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Acquiring Web Site Metadata by Heterogeneous Information Sources Processing

What is the problem?

- too many web docuents emerge
- in december 2011 there were about 556 000 000 websites
- web documents structure differ from site to site
- contemporary approaches do not achieve satisfactory results

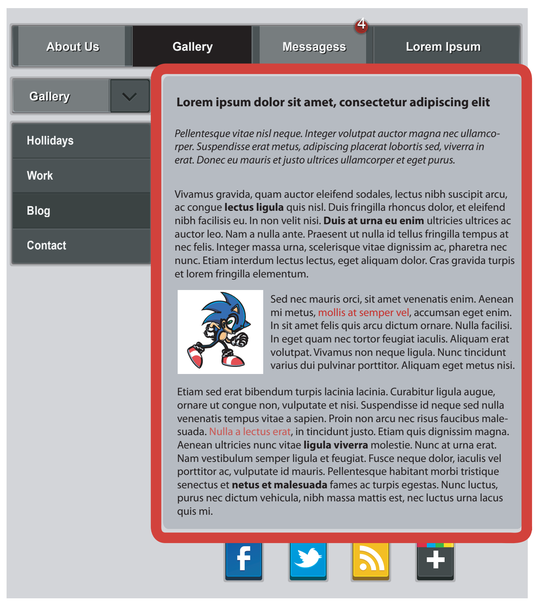
What to do about it?

- we need to utilize **features** of todays web pages
- web documents provide **implicit semantics** in style
- **keyword** paradigm seems apropriate to describe web documents

Why keyword paradigm?

- widespread in many disciplines (summarization and cetegorization)
- „de facto" standard in searching (google search)
- used in social media (e.g. deli.cio.us)
- used in advertising (e.g. AdWords)

Our approach to keywords extraction



1. Find all CSS styles

2. Extract content

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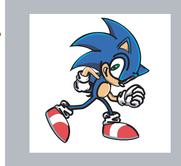

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3. Find empasized phrases

1. empasized phrase
   + CSS features
2. empasized phrase
   + CSS features
   ...

4. Extract plain text

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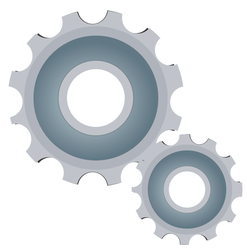
5. ATR + some magic



6. Get relevant keywords

- ✓ Keyword 1
- ✓ Keyword 2
- ✓ Keyword 3
- ✓ Keyword 4
- ✓ Keyword 5

...

Magic explanation

- extract emphasized words and phrases from web document
- compute the *visibility factor*
- extract phrases and words from plain text
- improve weight of phrases, which are emphasized by CSS styles

Visibility factor

- add points for every style feature, which is different from main textual content.

Exprimental evaluation & Further work

So far we have evaluated
- 60 web documents
- from 11 different web sites
- together 2048 phrases

- determine important style features
- train SVM to automatically detect keywords

Base algorithms	Average relevance %	After utilizig CSS features	AVG relevance %	Delta %
CValue	72,98	*Cvalue*	74,71	**1,73**
TermEx	71,44	*TermEx*	73,64	**2,2**
Weirdness	63,61	*Weirdness*	70,26	**6,65**
GlossEx	55,37	*GlossEx*	63,1	**7,73**
TF-IDF	48,27	*TF-IDF*	69,98	**21,71**

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