

### Multimedia Search Bradley Horowitz

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# Enable people to <u>find</u>, <u>use</u>, <u>share</u> and <u>expand</u> all human knowledge

- Find: Enable people to find what they are looking for
- Use: Search not for sake of searching, but to achieve a purpose
- Share: Sharing knowledge with people you connect with and connecting to people who you share knowledge with





**fuse** (fy<sup>oo</sup>z) *verb* fused, also fus•ing, fus•es

To become mixed or united by melting together



noun

A reaction in which nuclei combine to form massive nuclei with the simultaneous release of energy

### Knowledge Fusion:

Enable people to find, use, share and expand all human knowledge



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www.gurjari.net/ico/Mystica/html/vishnu.htm - <u>More from this site</u> - <u>Save</u> - <u>Block</u> 4. <u>Vishnu avatars incarnations : Hindu God Vishnu Overview</u> 탁 Hindu Gods : Vishnu - Hindu God with 10 avatars (incarnations) - includes many pics of paintings The Hindu God Vishnu. Vishnu is the preserver of the universe and ever peaceful basic Hindu Trinity of Brahma, Vishnu and Shiva, the Hindu god Vishnu is the	Vishnu at Shopping.com Find, compare and buy vishnus products. Read product reviews and compare prices with www.shopping.com
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Standard Crawl / Index / Serve paradigm

- Automated crawlers spider the web and encounter multimedia content. (Feeds augment the crawl...)
- Metadata is generated and indexed, content is fetched and "summary" (thumbnail) is extracted and stored on Yahoo servers
- Queries are processed and results are served



- What is the "best" match, i.e. the best image for a given query?
- Techniques like link-flux or PageRank not as meaningful in multimedia context
- Clickstream analysis a useful tool
  - Unlike web results, users can consume content directly on SRP...
  - Therefore clicks are meaningful "votes"



- Crawling Multimedia data can be difficult
- URLS are often dynamically generated, often intentionally obsfucated.
- Huge storage implications (thumbnail cache)
- Multimedia objects are binary, and hence "opaque" v. self-describing web pages, thus dependence on heuristic means of deriving metadata
- Relevance is difficult to determine



Any and all means....

- Syntactic stuff: Size, dimensions, format, duration, frames per second, etc.
- Object name: "dog.gif"
- ALT tags, <... ALT="Picture of a Dog">
- Embedded metadata (headers): ID3 tags, EXIF information, etc.
- Analysis:
  - Color / black & white
  - Acoustic Fingerprinting
  - Speech Recognition
  - Speaker Identification
  - OCR
  - Face Recognition
  - Object Recognition
  - Indoor / outdoor
  - Music / Speech



- Techniques are computationally *expensive*, very difficult to compute at web scale
- Results are noisy, prone to error...
- Some of these drawbacks can be mitigated by using *context*
- Biggest problem is that techniques do not extract most valuable level of information





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2





### FUSE Case Study: Flickr



"An online photo sharing community..."

•Filled with high-quality, timely, topical photographic content...

content entirely user-generated.

•Richly annotated and indexed, searchable, browsable and navigable...

metadata entirely user-generated.

•Tens of thousands of distribution partners...

each "deal" brokered by flickr users...

•Hundreds of applications written against flickr platform...

by 1000s of flickr developers

















### Photos from Nathan via RSS

























So Apple is currently processing my order for a spankin' new 20-inch unit, stock except for a 1-DIMM 1GB RAM upgrade. The 20 inchers are almost vulgarly large, but oh boy is that widescreen display pretty, and after the cramped 15<sup>T</sup> of the graphite iMac it's going to feel like a wealth of real estate.

I have a history of buying Apple products immediately BEFORE a major update (Lisa's iBook is probably one of the last 800mhz ones they sold before shipping the 1.0ghz models, any the 6GB iPod mini launched about 2 weeks after I got my 4GB for the same money and 1/3 of the battery life), so it feels good to jump on the rising wave of this one. I'm sure this will give us at least four or five years before I'm allowed to start grumbling again.

UPDATE: Sent to Manufacturing •

Special Bonus Nana Sanna WANT IT: <u>Bissell 2070 Quicksteamer</u> <u>Powerbrush Lightweight Deep Cleaner</u> - let us know how it works!

Posted by rjt at 04:41 PM | Comments (0) | TrackBack (0)

SAINTLY PSEUDONYM

filed under: Idle Chatter

Via Mimi Smartypants I found my way to the <u>Calendar of Saints</u> on the Catholic Forum. It turns out my birthday, which just passed (happy

















Mass Media Micro Media My Media



- Negroponte: "Being Digital" bits v. atoms
- Current system of media production & consumption is largely an artifact of "atombased" distribution
- Media has been relatively difficult for individuals to create, and virtually impossible for individuals to distribute at scale
- Led to a high-stakes economic model
- Mass media has flourished, in part, because micro-media wasn't viable...

## The Tale of the Head & the Tail

### Postulates

•Area under the curve of "long tail" is significant...

 Economics around this "tail" content often invert

Popular content

...everything else



### Mass Media

- Appeals to Large Audiences
- Controlled and manicured distribution
- Expensive to produce
- Studio model, high-stakes
   economics

#### Micro Media

- May have limited audience
- Uncontrolled, unmoderated distribution
- Cheap to produce
- Different, developing economic model



Ability to consume from both head and tail Ability to create and share "my" content







- Simple extension to wildly popular RSS format
- Builds on "podcasting" movement, and extends to other media data types
- Designed for "grass-roots" publishing, enabling audiences for content previously unavailable through traditional channels
- Working with community "to get something done," in partnership and collaboration















- Straightforward video search *a la* Image Search
- Yahoo is *extremely* sensitive to rights holders
  - 24 hour take-down policy
  - Working in partnership and collaboration with studios and networks to serve their needs
  - Leveraging existing business models and objectives we drive traffic to your property
  - Great tool for monitoring and dealing with infringing content
- Extremely successful, more innovation in the works
- Video Search is not a technology problem per se, but a "business problem" Yahoo is well-poised to address.



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