The value of time in unstructured data for IR

Omar Alonso

oralonso@gmail.com

A9.com

This work was done at University of California, Davis with Michael Gertz and Ricardo Baeza-Yates

Introduction

- Time as an information space for search and retrieval
- Current Web search engines and related applications don't leverage time
- This talk is about showing the value of time for different search scenarios
- Lots of interesting problems and applications

Time

- Is everywhere
  - DB transactions, email date, document creation time, etc.
- Well understood, not ambiguous
  - A year is a year, November has 30 days,. clear order
- Data sources are more or less richer
  - Financial news: very rich for near past/future events
  - Resumes/CVs: extensive coverage in past
- But, can't you just use SQL to manage dates?

```
select title from news_archive
where contains(text,'world cup') >0 order by date desc
```

- Beyond timestamps
- We're interested in a more deep NLP analysis and its implications

What is time, then?

- **More precise**
- A *temporal expression* can be:
  - Explicitly represented: July 7th, 2006
  - Denoted as events that have an associated value:
    - Christmas (December 25)
    - New Year (January 1st)
    - Monsoon season (Between October and December)
  - Vague reference: next Friday
- Some examples of temporal expressions in documents

⭐⭐⭐⭐⭐ **Why DARK SIDE is Most Heralded Album of All-Time (5 STARS),**
June 19, 2001

By **Janson Kemp "jwk"** (Dallas, TX USA) - **See all my reviews**
REAL NAME™

Studies have been conducted on the success of Pink Floyd's classic, best-of-the-best "Dark Side of the Moon." Some results are as follows:

*One in every 20 people under the age of 50 in the United States owns a copy of this album *Dark Side remained on Billboard's 200 album chart for an amazing 15 years straight and then for another two when it was remastered back in 1994 *It is currently the most successful album ever with upwards of 40 million copies sold world-wide

Now the question... WHY? Why should one album by a band back in 1973 have such outstanding achievments and admiration even today? Perhaps because of the time period. Look at other albums released the same year by bands like Led Zeppelin, King Crimson, Rush, and the Doobie Brothers among several others. This was the year of rock perfection. Or maybe it was because of the rave for concept albums. Or the simple, yet unforgettable album cover.

More likely it was the band's chemistry and ability to make jaw-dropping, awe-inspiring, thought-provoking music. This is Pink Floyd at its collective finest, with everyone contributing. Unlike the band in 6 years, Waters did NOT do everything. Gilmoure took a huge chunk of the music-writing, laying down the chord progressions on "Breathe," "Time," and "Any Colour You Like;" the singing on the album's best songs, Water's conceeding to David's far superior voice; and pumping out what would later be hailed as some of rock's most influential lead-guitar riffs on "Money" and "Brain Damage." Wright got in on much of the writing as well with his keyboard contributions on "Breathe," the symphonic "Great Gig in the Sky," "Us and Them," and the amazing keybpard licks and effects on "Colour." Mason, who rarely contributed, put in his efforts on "Speak to Me," "Time," and the Waters-less "Colour." Finally, Roger Waters put down most of the album's music, laid down all the bass-lines as usual, thought up the album's concept, and wrote all the lyrics. If that's not enough, he made himself heard on "Brain Damage," "Eclipse," and the chorus of "Time." Anyway you put it, THIS is the true Pink Floyd; all contributing, all acknowledged.

The band's titanic success was continued on later albums like 1975's "Wish You Were

⭐⭐⭐⭐⭐ **Pink Floyd - Dark Side Of The Moon (1973)**
This right here is proof that the Greater Being loves the people of this earth. This record, back in 1973, was the ultimate musical treat, and still, today this record is the... **Read more**
Published 4 days ago by Music Fan

⭐⭐⭐⭐⭐ **Pink Floyd's finest**
How does one go about topping an album like Dark Side of the Moon? Talk about stress when going into the studio for the next major release. **Read more**
Published 5 days ago by Greg Abrams

⭐⭐⭐⭐⭐ **Dark Side of the Moon is without a doubt the most praised of all albums and it deserves it**
Hippies, the end of the Vietnam War, the break-up of the Beatles, Frank Lucas, drugs, etc. What do these events have in common? **Read more**
Published 15 days ago by S. Glaser

⭐⭐⭐⭐⭐ **greatest album of all time**
Classic,timeless,Pink floyd's best.These are a few of the phrases often used to describe this album.I will go a step farther and say this is the best album of all time. **Read more**
Published 26 days ago by bnash

⭐⭐⭐⭐⭐ **Definately A Classic From Pink Floyd**

Amazon.com   Internal   Getting Started   Latest Headlines   Drag this link   Drag this link

1810: "Disgusting results for Arsenal. The worst possible outcome from the two games. Strength and depth lacked and the striking force were invisible. Four draws and a loss. Liverpool must fancy there chances for the Champions League."
Jamie Lyons, Croydon, via text on 81111

1808: Didier Drogba also called for the Chelsea fans to show more respect to ex-Blues player William Gallas, who was booed throughout the game. Interesting.

1806: "The substitutions helped. They did their job. We are really happy. I hope we can go on and win the title. Today means a lot, especially after Wednesday, which was a big disappointment."
Chelsea striker Didier Drogba

1802: Arsenal still have to travel to Old Trafford, while Chelsea host United before this season is out, so there could be twists and turns yet, but that table has got to look good if you're a United fan.

1800: Chelsea boss Avram Grant posts his first win against a 'Big Four' club and the goals came after a double substitution from the Israeli coach. Point made? I'll leave that to the Chelsea fans...

1756: FULL-TIME Chelsea 2-1 Arsenal
Didier Drogba belts the ball into the crowd as Mark Clattenburg blows the final whistle. An absolutely belting game. Arsenal take the lead in the second half through Bacary Sagna's goal but Drogba's double puts Chelsea above Arsenal in second - five points behind leaders Manchester United.

1755: A delay here as the Chelsea bench get a ticking off from the ref for standing on the touchline.

1754: Alex Hleb goes on a jinking run through midfield but

Done

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Albert Einstein

From Wikipedia, the free encyclopedia

(Redirected from Einstein)

"Einstein" redirects here. For other uses, see Einstein (disambiguation).

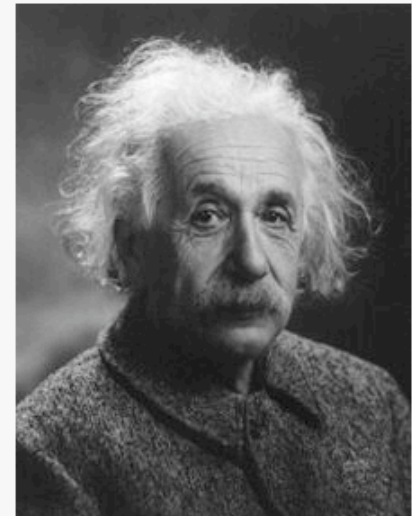**Albert Einstein** (German: IPA: [ˈalbɛt ˈaɪnʃtaɪn] ◀ (Audio file) (help·info); English: IPA: /ˈælbɜːt ˈaɪnstaɪn/) (March 14, 1879 – April 18, 1955) was a German-born theoretical physicist. He is best known for his theory of relativity and specifically mass-energy equivalence, $E = mc^2$. Einstein received the 1921 Nobel Prize in Physics "for his services to Theoretical Physics, and especially for his discovery of the law of the photoelectric effect."[1]

Einstein's many contributions to physics include his special theory of relativity, which reconciled mechanics with electromagnetism, and his general theory of relativity, which extended the principle of relativity to non-uniform motion, creating a new theory of gravitation. His other contributions include relativistic cosmology, capillary action, critical opalescence, classical problems of statistical mechanics and their application to quantum theory, an explanation of the Brownian movement of molecules, atomic transition probabilities, the quantum theory of a monatomic gas, thermal properties of light with low radiation density (which laid the foundation for the photon theory), a theory of radiation including stimulated emission, the conception of a unified field theory, and the geometrization of physics.

Works by Albert Einstein include more than fifty scientific papers and also non-scientific books.[2][3] Einstein is revered by the physics community,[4] and in 1999 *Time* magazine named him the "Person of the Century". In popular culture the name "Einstein" has become synonymous with genius.

Contents [hide]

Albert Einstein

Einstein in 1947

March 14, 1879
Ulm, Württemberg, Germany

April 18, 1955 (aged 76)
Princeton, New Jersey, U.S.

Germany, Italy, Switzerland, United States

German (1879–96, 1914–33)

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Motivation

- A look at the effect of time on queries and their perceived relevance
- [Q4 earnings]
  - Which year? Current?
- [Madagascar]
  - The country (1960) or the movie (2005)?
- [Iraq War and the President]
  - Bush Sr. or Bush Jr.?
- [World Cup Germany]
  - 1974 or 2006?

Some Applications

- Exploratory search
- Searching the future
  - High percentage of news articles contain information about the future
  - "next year will increase revenue by 20%"
- Topic Detection and Tracking
  - [Tsunami Disaster] news very popular a couple of years ago – not anymore
  - [Prolog] popular in the 80s, now [semantic web] ;-)
- Question answering
  - [who won the Nobel prize in Physics this year?]
- Summarization
  - Summarizing a story in terms of a timeline
  - "June 2003 Oracle bid for PeopleSoft … anti-trust suit rejected in September 2004 … merger in December 2004"
- Compliance
- Ads
  - [costumes]
  - Halloween (October), Carnival (February)
- Tag evolution

Problems

- Identification of temporal expressions in unstructured content
- Time machine for IR
- Clustering and classification by time
- Temporal ranking
- Presentation and visualization of temporal information
- Very exciting area with lots of interesting problems
- Huge potential for adding temporal features to any of the major Internet services