

Webinar

How Search Engines use Machine Learning (and what that means to SEO)

GAMEPLAY & RULES

- Earn points by signing up, attending, and participating
 Unlock new levels, earn badges and check our
 leaderboard
 - Use #SuperSEOGame to continue the conversation

• Have fun!



oncraw







Jason Barnard The Brand SERP Guy

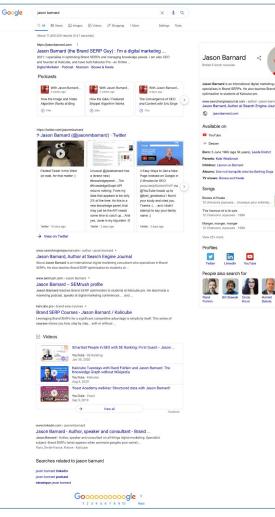












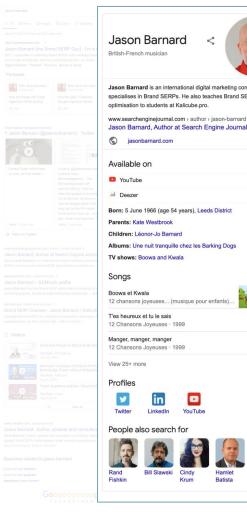
Jason Barnard is an international digital marketing consultant who specialises in Brand SERPs. He also teaches Brand SERP www.searchenginejournal.com - author - jason-bernerd Jason Barnard, Author at Search Engine Journal

→ The Brand SERP Guy

🦭 Kalicube.pro - it's all about your Brand SERP 🌉 @jasonmbarnard







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Jason Barnard is an international digital marketing consultant who specialises in Brand SERPs. He also teaches Brand SERP

Jason Barnard, Author at Search Engine Journal

The Brand SERP Guy (The Knowledge Panel Guy)

Hamlet Batista Feedback 🦭 Kalicube.pro - it's all about your Brand SERP 🧕 @jasonmbarnard





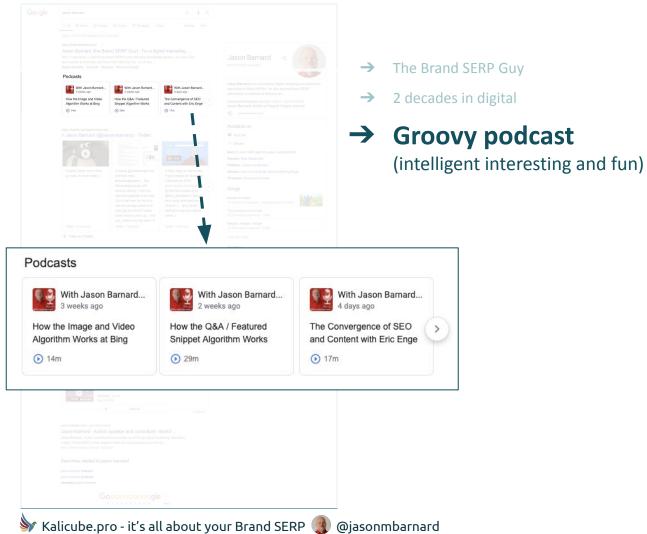


The Brand SERP Guy

→ 2 decades in digital (previous job: blue dog)

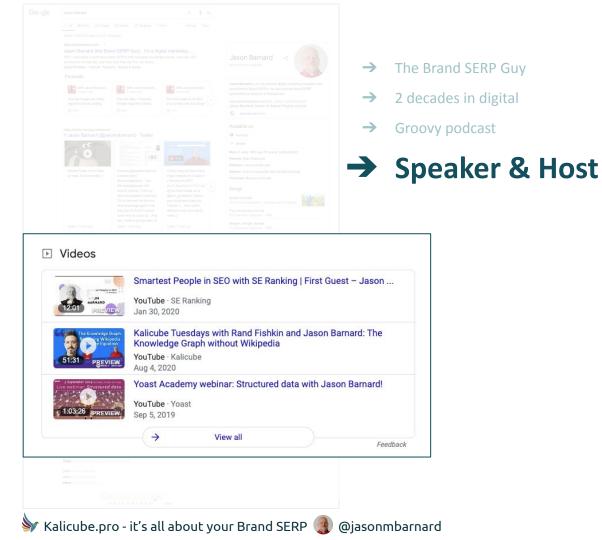
















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- nd SERP Guy
- es in digital
- podcast
- & Host



www.searchenginejournal.com > author > jason-barnard *

Jason Barnard, Author at Search Engine Journal

About Jason Barnard is an international digital marketing consultant who specialises in Brand SERPs. He also teaches Brand SERP optimisation to students at ...

www.semrush.com > Jason Barnard *

marketing podcast, speaks at digital marketing conferences ... and

Jason Barnard - SEMrush profile

Jason Barnard teaches Brand SERP optimisation to students at Kalicube.pro. He also hosts a marketing podcast, speaks at digital marketing conferences ... and ...















2. How does it work (in search)?

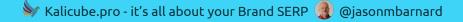




- 2. How does it work (in search)?
- 3. 5 Ways it is used in the Engines

(and what can you do from a practical perspective)





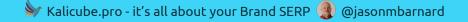


- 2. How does it work (in search)?
- 3. 5 Ways it is used in the Engines

(and what can you do from a practical perspective)

4. What's next?





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A

(emulate human intelligence / behaviour)

٧S



(accomplish a defined task in place of a human - hopefully with better results)

ΔΟΧ

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Machine Learning

Data

Maths



Intuition

Kalicube.pro

Ingredients

Pots and Pans

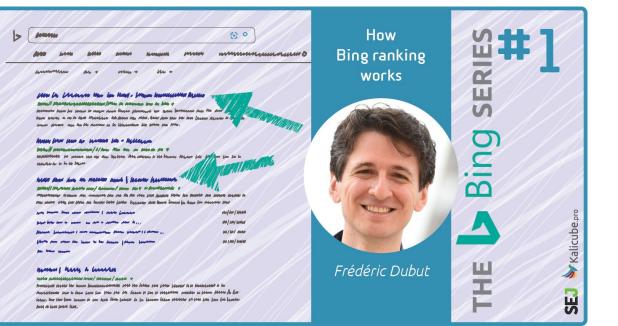
Human skill

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How does ML work in Search Engines?



1. The human tells the machine which are the factors (he calls them features that they think are important, and gives them the rules as to what is considered success and failure.

- 2. The machine is then fed with a **vast** number of different human-labeled examples of good and bad results for a range of different search queries.
- 3. The machine then figures out the different weights for the features that will provide quality results in any circumstance, whatever the input (ie even for new examples the machine has never seen before).



Quick Aside

https://kalicube.pro/grs



How Google Search Ranking Works – Darwinism in Search

Here's what Gary Illyes tells search engineers when they start at Google, and learn a stunning insight into how Google search ranking works.



ason Barnard / May 19, 2019 / 10 min read

2.1K 3OK SHARES READS

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Where is it used in the algos?







Warning

Google announcement does not mean the ML is extensively used.

Not because they CAN that they DO.

ML can be costly - used according to cost.

ML is moving FAST (see BERT vs MUM).

Where is it used in the algos?

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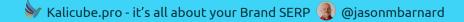
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How is it implemented?

(is the machine running wild in the wild?)







Build ML algorithm offline -> Release & Collect Data -> Humans judge results (**metrics**)



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It runs within a **controlled** environment with human imposed **boundaries**



ΔΟΧ

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Every time it runs it learns and changes...



ΔΟΧ

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Every time it runs it learns and changes... Next time it will run very slightly differently...



ΔΟΧ



Every time it runs it learns and changes... Next time it will run very slightly differently... This can happen billions of times per second (that's just Search... but also other products)



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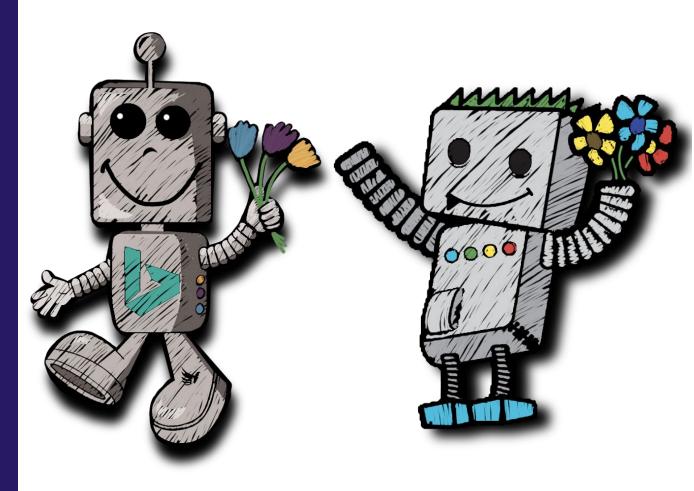
5 Examples (and what you can do)







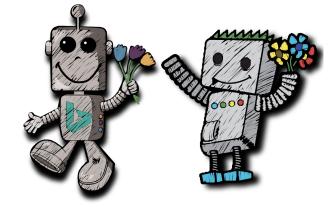
1 Bots



oncrawl



1. Discovery



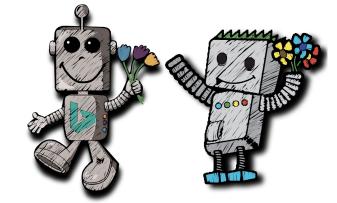
70 billion 40 billion







Discovery Crawling

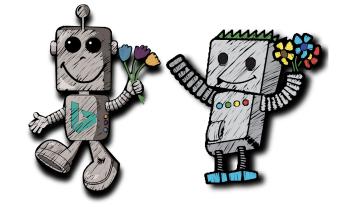








Discovery Crawling Extracting

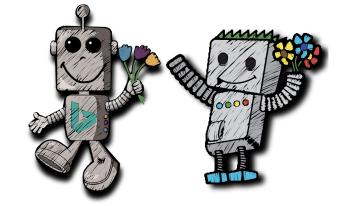








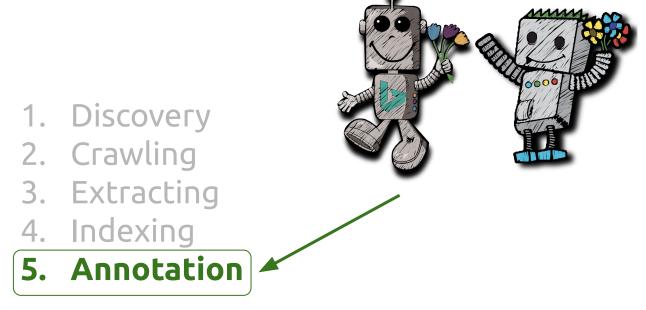
Discovery
 Crawling
 Extracting
 Indexing







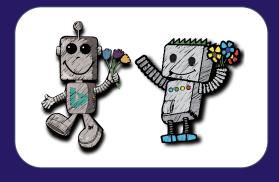








How you can Help the Bots

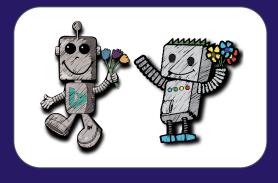


Wot the Bot Likes

1. Patterns



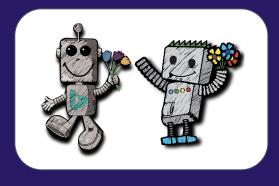
How you can Help the Bots



Wot the Bot Likes

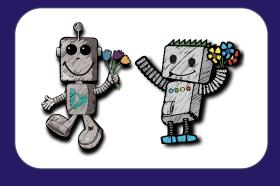
Patterns
 Structure





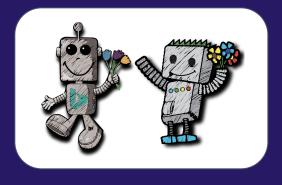
- 1. Patterns
- 2. Structure
- 3. Ontologies





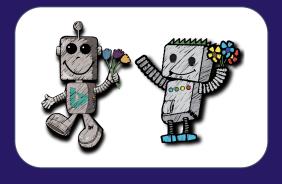
- 1. Patterns
- 2. Structure
- 3. Ontologies
- 4. Known platforms





- 1. Patterns
- 2. Structure
- 3. Ontologies
- 4. Known platforms
- 5. HTML5



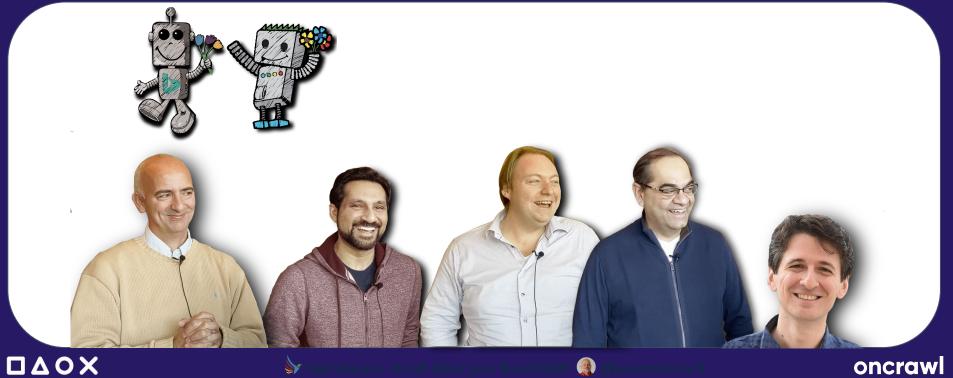


- 1. Patterns
- 2. Structure
- 3. Ontologies
- 4. Known platforms
- 5. HTML5
- 6. Structured Data
 - Schema markup



Sidenote

Indexing... the crux for ALL the verticals



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How the algorithms work

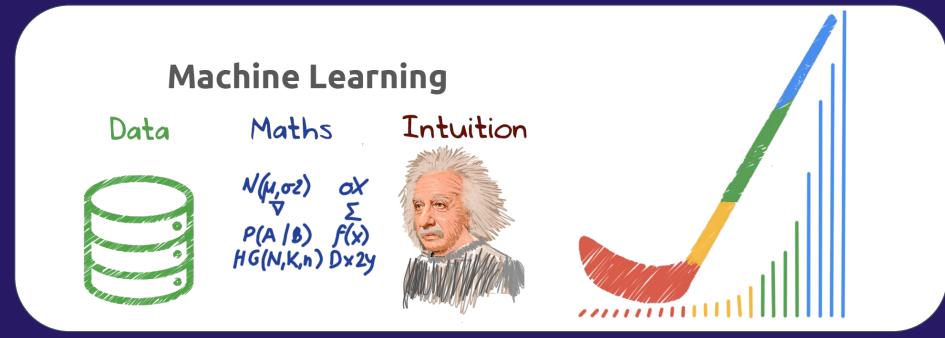


BingBot Featured Snippet Whole Page Video/Images Blue Links



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They All Use End-To-End Machine Learning ... & Because the machines are "Learning to Learn" Improvements are Exponential (scary?)



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Understanding search queries and inferring user search intent.

Resolve polysemy and ambiguous formulations, common typing errors, exact understanding of the user expectations regarding the search results.

oncr

- What is missing from the query?
- What is implicit?





What is missing from the query? What is implicit?

Google has these helpful things you don't:

1. Search History







What is missing from the query? What is implicit?

Google has these helpful things you don't:

- 1. Search History
- 2. Vast Query pool







What is missing from the query? What is implicit?

Google has these helpful things you don't:

- 1. Search History
- 2. Vast Query pool
- 3. Spell / Typo Checking



2 Intent Rank Brain



What is missing from the query? What is implicit?

Google has these helpful things you don't:

oncra

- 1. Search History
- 2. Vast Query pool
- 3. Spell / Typo Checking
- 4. Language settings

2 Intent Rank Brain



What is missing from the query? What is implicit?

Google has these helpful things you don't:

oncra

- 1. Search History
- 2. Vast Query pool
- 3. Spell / Typo Checking
- 4. Language settings
- 5. Geo-location

2 Intent Rank Brain



What is missing from the query? What is implicit?

Google has these helpful things you don't:

oncro

- 1. Search History
- 2. Vast Query pool
- 3. Spell / Typo Checking
- 4. Language settings
- 5. Geo-location
- 6. Device, OS, Browser
- 7. ...

How you can **Nail**search intent



Create great content that is truly valuable and helpful to...



2





Pow you can
Nail
search intent



Create great content that is truly valuable and helpful to...

the subset of Google's users who are your audience

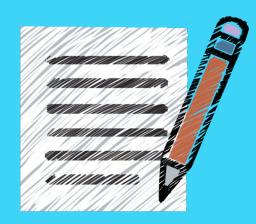




ΔΟΧ



Natural Language Processing



ΠΔΟΧ

BERT, ByT5, XLNet, RoBERTa, GPT-3, T5, Turing, T-NLG... this list is endless

Many approaches, models and datasets. Which is used depends on circumstances.



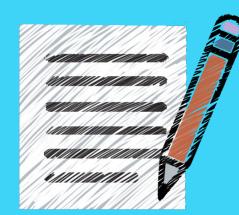
Blue links, Featured Snippets, videos, images, indexing, annotation...

Everywhere :)

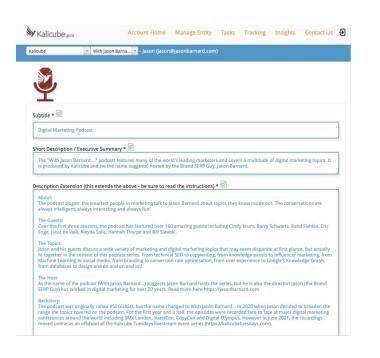
How to

3

leverage NLP



Use NLP API to see how the machine thinks... Don't take it all too literally





From your description, Google attributes these categories to this entity

-> Business & Industrial -> Business Services Relevancy:

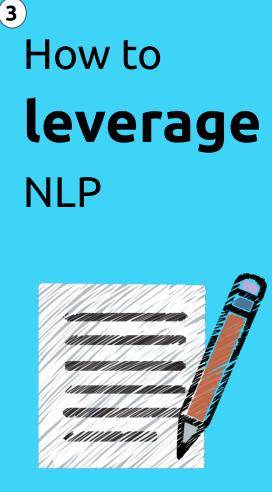
-> Arts & Entertainment Relevancy:

Google has identified these entities

With Jason Barnard -> person known entity with 10 mentions found and saliency 39%
podcast -> work of art guessed entity with 5 mentions found and saliency 10%
marketing -> other guessed entity with 5 mentions found and saliency 6%
Kalicube -> other known entity with 2 mentions found and saliency 2%
guests ->_person guessed entity with 2 mentions found and saliency 2%
Eric Enge -> person known entity with 1 mentions found and saliency 1%
Barry Schwartz -> person known entity with 1 mentions found and saliency 1%
Rand Fishkin -> person known entity with 1 mentions found and saliency 1%
Bill Slawski -> person known entity with 1 mentions found and saliency 1%
Hannah Thorpe -> person known entity with 1 mentions found and saliency 1%
Aleyda Solis -> person known entity with 1 mentions found and saliency 1%
Joost de Valk -> location known entity with 1 mentions found and saliency 1%
Machine Learning -> other known entity with 1 mentions found and saliency 1%
Google -> organization known entity with 1 mentions found and saliency 1%
Cindy Krum -> person known entity with 1 mentions found and saliency 1%

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General Rules

1. Context cloud



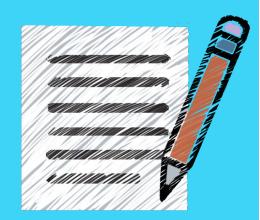
3

General Rules

Context cloud Capitalisation (Proper Nouns)



³ How to **leverage** NLP



General Rules

- 1. Context cloud
- 2. Capitalisation (Proper Nouns)
- 3. Logical structure (sentences, paragraphs and sections)



General Rules

- 1. Context cloud
- 2. Capitalisation (Proper Nouns)
- 3. Logical structure (sentences, paragraphs and sections)
- 4. Helpful headings



General Rules

- 1. Context cloud
- 2. Capitalisation (Proper Nouns)
- 3. Logical structure (sentences, paragraphs and sections)
- 4. Helpful headings
- 5. Logical order

General Rules

- 1. Context cloud
- 2. Capitalisation (Proper Nouns)
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- 4. Helpful headings
- 5. Logical order
- 6. Cite recognised entities



3

General Rules

- 1. Context cloud
- 2. Capitalisation (Proper Nouns)
- 3. Logical structure (sentences, paragraphs and sections)

oncra

- 4. Helpful headings
- 5. Logical order
- 6. Cite recognised entities
- 7. Express relationships

General Rules

- 1. Context cloud
- 2. Capitalisation (Proper Nouns)
- 3. Logical structure (sentences, paragraphs and sections)

oncro

- 4. Helpful headings
- 5. Logical order
- 6. Cite recognised entities
- 7. Express relationships
- 8. Emphasise semantic triples

Whole Page

The SERP is their Product



🐓 Kalicube.pro - it's all about your Brand SERP 🌒 @jasonmbarnard

oncrawl

For a given search query (intent) The Algorithm designs the product!!!!!

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		1 Al	

oncraw

4

Think in terms of "SERP Anatomy"

Based on perceived intent + available resources that..

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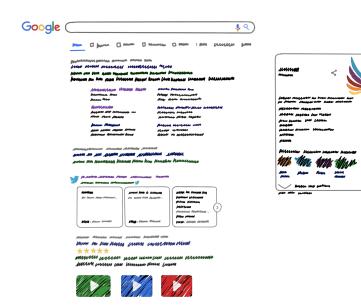
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Think:

Is my content

(form, format and platform) a good fit for Google's Product

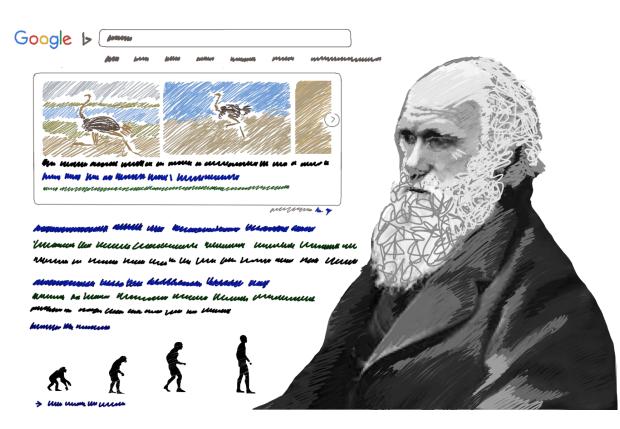
(user, intent, situation)



oncraw

Survival of the fittest

(that best fit the needs of the Google / Bing product)





ΔΟΧ

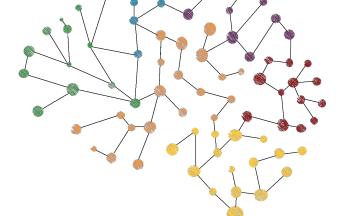




Trained on

- 1. Freebase
- 2. Wikidata
- 3. Wikipedia
- 4. CIA Factbook

...other sources



May 2020, this had grown to 500 billion facts on 5 billion entities

With ML, it is getting adventurous...



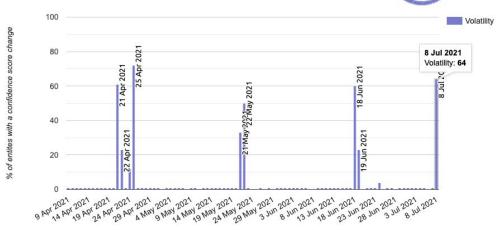




The Knowledge Graph has algo updates

The Kalicube KG sensor tells you when

- Wednesday 21 April 2021
- Thursday 22 April 2021
- Sunday 25 April 2021
- Friday 21 May 2021
- Saturday 22 May 2021
- Friday 18 June 2021
- Saturday 19 June 2021
- Thursday 8 July 2021





Citations / Descriptions



Trusted Sources Google Cites

Distinct domains (excluding Wikipedia): 365

Kalicube Pro

Source	Number	Percentage
wikipedia.org	5574	55.36%
none	3254	32.32%
linkedin.com	354	3.52%
crunchbase.com	250	2.48%
bloomberg.com	140	1.39%
reuters.com	25	0.25%

https://kalicube.pro/trusted-sources

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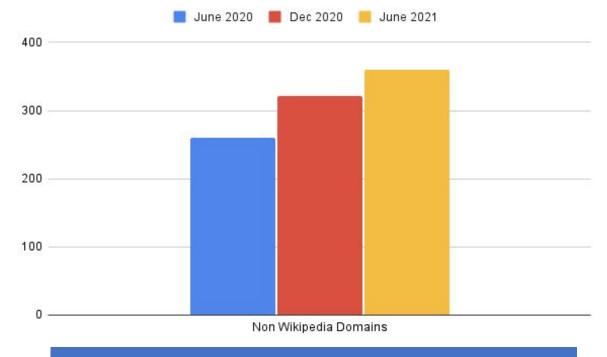
Kalicube Pro

5

Citations / Descriptions



Trusted Sources Google Cites



https://kalicube.pro/trusted-sources



WebFacts



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Contact Ema	iil: pr@seranki	ng.com crunchb	ase.com
Company Ty	pe: For Profit of	crunchbase.com	
Founders: Va	alery Kurilov cr	unchbase.com	
Profiles			
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LinkedIn	Instagram	Facebook	Twitter
People als	so search fo	or Vi	ew 10+ more
RAVEN	🗶) SpyFu	SERPSTAT	NETPE
Raven Tools, LLC	SpyFu	Serpstat	Netpeak
			Feedback

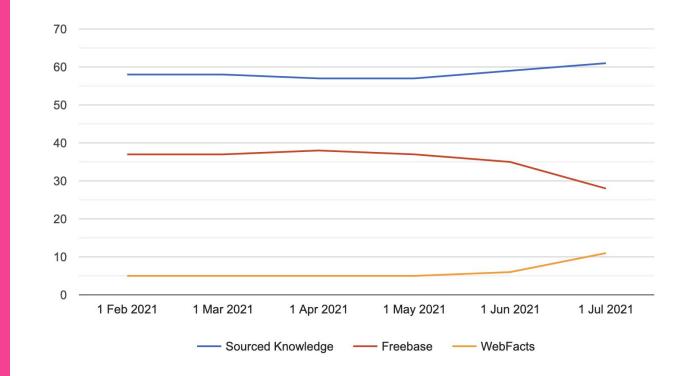
yoast.com Yoast SEO is a search engine optimization plug-in for WordPress. The plugin has five million active installations and has been downloaded more than 310 million times. Wikipedia CEO: Marieke van de Rakt (Jan 2019–) Founder: Joost de Valk Founded: 2010 Stable release: 16.5 / 19 June 2021; 7 days ago Developer(s): Yoast BV Premium cost: \$89/year pathfinderseo.com

<

Yoast



The machine in the wild increasingly defines FACTS



oncrawl



WebFacts



5 Knowledge Graph

WebFacts

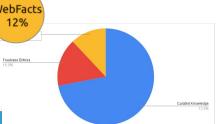


The machine in the wild increasingly defines FACTS

Distinct domains cited for WebFacts

Note: this is the perecntage of calculated on just those that provide a link to the source. Around 90% of WebFacts do not provide a source.

Source		Percentage
crunchbase.com		88.42%
bloomberg.com		5.22%
naatp.org		1.52%
einforma.com		1.36%
sec.report		0.82%
zillow.com		0.76%
imdb.com		0.54%
	-	





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Grasp control of those facts

3 Step Process

5

1. Entity home

https://mysite/about





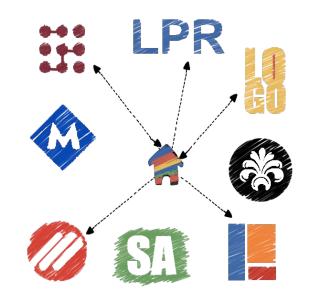
Grasp control of those facts

3 Step Process

5

Entity home Corroboration

(drives reconciliation)







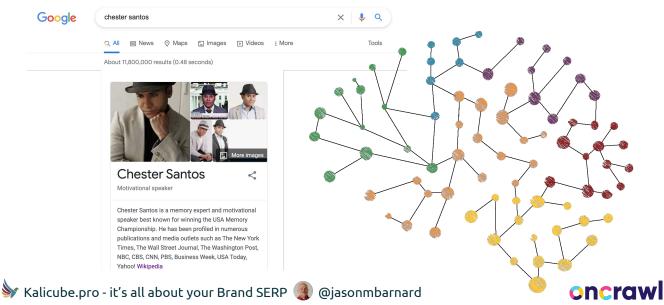
Grasp control of those facts

3 Step Process

5

Entity home Corroboration Relationships

Piggybacking





Mad experiments

5



WordLift

ΠΔΟΧ

The Barking Dogs

different instruments.

Band) - Jason ...

Available on

Active until: 1996

Origin: Paris, France (1989)

Record label: WTPL music

Members: Jason Barnard

People also search for

lessie

Evans

Albums: BARK!, LIVE!, Spasm

Spotify

Boowa &

Kwala

<

The Barking Dogs (often called Les Barking Dogs)

is an Anglo-French alternative rock band formed in

8 years, there were more than 20 members and 40

https://jasonbarnard.com > musician > the-barking-

The Barking Dogs (French Alternative Rock

Paris in 1988 and separated at the end of 1996. Over



Daddy Koala



Daddy Koala is a fictional character who appears in the Boowa & Kwala television series and web series. In both the television series and web series, he is voiced by Jason Barnard.

https://jasonbarnard.com > boowa-kwala > daddy-Daddy Koala is a fictional character who appears in the ...

Significant other: Mummy Koala

Fictional universe: Boowa & Kwala

People also search for



Grandpa Mummy Koala Koala

Feedback

~

Kalicube Tuesdays with Barry Schwartz and Jason Barnard

Tuesday, July 27, 2021

Date: Tuesday, July 27, 2021 Source Status: no in-person attendance People also search for: Kalicube Tuesdays with Jeff Coyle and Jason Barnard, MORE

Feedback

People also	o search fo	r	
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	AND A	S	
Cindy Krum	Kevin Indig	Joost de	Rand
		Valk	Fishki





Incide States and

results

SE Search Engine Journal How to Trigger a Personal Knowledge Panel in Google How can you get a... By Jason Barnard

By Jaso

How can you get a knowledge panel result for yourself, a client, or another person? Learn how to show... 1 week ago By Jason Barna PAAs now appea brand knowledge Here's how they why you need to

The expansion

Also Ask in the

Dec 14, 2020 Feedback



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View 1+ more

Hard Ton

Feedback

Tom Trago

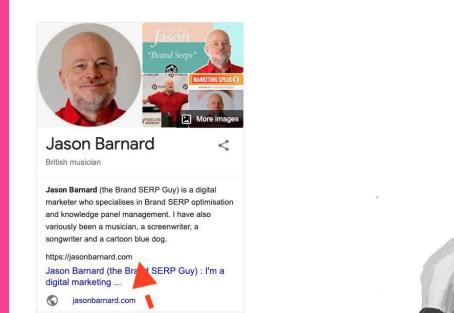


Mad experiments

5



WordLift



Born: June 5, 1966 (age 55 years), Leeds District, United Kingdom Parents: Kate Westbrook Partner: Véronique Barnard

Available on

YouTube

Let-me explain: Who I am, what I do, who my audience is

🦫 Kalicube.pro - it's all about your Brand SERP 🌏 @jasonmbarnard



Up and Coming (to an Engine near you soon)







KELM (Knowledge-Enhanced Language Model Pre-training)

TEKGEN (Text from KG Generator)

Writing content from information contained in a / the Knowledge Graph... leads to







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TEKGEN (Text from KG Generator)

Writing content from information contained in a / the Knowledge Graph... leads to

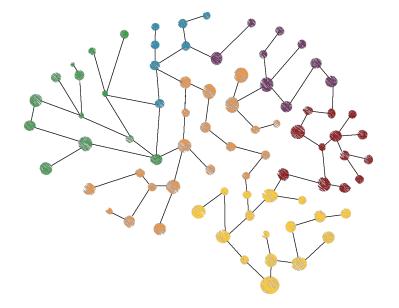
MUM (Multitask Unified Model)

Real World use of Topic Layers





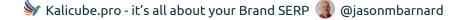








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Focus on:

1. the framework the machine works in

(traditional SEO strategies fit here)



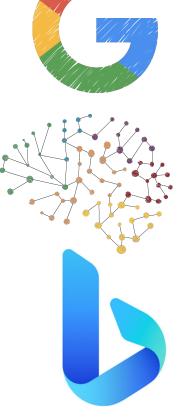






Focus on:

- 1. the framework the machine works in (traditional SEO strategies fit here)
- 2. the goals humans have set the machine (make the product better)



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Focus on:

- 1. the framework the machine works in (traditional SEO strategies fit here)
- 2. the goals humans have set the machine (make the product better)
- 3. the metrics used to measure success and failure (Quality Raters, Judges...)





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Here's how I work now







Build from the Brand SERP outwards

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Look at your Brand SERP

- What do you see
- What did you expect to see
- What do you want to see

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https://kalicube.pro



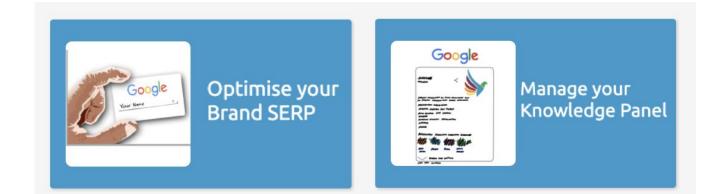


Optimise your Brand SERP and manage your knowledge panel













Grab your controller, it's time for Q&A!





