



University  
of Glasgow

# 工程与科研导论

INSPIRING  
PEOPLE





工程

科研



## Web工程

前端

HTML, CSS, Javascript

后端

PHP, Node.js, Golang等

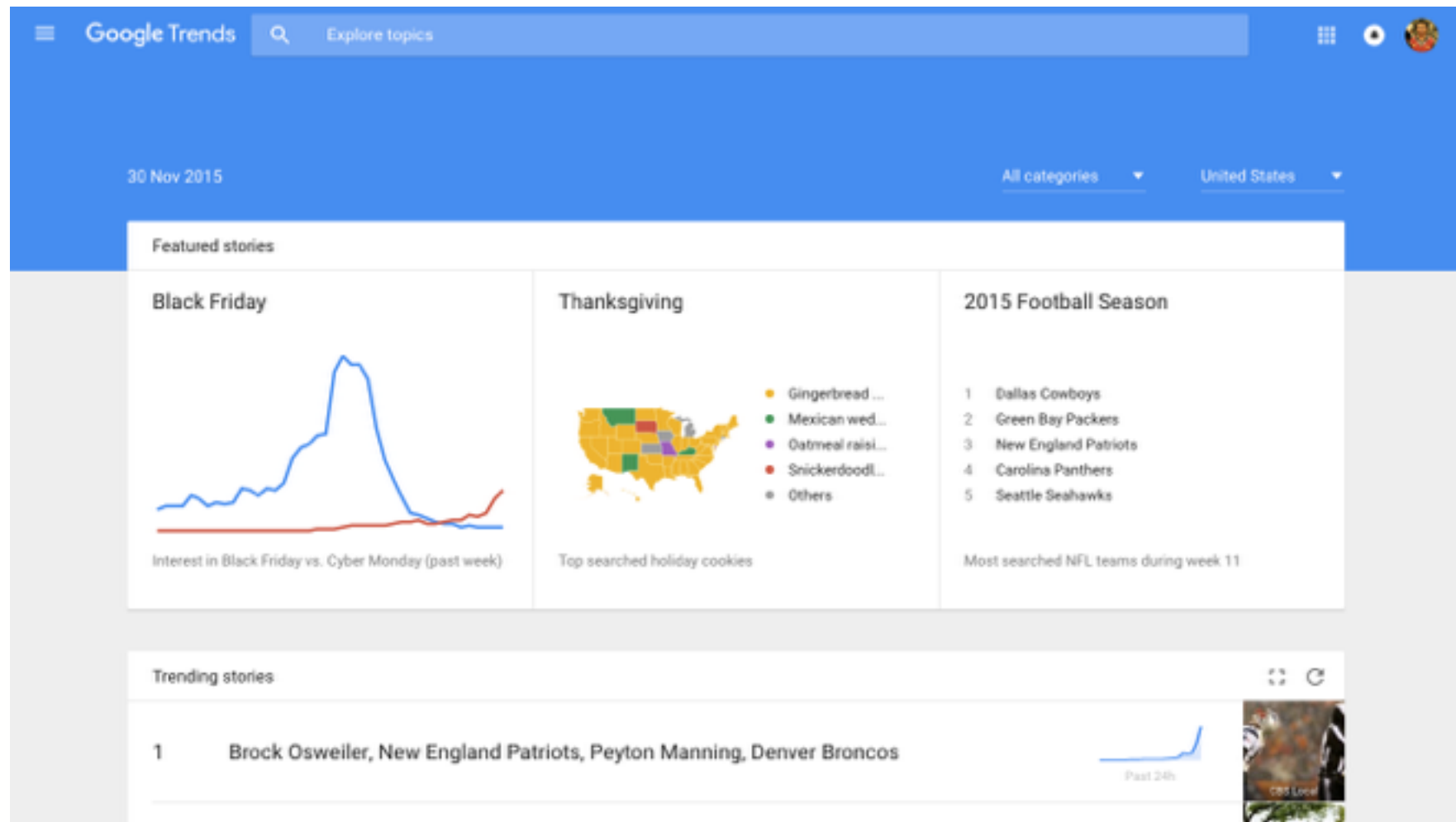
## 系统工程

C/C++等

Linux



# Google Trends(Google趋势)



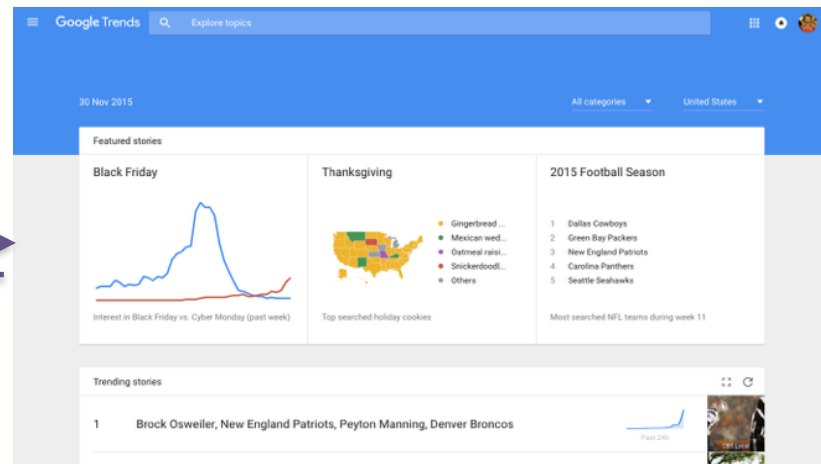
# Web工程

PHP, Node.js, Golang

HTML  
CSS  
Javascript



数据



后端

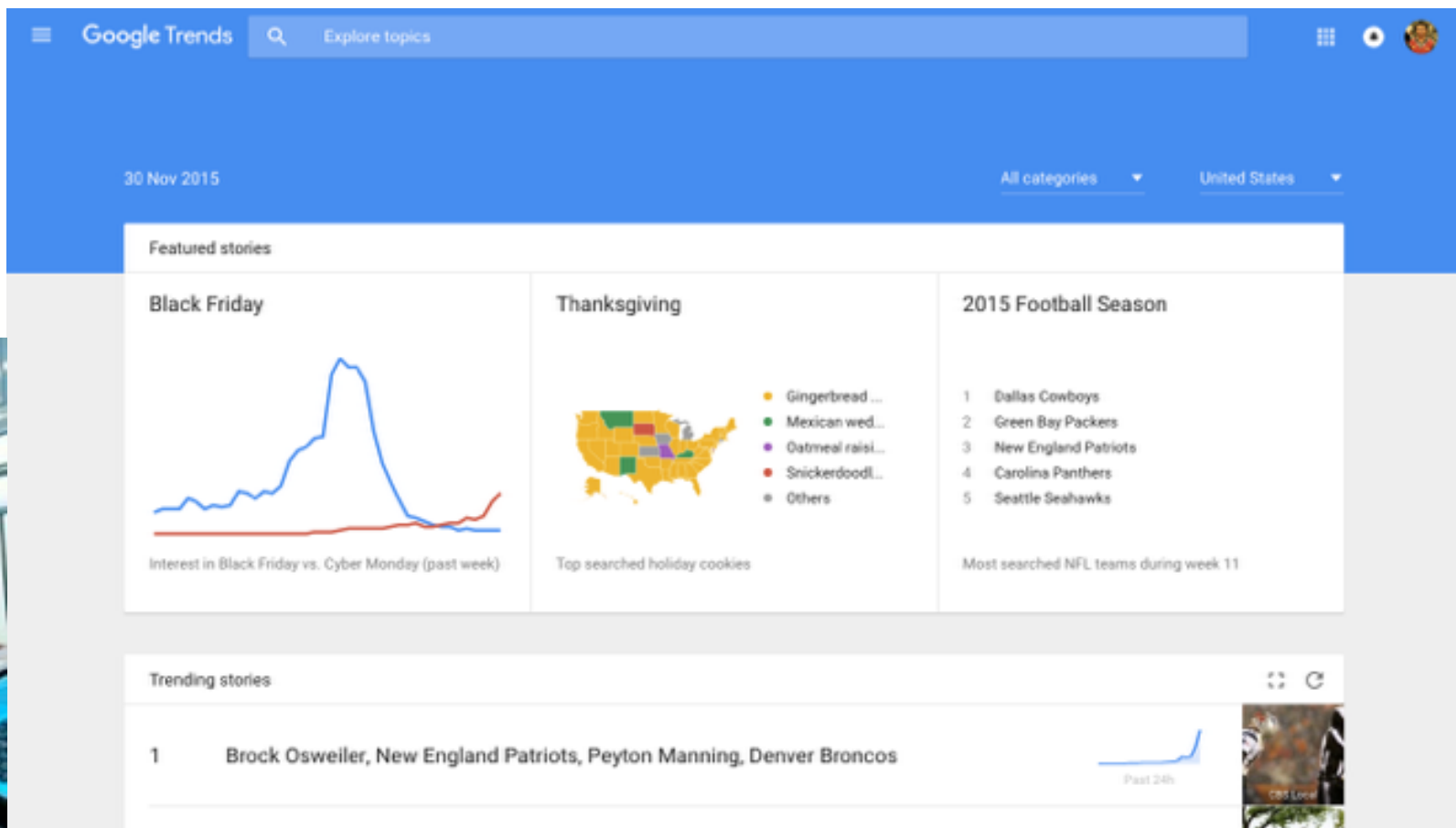
前端

# 前端

HTML

CSS

Javascript





## 科研

背景研究 (Background Survey)

研究方法、模型 (Methodology)

实验分析 (Experiment/Evaluation)

Baseline

State-of-the-art

Your Model

## 简介

背景研究

数据准备

数学模型



# 背景研究

只有知道当前研究的现状，  
才会做出有意义的科研。



# 背景研究

中国计算机学会推荐  
国际学术会议和期刊目录

首页 关于目录 意见建议 联系我们

- 计算机系统与高性能计算
- 计算机网络
- 网络与信息安全
- 软件工程、系统软件与程序设计语言
- 数据库、数据控制与内容检索
- 计算机科学理论
- 计算机图形学与多媒体
- 人工智能与模式识别
- 人机交互与普适计算
- 前沿、交叉与综合

### 中国计算机学会推荐国际学术会议和期刊目录

2005年12月17日,中国计算机学会青年计算机所函电会(CCF YOCSEF)举办了“从SCS反思中国的学术评价体制”专题论坛。针对为RISC会或为衡复大学、科研机构和教育工作者学术水平的最重要因素,是制定统一的评价;提高了如何建立中国自主知识产权评价体制的问题。这次论坛在国内引起了激烈的反响。李国杰理事长在各种场合多次呼吁国家教育主管部门在学术会议上发表意见,希望YOCSEF青年论坛学术年会和重要学术期刊的目录,提供给各高校和科研单位作为学术水平评价的参考。

经过几届YOCSEF学术委员会的努力,经过调研、分析、选择试点方向,初步完成了大部分方向方向的推荐目录。以来,CCF常务理事委托CCF学术工委组织此项工作。通过进一步收集、整理、研讨,形成初稿后向学术界公平征集意见。2010年4月,发布了《中国计算机学会推荐国际学术会议和期刊目录》(第一版)。2011年7月,CCF学术工委又组织广大会员单位广泛征集意见和建议,修订发布了《中国计算机学会推荐国际学术会议和期刊目录》(第二版)。目录中的刊物和会议分为A、B、C三类。A类是国际上极少数的高水平刊物和会议,是我国学术界公认、国际学术界著名和非常重要的会议、刊物,有重要的学术影响,就国内同行数据,C类是国际学术界所认可的学术会议和刊物。

学术工委于2012年4月以前第三版的修订,学术工委向所有会员单位征求意见,引用推荐,以及刊物的SCS牌子,等等教育规划;并根据学术同行和会议建设的反馈,通过深入的研讨,形成征求意见稿。于2013年11月召开中国计算机学会网络年会,广泛调研,进一步广泛征求意见,最终通过一个学术委员会,最终形成最终的学术委员会审定目录。

希望本推荐国际会议和期刊目录可以提供国内高校和科研单位作为学术评价的参考依据,并期望能以此带动国内计算机领域学术进步的进程。

中国计算机学会推荐国际学术刊物  
(数据库、数据控制与内容检索)

### 一、A类

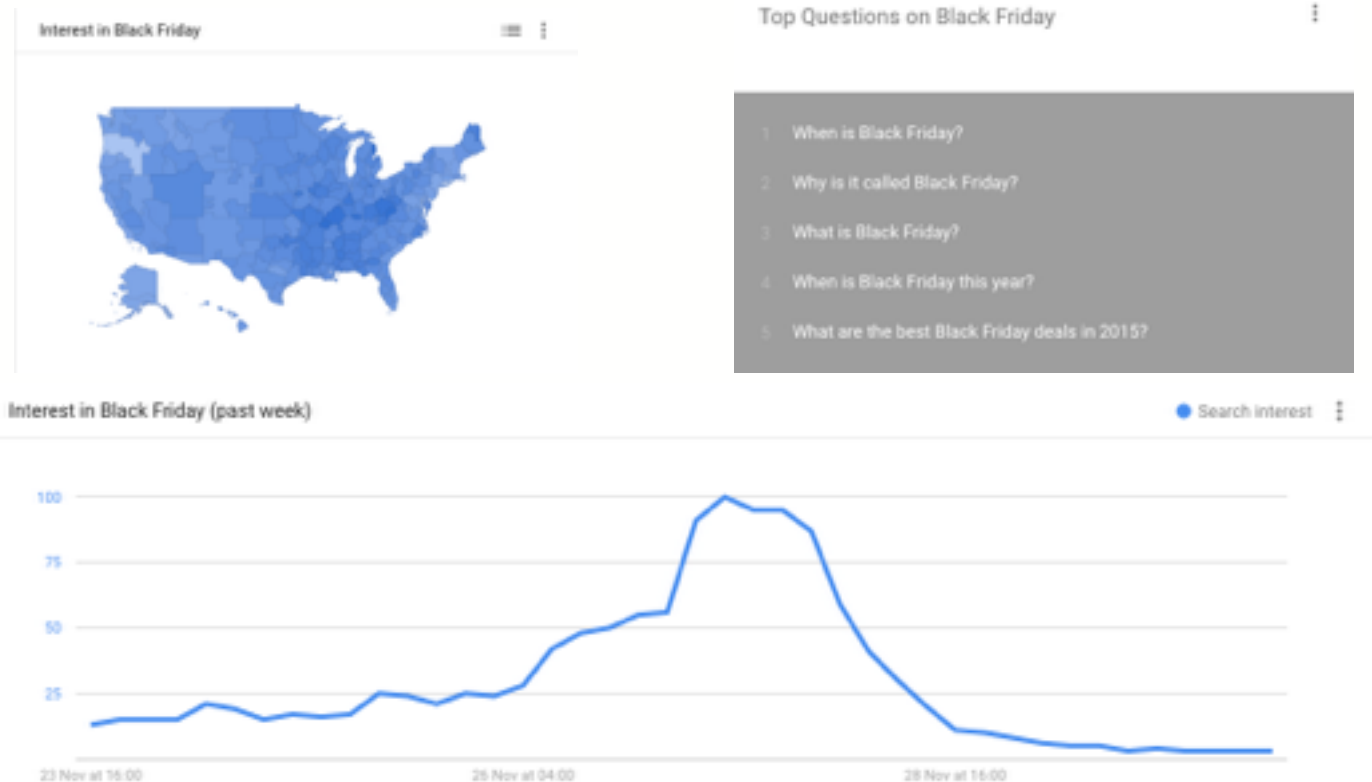
序号	刊物简称	刊物全称	出版社	网址
1	TODS	ACM Transactions on Database Systems	ACM	<a href="http://www.acm.org/tods/">http://www.acm.org/tods/</a>
2	TOIS	ACM Transactions on Information and Systems	ACM	<a href="http://www.acm.org/pubs/tolis/">http://www.acm.org/pubs/tolis/</a>
3	TKDE	IEEE Transactions on Knowledge and Data Engineering	IEEE Computer Society	<a href="http://www.computer.org/tkde/">http://www.computer.org/tkde/</a>
4	VLDDB	VLDDB Journal	Springer-Verlag	<a href="http://www.vldb.org/dbj/vldb/index.html">http://www.vldb.org/dbj/vldb/index.html</a>

### 二、B类

序号	刊物简称	刊物全称	出版社	网址
1	TKDD	ACM Transactions on Knowledge Discovery from Data	ACM	<a href="http://www.acm.org/pubs/tkdd/">http://www.acm.org/pubs/tkdd/</a>
2	AEI	Advanced Engineering Informatics	Elsevier	<a href="http://www.elsevier.com/locate/journal/science/journal/09266422140/">http://www.elsevier.com/locate/journal/science/journal/09266422140/</a>
3	DKE	Data and Knowledge Engineering	Elsevier	<a href="http://www.elsevier.com/locate/journal/0167291/">http://www.elsevier.com/locate/journal/0167291/</a>
4	DMKD	Data Mining and Knowledge Discovery	Springer	<a href="http://www.springerlink.com/content/100224/">http://www.springerlink.com/content/100224/</a>
5	EJIS	European Journal of Information Systems	The OR Society	<a href="http://www.gulpsci.com/ejis/">http://www.gulpsci.com/ejis/</a>
6	GeoInformatica		Springer	<a href="http://www.springerlink.com/content/1173_7824/">http://www.springerlink.com/content/1173_7824/</a>
7	IPM	Information Processing and Management	Elsevier	<a href="http://www.elsevier.com/locate/infman">http://www.elsevier.com/locate/infman</a>
8		Information Sciences	Elsevier	<a href="http://www.elsevier.com/locate/isci">http://www.elsevier.com/locate/isci</a>
9	IS	Information Systems	Elsevier	<a href="http://www.journals.elsevier.com/information-systems/">http://www.journals.elsevier.com/information-systems/</a>

## Peer-review论文审查

# 趋势变化图



如何获取到数据?



# 数据准备

1. API
2. 爬虫

# Twitter API

https://dev.twitter.com/rest/public



## API Console Tool

### Public API

[Uploading Media](#)

[The Search API](#)

[The Search API: Tweets by Place](#)

[Working with Timelines](#)

[API Rate Limits](#)

[API Rate Limits: Chart](#)

[GET statuses/mentions\\_timeline](#)

[GET statuses/user\\_timeline](#)

[GET statuses/home\\_timeline](#)

[GET statuses/retweets\\_of\\_me](#)

[GET statuses/retweets/:id](#)

[GET statuses/show/:id](#)

[POST statuses/destroy/:id](#)

[POST statuses/update](#)

[POST statuses/retweet/:id](#)

## REST APIs

The [REST APIs](#) provide programmatic access to read and write Twitter data. Author a new Tweet, read author profile and follower data, and more. The REST API identifies Twitter applications and users using [OAuth](#); responses are available in JSON.

If your intention is to monitor or process Tweets in real-time, consider using the [Streaming API](#) instead.

## Overview

Below are the documents that will help you get going with the REST APIs as quickly as possible

- [API Rate Limiting](#)
- [API Rate Limits](#)
- [Working with Timelines](#)
- [Using the Twitter Search API](#)
- [Uploading Media](#)
- [Multiple Media Entities in Statuses](#)
- [Finding Tweets about Places](#)

# Twitter Data

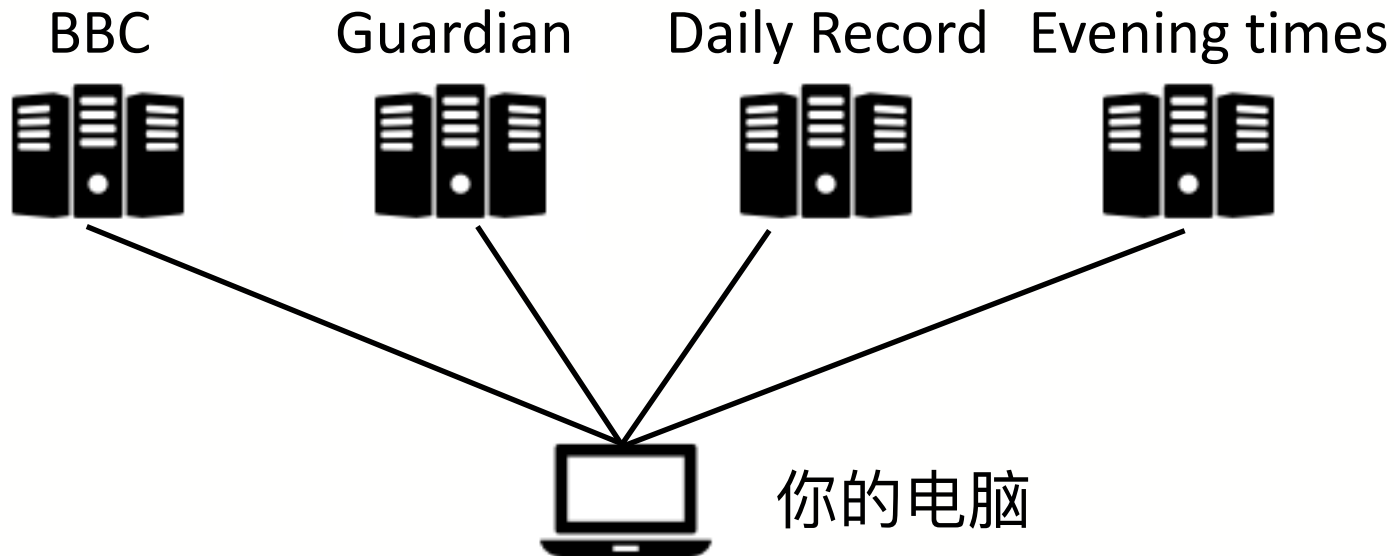
The screenshot shows the 'Json Parser Online' website. The left panel displays a JSON object representing a Twitter user profile. The right panel shows the same JSON object after being parsed into a JavaScript object, with error messages indicating that the string parse failed and the JS eval failed.

```
1 {
  "id" : Object{"id":"55913449241646bd6c01a2"},
  "created_at" : "Sat Apr 18 23:44:08 +0000 2014",
  "id_str" : "55913449241646bd6c01a2",
  "text" : "couya yes they do shutup",
  "source" : "%a href=\"%https://twitter.com/download/iphone% rel=\"%nofollow%\"%Twitter for iPhone%>",
  "truncated" : false,
  "in_reply_to_status_id" : Number{"long":"3895731140511104"},
  "in_reply_to_status_id_str" : "3895731140511104",
  "in_reply_to_user_id" : 33144390,
  "in_reply_to_user_id_str" : "33144390",
  "in_reply_to_screen_name" : "couya",
  "user" : {
    "id" : Number{"long":"236979232"},
    "id_str" : "236979232",
    "name" : "ya girl aa",
    "screen_name" : "_papirlar",
    "location" : "",
    "url" : "http://triggy-or-mah.tumblr.com",
    "description" : "inetaasarahvic1234",
    "protected" : false,
    "verified" : false,
    "followers_count" : 316,
    "friends_count" : 141,
    "listed_count" : 5,
    "favorites_count" : 1876,
    "statuses_count" : 5293,
    "created_at" : "Mon Mar 03 03:43:42 +0000 2014",
    "utc_offset" : null,
    "time_zone" : null,
    "geo_enabled" : true,
    "lang" : "en",
    "contributors_enabled" : false,
    "is_translator" : false,
    "profile_background_color" : "869173",
    "profile_background_image_url" :
    "https://pbs.twimg.com/profile_background_images/80300880791348178/80Lc_g12.jpg",
    "profile_background_image_url_https" :
  }
```

String parse: 4 errors  
JS eval fails  
SystemError: Unexpected token G

Json Online(Json在线编辑器)

# 爬虫



# 爬虫

Get请求抓取页面(Python)

```
import urllib2  
content = urllib2.urlopen('http://baidu.com').read()  
print content
```



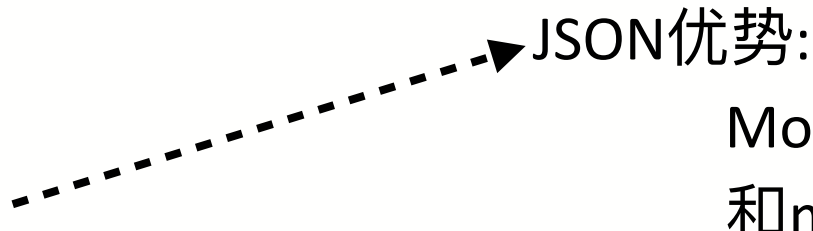
处理HTML页面

Python: BeautifulSoup



格式化数据

XML/JSON



MongoDB数据库的结合  
和map类型的灵活转换

# 爬虫

## MongoDB中的爬虫数据

```
> db.gasNews.findOne()
{
  "_id" : ObjectId("55d22c70d4c62950dffb11b8"),
  "title" : "Glasgow bin lorry FAI: Family of Dumbarton victims 'reserve right' to seek private prosecution of driver - Daily Record",
  "description" : "Lawyer tells inquiry that relatives disagreed with decision not to press charges",
  "timeStamp" : "17/08/2015",
  "category" : "news",
  "url" : "http://www.dailyrecord.co.uk/news/local-news/glasgow-bin-lorry-fai-family-6267012",
  "source" : "http://www.dailyrecord.co.uk",
  "mainStory" : "<p>The Dumbarton family of three of the victims of the bin lorry tragedy in Glasgow have said they wish to reserve the right to raise a private prosecution against the driver, Harry Clarke.</p>\n<p>Mark Stewart QC, acting for the family of Erin McQuade, 18, and her grandparents Jack, 68, and Lorraine Sweeney, 69, all from Dumbarton, said they disagreed with the Crown decision not to bring a prosecution and welcomed the opportunity to say it in public.</p>\n<p>Mr Stewart said the family wished to reserve the right to prosecute anyone "carrying personal responsibility" for the tragedy.</p>\n<p>The inquiry also heard on Monday that the family of another victim intend to seek a private prosecution against Mr Clarke.</p>\n<p></p>\n<p>The lawyer acting for the family of Jacqueline Morton, 51, asked the inquiry into the December 22 tragedy to be adjourned as they sought authority to launch a court action against Mr Clarke, 58, after the Crown Office ruled out any prosecution.</p>\n<p>Six people died when the council refuse truck he was driving veered out of control.</p>\n<p>The inquiry at Glasgow Sheriff Court, now in its fifth week, has heard that Mr Clarke had a history of dizzy spells and fainting which he failed to disclose to the DVLA and on job application forms.</p>\n<p>The Crown Office ordered an investigation into the circumstances of the crash after ruling that there was no evidence to warrant criminal proceedings.</p>\n<p>Dorothy Bain QC, acting for the family of Ms Morton, from Glasgow, told the sheriff she had been instructed to seek an adjournment of the inquiry in order to seek authority to bring a private prosecution. The issue of funding still has to be established, she said.</p>\n<p>Mr Clarke was expected to give evidence himself at the inquiry.</p>\n<p>His lawyer said: "He wants to answer all the questions that are put to him at the inquiry" but added that his client had the right to "privilege against self-incrimination".</p>\n<p>He said: "If there is a possibility that he will be prosecuted as a result of his involvement in this tragedy ... then he is entitled to the protection of Section 5 just as any other witness would be."</p>\n<p>Ronald Conway, acting for relatives of victim Stephanie Tait, 29, from Glasgow, said they will not be involved in any private prosecution.</p>\n<p>He said: "Telling lies is not a crime; telling lies to the medical profession is not a crime."</p>\n<p>The lawyer said the Tait's recognised the right of others to bring a prosecution, however.</p>\n<p>Alistair Forsyth, for the Ewing family, said they "associate" with the motion put forward by Ms Bain QC.</p>\n"}
}
```





# 数学模型

## 1. 机器学习

《Pattern Recognition and Machine Learning》  
《Elements of Statistical Learning》(偏统计学)

- A. 微积分
- B. 概率论
- C. 统计

## 2. Kaggle机器学习竞赛

[www.kaggle.com](http://www.kaggle.com)

# 公式推导

$$\begin{aligned}
 p(z, w^{(k)} | \mathcal{A}, \alpha^{(k)}, \beta) &= \int_x \int_{\Phi} \int_{\mathcal{H}} p(z|x, \Phi) p(w^{(k)}|z, \mathcal{H}) p(x|\mathcal{A}) p(\Phi|\alpha^{(k)}) p(\mathcal{H}|\beta) dx d\Phi d\mathcal{H} \\
 &= \int_x \int_{\Phi} \int_{\mathcal{H}} \left[ \prod_{i=1}^N p(z_{di} | \phi_{x_{di}}) \right] \left[ \prod_{d=1}^D \prod_{i=1}^{N_d} p(x_{di} | a_d) \right] p(\Phi|\alpha^{(k)}) p(\mathcal{H}|\beta) dx d\Phi d\mathcal{H} \\
 &= \int_x \int_{\Phi} \int_{\mathcal{H}} \left[ \prod_{a=1}^A \prod_{t=1}^T \eta_{ta}^{C_{ta}^{TA}} \right] \left[ \prod_{d=1}^D \left( \frac{1}{A_d} \right)^{N_d} \right] \\
 &\quad \left[ \prod_{t=1}^T \left( \frac{\Gamma(W\beta)}{\Gamma(\beta)^W} \prod_{w=1}^W \phi_{wt}^{\beta_w-1} \right) \right] \left[ \prod_{a=1}^A \left( \frac{\Gamma(T\alpha)}{\Gamma(\alpha)^T} \prod_{t=1}^T \beta_{ta}^{\alpha_t^{(k)}-1} \right) \right] dx d\Phi d\mathcal{H} \\
 &= \int_x \int_{\Phi} \int_{\mathcal{H}} \left[ \prod_{a=1}^A \prod_{t=1}^T \eta_{ta}^{C_{ta}^{TA}} \right] \left[ \prod_{d=1}^D \left( \frac{1}{A_d} \right)^{N_d} \right] \\
 &\quad \left[ \prod_{t=1}^T \prod_{w=1}^W \eta_{wt}^{C_{wt}^{WT} + \beta_w - 1} \right] \left[ \prod_{a=1}^A \prod_{t=1}^T \phi_{ta}^{C_{ta}^{TA} + \alpha_t^{(k)} - 1} \right] dx d\Phi d\mathcal{H} \\
 &= \left[ \prod_{a=1}^A \prod_{t=1}^T \eta_{ta}^{C_{ta}^{TA}} \right] \int_{x, \frac{1}{A_d}} \left[ \prod_{d=1}^D \left( \frac{1}{A_d} \right)^{N_d} \right] dx \int_{\frac{1}{A_d}} \int_{\mathcal{H}} \left[ \prod_{t=1}^T \prod_{w=1}^W \eta_{wt}^{C_{wt}^{WT} + \beta_w - 1} \right] d\mathcal{H} \\
 &\quad \int_{\Phi} \left[ \prod_{a=1}^A \prod_{t=1}^T \phi_{ta}^{C_{ta}^{TA} + \alpha_t^{(k)} - 1} \right] d\Phi \\
 &= \left[ \prod_{a=1}^A \prod_{t=1}^T \eta_{ta}^{C_{ta}^{TA}} \right] \left[ \prod_{d=1}^D \left( \frac{1}{A_d} \right)^{N_d+1} \right] \\
 &\quad \left[ \prod_{a=1}^A \frac{\prod_{t=1}^T \Gamma(C_{ta}^{TA} + \alpha_t^{(k)})}{\Gamma(\sum_{t'} C_{t'a}^{TA} + T\alpha^{(k)})} \right] \left[ \prod_{t=1}^T \frac{\prod_{w=1}^W \Gamma(C_{wt}^{WT} + \beta_w)}{\Gamma(\sum_{w'} C_{w't}^{WT} + W\beta)} \right]
 \end{aligned}$$

(3.5)

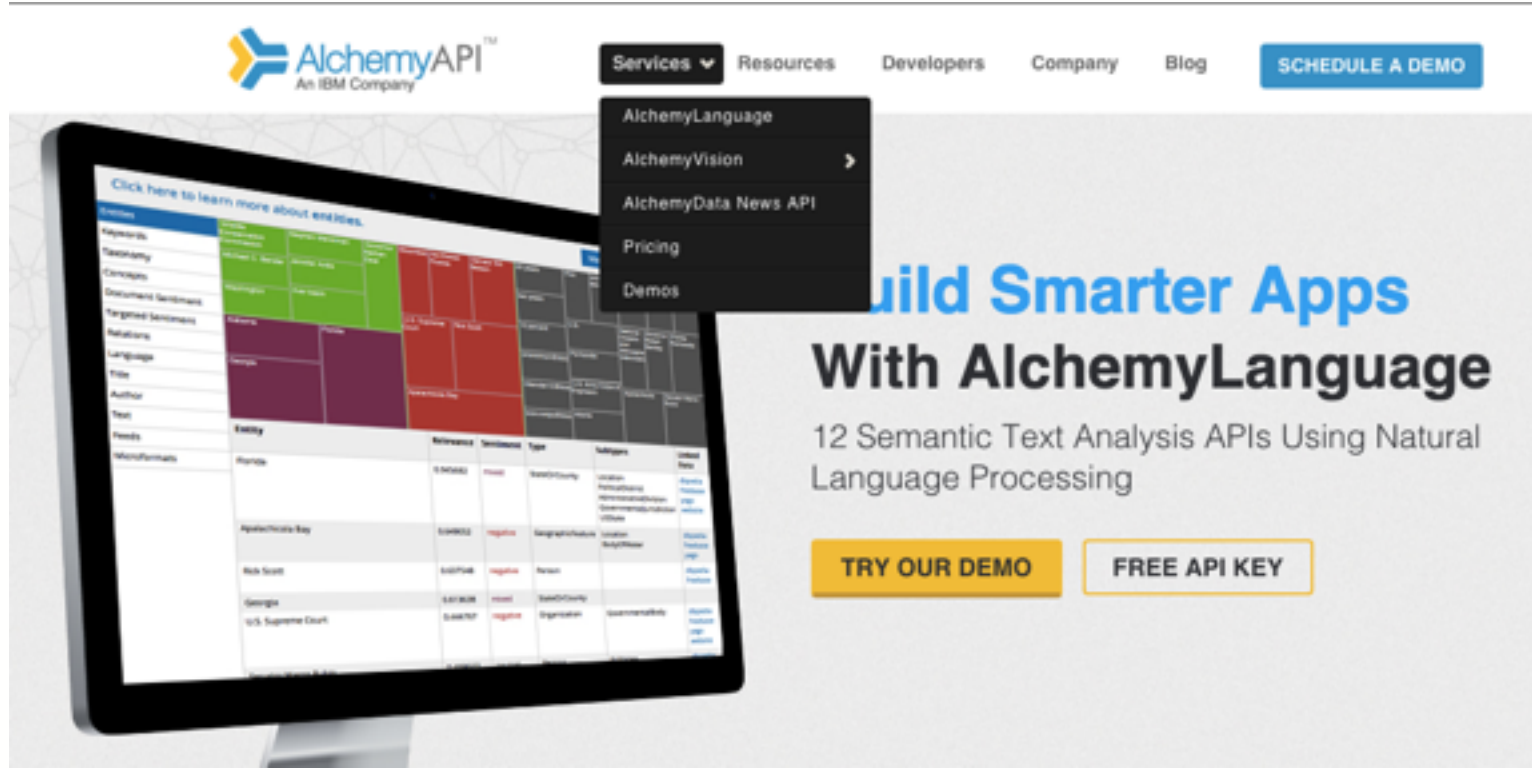


# 其他

1. Alchemyapi
2. Mashape

# AlchemyAPI

1. Language
2. Vision
3. News



The screenshot shows the AlchemyAPI website. At the top left is the AlchemyAPI logo with the tagline "An IBM Company". The navigation bar includes "Services" (with a dropdown menu), "Resources", "Developers", "Company", and "Blog". A blue button labeled "SCHEDULE A DEMO" is on the right. The "Services" dropdown menu is open, listing "AlchemyLanguage", "AlchemyVision", "AlchemyData News API", "Pricing", and "Demos". Below the navigation is a large graphic featuring a tablet displaying a data visualization interface. The interface has a sidebar with categories like "Keywords", "Classification", "Concepts", etc., and a main area with a grid of colored blocks. Below the grid is a table of entities.

Entity	Relevance	Sentiment	Type	Subtypes	Detail Page
Florida	0.94662	Positive	StateOrCounty	Location PoliticalParty GovernmentStructure GovernmentStructure USState	<a href="#">View Entity</a> <a href="#">View Page</a> <a href="#">View Page</a>
Apalachicola Bay	0.94662	Positive	GeographicFeature	Location GeographicFeature	<a href="#">View Entity</a> <a href="#">View Page</a> <a href="#">View Page</a>
Rob Scott	0.94662	Positive	Person		<a href="#">View Entity</a> <a href="#">View Page</a> <a href="#">View Page</a>
Georgia	0.94662	Positive	StateOrCounty		
U.S. Supreme Court	0.94662	Positive	Organization	GovernmentEntity	<a href="#">View Entity</a> <a href="#">View Page</a> <a href="#">View Page</a>

## Build Smarter Apps With AlchemyLanguage

12 Semantic Text Analysis APIs Using Natural Language Processing

[TRY OUR DEMO](#) [FREE API KEY](#)

# AlchemyAPI

LANGUAGE: English

One year ago, several hours before cities across the United States started their annual fireworks displays, a different type of fireworks were set off at the European Center for Nuclear Research (CERN) in Switzerland. At 9:00 a.m., physicists announced to the world that they had found something they had been searching for for nearly 50 years: the elusive Higgs boson. Today, on the anniversary of its discovery, are we any closer to figuring out what that particle's true identity is? The Higgs boson is popularly referred to as "the God particle," perhaps because of its role in giving other particles their mass. However, it's not the boson itself that gives mass. Back in 1964, Peter Higgs proposed a theory that described a universal field (similar to an electric or a magnetic field) that particles interacted with.

[Click here to learn more about taxonomies.](#)

Visual

JSON

API

Entities	Label	Score	Confident?
Keywords	/science/physics	0.724633	
<b>Taxonomy</b>	/technology and computing	0.0893303	no
Concepts	/science	0.0696474	no
Document Sentiment			
Targeted Sentiment			
Relations			
Language			
Title			
Author			
Text			
Feeds			
Microformats			

# AlchemyAPI

LANGUAGE: English

One year ago, several hours before cities across the United States started their annual fireworks displays, a different type of fireworks were set off at the European Center for Nuclear Research (CERN) in Switzerland. At 9:00 a.m., physicists announced to the world that they had found something they had been searching for for nearly 50 years: the elusive Higgs boson. Today, on the anniversary of its discovery, are we any closer to figuring out what that particle's true identity is? The Higgs boson is popularly referred to as "the God particle," perhaps because of its role in giving other particles their mass. However, it's not the boson itself that gives mass. Back in 1964, Peter Higgs proposed a theory that described a universal field (similar to an electric or a magnetic field) that particles interacted with.

[Click here to learn more about taxonomies.](#)

Visual

JSON

API

Entities	{
Keywords	"status": "OK",
Taxonomy	"usage": "By accessing AlchemyAPI or using information generated by AlchemyAPI, you are agreeing to be bound by the AlchemyAPI Terms of
Concepts	"totalTransactions": "1",
Document Sentiment	"language": "english",
Targeted Sentiment	"text": "One year ago, several hours before cities across the United States started their annual fireworks displays, a different type of fireworks we
Relations	"taxonomy": [
Language	{
Title	"label": "/science/physics",
Author	"score": "0.724633"
Text	},
Feeds	{
Microformats	"confident": "no",
	"label": "technology and computing",
	"score": "0.0893303"
	},
	{
	"confident": "no",
	"label": "science",
	"score": "0.0696474"
	}
	]
	}

# Mashape



Search for Marketplace APIs



PRODUCTS ▾

OPEN SOURCE ▾

BLOG

SUPPORT

## Powering API Driven Software

Industry Leading Developers & IT Teams across the world rely on Mashape products for delivering better APIs & Microservices

Products

Contact Us



HYATT

Virginia



TARGET

citibank








amazon

# Mashape

marketplace

Search APIs | Explore APIs | Docs | Features | Add Your API | Sign Up Free | Login

HIDE FILTERS | Sort By: Popular | Price Range: All

	<b>Topics Extraction</b> by MeaningCloud Topics Extraction tags locations, people, companies, dates and many other elements...	FREEMIUM	120 developers	133 followers	100% uptime	★
	<b>Topic Tagging</b> by twinword Automatically generate topics and keywords for articles and blogs.	FREEMIUM	53 developers	61 followers	100% uptime	★
	<b>Speech2Topics</b> by yactraq Yactraq Speech2Topics is a cloud service that converts audiovisual content into topic...	FREEMIUM	57 developers	60 followers	100% uptime	★
	<b>Ontology-Based Topic Detection</b> by Proxem A text analysis service to find out what any text is about by extracting the most...	FREEMIUM	16 developers	17 followers	100% uptime	★
	<b>newsinapp.io</b> by drano Newsinapp is an API which allows you to add relevant news from topics into your apps.	FREE	90 developers	89 followers	100% uptime	★
	<b>DuckDuckGo Zero-click Info</b> by duckduckgo DuckDuckGo Zero-click Info includes topic summaries, categories, disambiguation...	FREE	1986 developers	1579 followers	100% uptime	★
	<b>nlpTools</b> by atrila Text processing framework to analyse Natural Language. It is especially focused on...	FREEMIUM	78 developers	90 followers	100% uptime	★

CATEGORIES

- Tools
- Education
- Devices
- Finance
- Advertising
- Commerce
- Other
- Location
- Business
- Social
- Communication
- Entertainment
- Media
- Medical
- Sports
- Reward
- Data
- Travel





# 任务

1. 安装sublime text3
2. HTML基本标签
  - ([www.w3cschool.com](http://www.w3cschool.com))

# 下期预告

1. VPN, shadowsocks
2. 系统安装
3. 安全攻防