)

United States, Jan 2007 - Aug 2008





### Searches on Rental Listings & Referrals



Compare by	Search terms	Filter
<ul> <li>Search terms</li> <li>Locations</li> <li>Time ranges</li> </ul>	Tip: Use a comma as shorthand to add comparison items. (tennis, squash) <ul> <li>All search terms</li> <li><u>Add search term</u></li> </ul>	United States  All subregions Jan  2007  - Aug  2008  Reset
		Rental Listings & Referrals

#### Search Volume: (Rental Listings & Referrals)

United States, Jan 2007 - Aug 2008





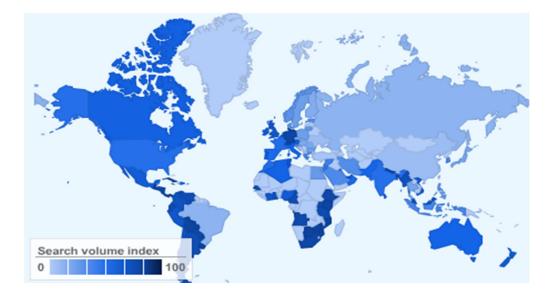
[Choi & Varian, 2009]

Model

Google

### The 2010 World Cup - Worldwide interest





#### Opening week:

Final week:



### The 2010 World Cup Search Interest in major countries



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Compare by	Locations		Filter		
<ul> <li>Search terms</li> <li>Locations</li> <li>Time Ranges</li> </ul>	<ul> <li>Netherlands</li> <li>Germany</li> <li>United Kingdom</li> <li>Italy</li> <li>Spain</li> <li>Y</li> </ul>	All subregions  All subregions All subregions	Web Search   world cup + coupe du monde + co   Jun < 2010 < Jul < 2010	opa del mundo + m 2010 💌 <u>Reset</u>	nur Search
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## The 2010 World Cup - News Search



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<ul> <li>Search terms</li> <li>Locations</li> <li>Time Ranges</li> </ul>	<ul> <li>Netherlands</li> <li>Germany</li> <li>United Kingdom</li> <li>Italy</li> <li>Spain</li> </ul>	All subregions       All subregions       All subregions       All subregions	<ul> <li>News Search</li> <li>world cup + coupe du monde + c</li> <li>Jun v 2010 - Jul v</li> <li>All Categories</li> </ul>	2010 Reset
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# The 2010 World Cup - Image Search



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<ul> <li>Search terms</li> <li>Locations</li> <li>Time Ranges</li> </ul>	Tip: Use quotation marks to match an exact phrase. ("table david villa cristiano ronaldo + Add search term	e tennis") Image Search Worldwide Jun V 2010 - Jul V All Categories	2010 💌 <u>Reset</u>	Search
Worldwide, Jun-Ju	<b>terest: david villa, cristiano ronaldo</b> Il 2010 <u>s, Entertainment, Local, Lifestyles, Beaut</u>	ty & Personal Care, Shopping	Totals david villa cristiano ronaldo	21 54
Interest over time	•		🗌 Forecast 🕐	News headlines
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				100 80 60 40 20
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### The Previous World Cup (2006) Search Interest in major countries



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Interest over time	e			🗌 Forecast 🕐	News headlines
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### World Cup Search Interest in the US - Comparison



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# Search Interest for *South Africa* during the 2010 World Cup - Travel category in the US

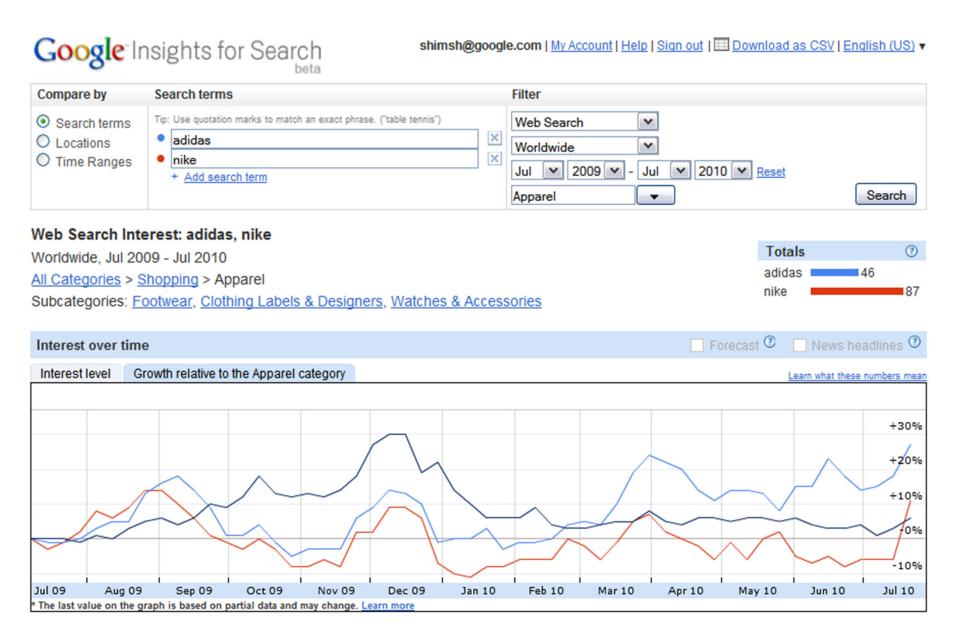


Compare by       Search terms       Filter <ul> <li>Search terms</li> <li>Search terms</li></ul>	Google <sup>-</sup> Ir	nsights for S	Search	shimsh@google.co	om   <u>My Account</u>   <u>Help</u>   <u>Sign</u>	out   🖽 Download as	CSV   English (US) 🔻
Locations     Locations     Time Ranges     South africa     Hold search term     United States All subregione All metros     Jun 2004 - Jul 2010 Reset     Travel     Travel     Travel     Totals     O     South africa United States, Jun 2004 - Jul 2010 All Categories > Travel     South africa United States, Jun 2004 - Jul 2010 All Categories > Travel     South africa United States, Jun 2004 - Jul 2010 All Categories > Travel     South africa United States, Jun 2004 - Jul 2010 All Categories > Travel     Totals     O     south africa United States, Jun 2004 - Jul 2010 All Categories > Travel     South africa     Totals     O     south africa     Totals     O     south africa     Totals     O     south africa     O     Totals     O     O     NOTE     O     Interest level     Growth relative to the Travel category     Learn what these numbers mean     Totals     O	Compare by	Search terms		Fil	ter		
United States, Jun 2004 - Jul 2010 All Categories > Travel Subcategories: Air Travel (25-50%), Adventure Travel (10-25%), Hotels & Accommodations (10-25%), south africa 64 more A Less than 10% of searches containing your search terms belong to the Travel category. Learn more Interest over time Interest level Growth relative to the Travel category Learn what these numbers mean +25% +004 004 005 006 006 006 007 008 008 008 008 008 008 008	O Locations	south africa		U	nited States V All subregio in V 2004 V - Jul V		
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Subcategories: Air Travel (25-50%), Adventure Travel (10-25%), Hotels & Accommodations (10-25%), south africa 64 more Less than 10% of searches containing your search terms belong to the Travel category. Learn more      Interest over time						Totals	(?)
Less than 10% of searches containing your search terms belong to the Travel category. Learn more  Interest over time  Interest level Growth relative to the Travel category  Learn what these numbers mean  +25%  +25%  +0%  +0%  +0%  +0%  +0%  +0%  +0%  +	Subcategories: Ai	r Travel (25-50%)	, Adventure Travel (10	-25%), Hotels & Ac	commodations (10-25%)		
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### Search Interest for a World Cup Sponsor Adidas - Apparel category, Worldwide

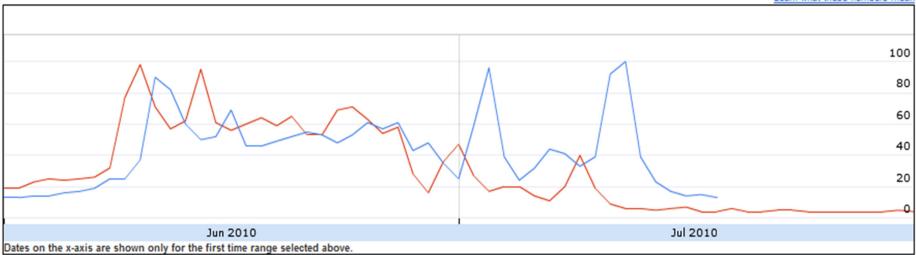




### World Cup Search Interest in Spain (2006 vs 2010)



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<ul> <li>Search terms</li> <li>Locations</li> <li>Time Ranges</li> </ul>	<ul> <li>Jun v 2010 - Jul 2010 v</li> <li>Jun v 2006 v</li> <li>Jul v 2006 v</li> <li>+ Add time range</li> </ul>	Reset X	All Categories	pregions	nur V
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Spain				Jun-Jul 2006	30
Interest over time	)			🗌 Forecast 🕐	News headlines
				Lea	arn what these numbers mean



### World Cup Search Interest in France (2006 vs 2010)



O Locations Jun 💙 2006 💙 2006 💙 X • Y Jul Reset world cup + coupe du monde + copa del mundo + mur -Time Ranges + Add time range France All subregions Y \* All Categories Search -

#### Web Search Interest: world cup+coupe du monde+copa del mundo+mundial+mondiali+wm+wk

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**Time ranges** 

Compare by

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### World Cup Search Interest in Italy (2006 vs 2010)



News headlines

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<ul> <li>Search terms</li> <li>Locations</li> <li>Time Ranges</li> </ul>	<ul> <li>Jun v 2010 - Jul</li> <li>Jun v 2006 - Jul</li> <li>+ Add time range</li> </ul>	✓ 2010 V Reset     ✓ 2006 V Reset     ✓ Web Search     ✓ world cup + coupe du monde + copa del mundo + mur     Italy     ✓ All subregions     ✓     All Categories     ✓ Searce	:h

#### Web Search Interest: world cup+coupe du monde+copa del mundo+mundial+mondiali+wm+wk

Jun-Jul 2010, Jun-Jul 2006	Totals	Ø
Italy	Jun-Jul 2010	26
Categories: Sports, Entertainment, Local, Games	Jun-Jul 2006	29

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	0
Jun 2010	Jul 2010
Dates on the x-axis are shown only for the first time range selected above.	

### World Cup Search Interest in the US (2006 vs 2010)



Google	nsights for Search	shimsh@google.com   My Account   Help   Sign out   🖽 Download as CSV   English (US) 🖲
Compare by	Time ranges	Filter
<ul> <li>Search terms</li> <li>Locations</li> <li>Time Ranges</li> </ul>	<ul> <li>Jun v 2010 - Jul</li> <li>Jun v 2006 - Jul</li> <li>+ Add time range</li> </ul>	✓ 2010 ▼ Reset       X       Web Search       ✓         ✓ 2006 ▼ Reset       X       world cup + coupe du monde + copa del mundo + mur         United States ▼ All subregions ▼ All metros       ✓         All Categories       ▼

#### Web Search Interest: world cup+coupe du monde+copa del mundo+mundial+mondiali+wm+wk

Jun-Jul 2010, Jun-Jul 2006	Totals	(?)
United States	Jun-Jul 2010	36
Categories: Sports, Entertainment, Local	Jun-Jul 2006 21	

Interest over time

Forecast <sup>(2)</sup> News headlines

	Learn what these numbers mean
	100
$\square$	80
	60
	40
	20
	0
Jun 2010	Jul 2010
Dates on the x-axis are shown only for the first time range selected above.	

#### Worldwide Search Interest in Switzerland Google (in all categories) doubled around the victory on Spain

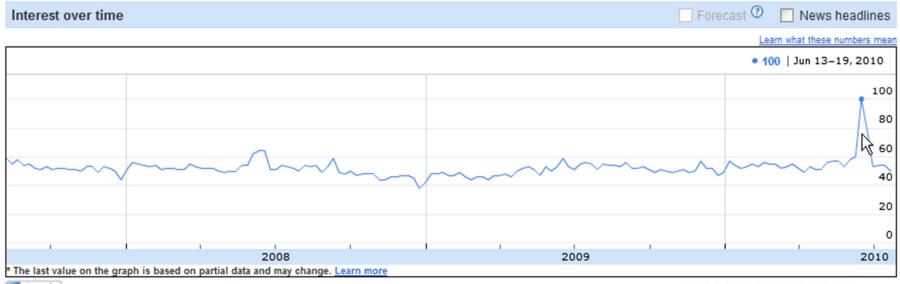
shimsh@google.com | My Account | Help | Sign out | Download as CSV | English (US) v

Compare by	Search terms	Filter	
<ul> <li>Search terms</li> <li>Locations</li> <li>Time Ranges</li> </ul>	Tip: Use the plus sign to indicate OR. (tennis + squash) <ul> <li>switzerland + Suiza + Suisse + Schweiz + Svizzera +Zw</li> <li>+ Add search term</li> </ul>	Web Search  Worldwide Aug V 2007 - Jul V 2010 Reset All Categories	Search

#### Web Search Interest: switzerland+suiza+suisse+schweiz+svizzera+zwitserland

Google Insights for Search

Worldwide, Aug 2007 - Jul 2010	Totals	0
Categories: Local (25-50%), Travel (0-10%), Society (0-10%), Finance & Insurance (0-10%),	switzerland+suiza+	52
more		

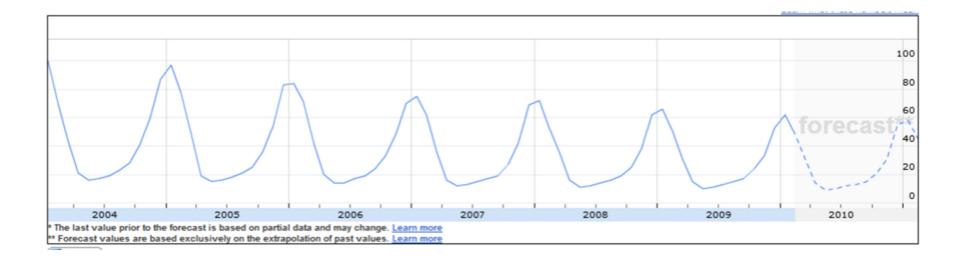


Ougle Comuciniar and Erophetary

### **Researching Search Trends Time-Series**



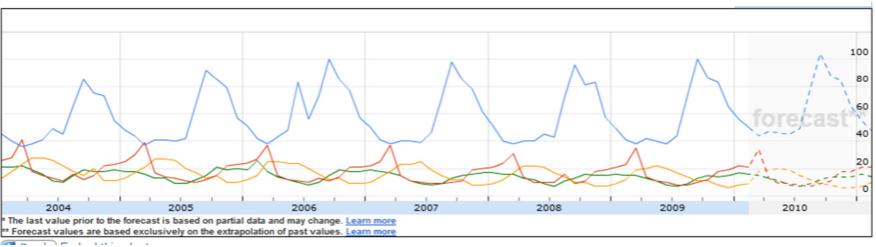
- Forecasting
  - Seasonality is a common case. Many queries have strong seasonal components (yearly / weekly cycles)
  - We can use time-series prediction models to forecast
- Ski

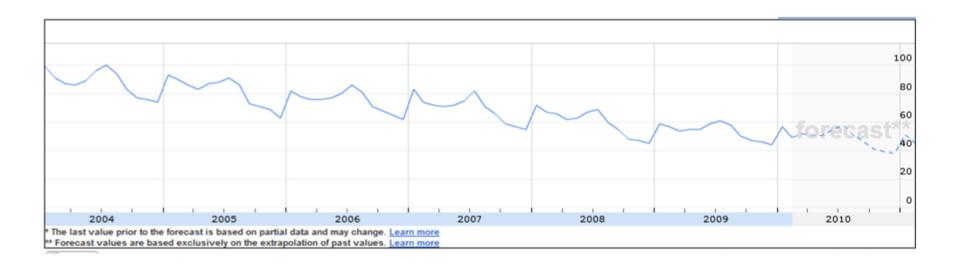


# Forecasting – more examples



### • Sports





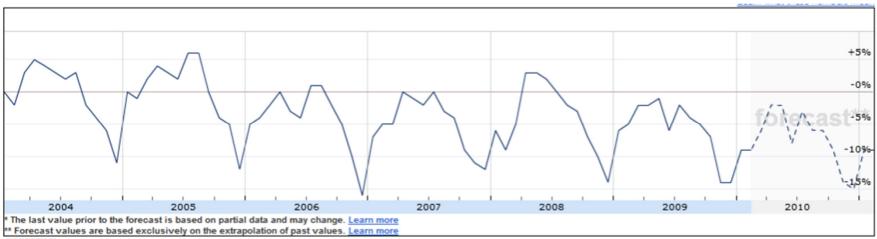
# Which queries are predictable



- Over half of the most popular Google search queries were found predictable in 12 month ahead forecast, with a mean absolute prediction error of approximately12% on average.
- Some categories have particularly high fraction of predictable queries:
  - Health (74%)
  - Food & Drink (67%)
  - *Travel* (65%)
- Some categories have particularly low fraction of predictable queries:
  - Entertainment (35%)
  - Social Networks & Online Communities (27%)
- [Y. Shimshoni, N. Efron, Y. Matias, On the Predictability of Search Trends, 2009]
- <u>http://googleresearch.blogspot.com/2009/08/on-predictability-of-search-trends.html</u>

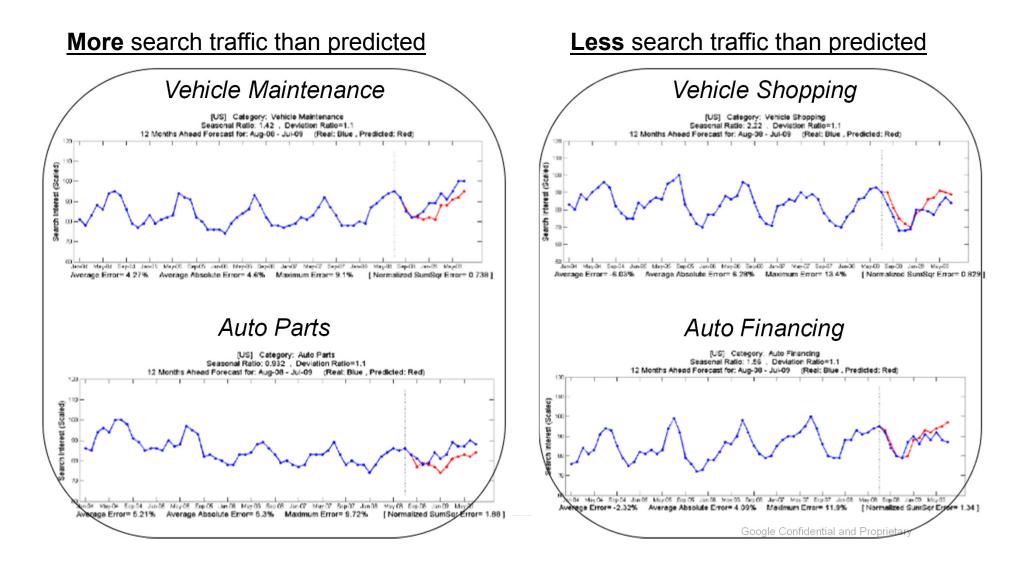
# Predictability of categories in aggregate Google

- The trends of aggregated queries per categories are much more predictable:
  - 88% of the aggregated category search trends of over 600 categories in Insights for Search are predictable with a mean absolute prediction error of less than 6% on average.
- The deviations from a prediction are interesting
  - See Automotive category example



# Deviation from modeled prediction

- US automotive industry
- Forecasting period: Aug 08 July 09



Google



- Predicting the Present (Choi & Varian, 2009)
  - Search Trends data may be correlated with the current level of economic activity in given industries
  - Examples: Sales data in Retail, Automotive, Home and Travel
- Predicting Initial Claims for Unemployment Benefits (Choi & Varian, 2009)
  - Correlating searches in the "jobs" and "welfare & unemployment" categories to Initial Jobless Claims weekly report by US Dept. of Labor.
- Various national banks using Search Trends to assist in modeling economic indicators
  - Bank of Israel report (Suhoi 2009)
- Flu Trends
  - Ginsberg, Mohebbi, Patel, Brammer, Smolinski & Brilliant: <u>Detecting influenza epidemics</u> using search engine query data

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### You Ain't seen nothing yet

Vint Cerf ("Father of the Internet")

The Webby Lifetime Achievement Awards, June 14, 2010