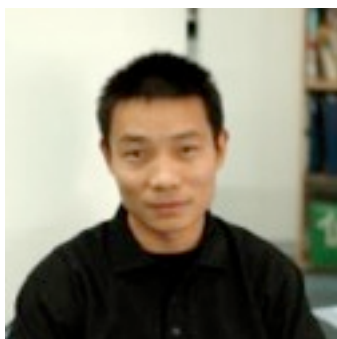


# HTML5 应用介绍



范永国

# 主讲简介

ideaTouch

创始人

方向：互联网移动、平板多点触控、WebApps

产品：跨媒体交互网络图书馆

eBaoTech  
*Innovative Solutions for Insurance*

寿险核心业务系统研发负责人



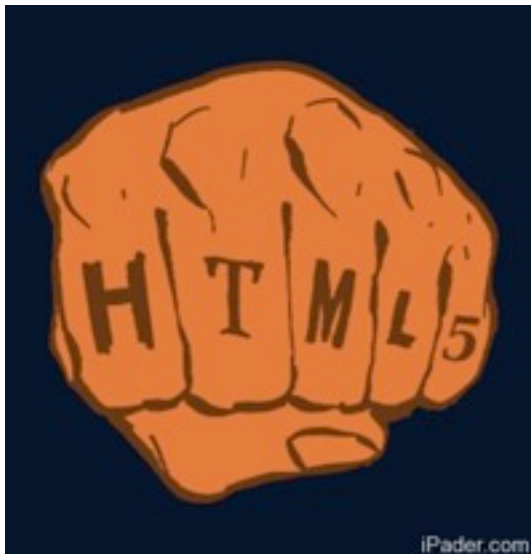
**Blogger**

面向下一代移动网络应用，HTML5及其相关新技术的评论博客

# 新一代应用



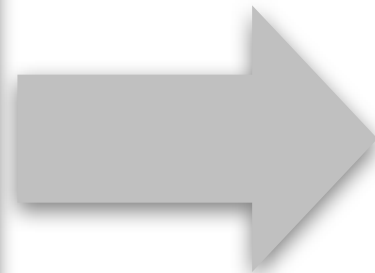
更友好、更安全、更智慧



# 为什么HTML5?

“它将弥补上一代 HTML 的不足，具体说，是实现 Flash, Silverlight, JavaFX 所能实现的功能。”

技术标准  
外围支持  
开发门槛  
开发人员



初具成熟  
全部就绪  
相对较低  
磨拳擦掌



HTML CSS3 Javascript Ajax



# Web技术回顾

年份	里程碑	备注
1991	HTML	非官方发布
1994	HTML 2	
1996	CSS + JavaScript	
1997	HTML 3.2	
1998	CSS2	
1999	HTML 4.01	10年生命力，发展几乎停滞了10年
2000	XHTML 1	特性与HTML 4一致，要求XML语法规则。视网页为文档
2001~	XHTML 2	兼容性原因，一直未被最终发布
2002	DIV+CSS	网页布局
2004	HTML (WHATWG)	Web Hypertext Applications Technology Working Group 浏览器厂商主导
2005	AJAX	
2007~2009	HTML 5 Draft	基于WHATWG成果
2010	HTML 5	主流浏览器广泛支持。崭新阶段，跨越式发展...

Web 1.0

Web 2.0

Web 3.0



能做什么？

怎么学？

哪些亮点？

代码模样？

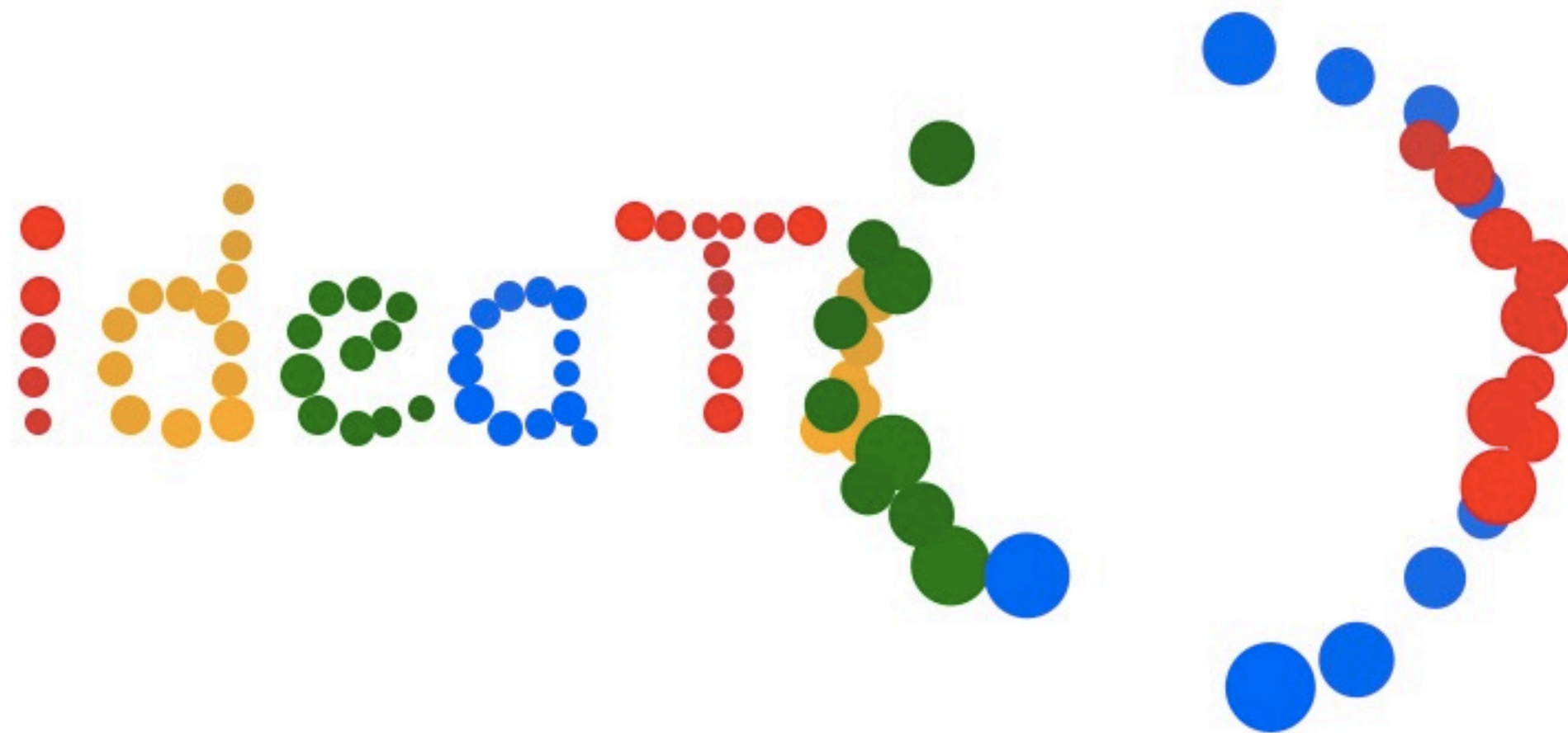
技术架构？

# 能做什么？

- 有趣小应用
  - [LOGO](#) [3DCube](#) [3DBox](#) [Blob](#) [PageFlip](#) [More...](#)
  - [Video](#) [CanvasI](#) [CanvasII](#) [Google](#) [Gravity](#)
- Timeline Reader
- Games
  - [黑帮战争](#)
  - [Pirates Love Daisies!](#)
- Gmail, Google Docs
- 网络图书馆

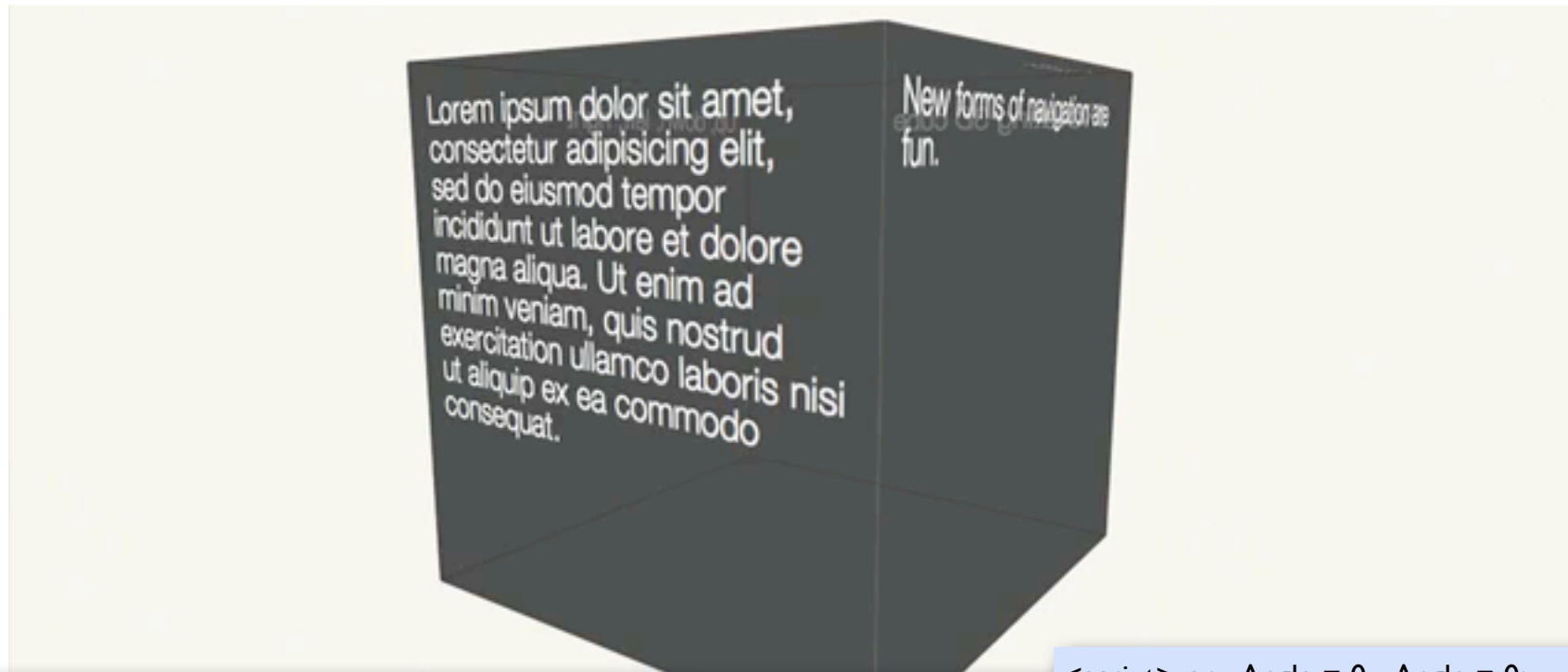
# 有趣的Logo

(Canvas)





# 操作自如的Cube



```
<div id="cube">
  <div class="face one">
    One face
  </div>
  <div class="face two">
    Up, down, left, right
  </div>
  <div class="face three">
    Lorem ipsum dolor sit amet, consectetur adipiscing elit,
    sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad
    minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea
    commodo consequat.
  </div>
  <div class="face four">
    New forms of navigation are fun.
  </div>
  <div class="face five">
    Rotating 3D cube
  </div>
  <div class="face six">
    
  </div>
</div>
```

```
<script>var xAngle = 0, yAngle = 0;
document.addEventListener('keydown', function(e)
{
  switch(e.keyCode)
  {
    case 37: // left
      yAngle -= 90;
      break;

    case 38: // up
      xAngle += 90;
      break;

    case 39: // right
      yAngle += 90;
      break;

    case 40: // down
      xAngle -= 90;
      break;
  };

  $('cube').style.webkitTransform = "rotateX("+xAngle+"deg)
  rotateY("+yAngle+"deg)";
}, false);</script>
```



# Video & Canvas

Click video to blow it up!

```
<div style="display:none">
  <video id="sourcevid" autoplay="true" loop="true">
    <source src="BigBuckBunny_640x360.mp4"
type="video/mp4"/>
    <source src="BigBuckBunny_640x360.ogv"
type="video/ogg"/>
  </video>
  <canvas id="sourcecopy" width="640" height="360"></
canvas>
</div>
....
function explode(x, y){
  for(var i=0; i<tiles.length; i++){
    var tile = tiles[i];

    var xdiff = tile.currentX-x;
    var ydiff = tile.currentY-y;
    var dist = Math.sqrt(xdiff*xdiff + ydiff*ydiff);

    var randRange = 220+(Math.random()*30);
    var range = randRange-dist;
    var force = 3*(range/randRange);
    if(force > tile.force){
      tile.force = force;
      var radians = Math.atan2(ydiff, xdiff);
      tile.moveX = Math.cos(radians);
      tile.moveY = Math.sin(radians);
      tile.moveRotation = 0.5-Math.random();
    }
  }
  tiles.sort(zindexSort);
  processFrame();
}
....
```

# 美联社时间轴网站应用

AP Associated Press

View Queue

- ☒ Entertainment 9
- ☐ Sports off
- ☒ U.S. News 9
- ☒ World 7
- ☒ Wacky 6
- ☐ Technology off
- ☒ Travel 7
- ☒ Health 7
- ☐ Science off
- ☐ Politics off

Lawyer: Man in Mass. pizza prank agrees to pay up 9:33 PM

Vermont gov gives press 1 last dog and pony show 5:35 AM

Boston hospital made 3 spine operation errors 11:12 PM

RI Police: Santa didn't rob bar; bartender charged 8:35 PM

Purse from Fla. school board shooting sold on eBay 2:12 AM

Guinea's president names new prime minister 7:48 PM

Angolan rights activists freed, colleague says 7:07 PM

Angolan rights activists freed, colleague says 8:04 PM

Official says at least 11 people are killed in Christmas eve blasts in central Nigeria 3:45 PM

Voodoo killings reportedly rise in Haiti epidemic 4:26 AM

With law hazy, defiant LA pot clinics open again 1:30 AM

Jimmy Carter vs. guinea worm: Sudan is last battle 11:40 PM

Britain's queen delivers annual Christmas message 11:39 PM

Police clash with protesters in Tunisia 8:48 PM

Biologists head to bunkers to fight bat disease 3

NYC subway service ads replace poetry, literature 2

Nigeria: At least 38 killed in Xmas Eve attacks 12

**23** THURSDAY December

**24** FRIDAY December

**25** SATURDAY December

**26** SUNDAY December



# 图书馆应用演示 (PC版)



## 第1节：序言(1)

### 序言

有句话说的好，一旦学生准备好了，老师自然就出现了。

如果你正在阅读这本书，那么显然你已经为你自己的发展进阶做好了准备，你已经开始准备有意地创造和接收更多你想要的东西。这就是吸引力法则了。通过自觉地，有意识地运用吸引力法则，你可以更轻松地创造你真正想要的人生，享有更多的快乐。

现在很多人将吸引力法则作为一个“秘密”，事实上，吸引力法则既不是一个新概念，也不是一个新发现。它已经存在了几千年，帮助人类度过了一个又一个困境，而我传授这个法则也有三十多年了。随着DVD电影《秘密》的发行和放映，电影中的许多导师（包括我自己）被欧普拉（Oprah）、赖利金现场（Larry King Live），今日秀（The Today Show），蒙特尔秀（Montel），艾伦·德杰尼勒斯秀（The Ellen Degeneres Show），“夜线”（Nightline）等报导出来，现在，关注和运用吸引力法则已经变成主流文化的一部分。

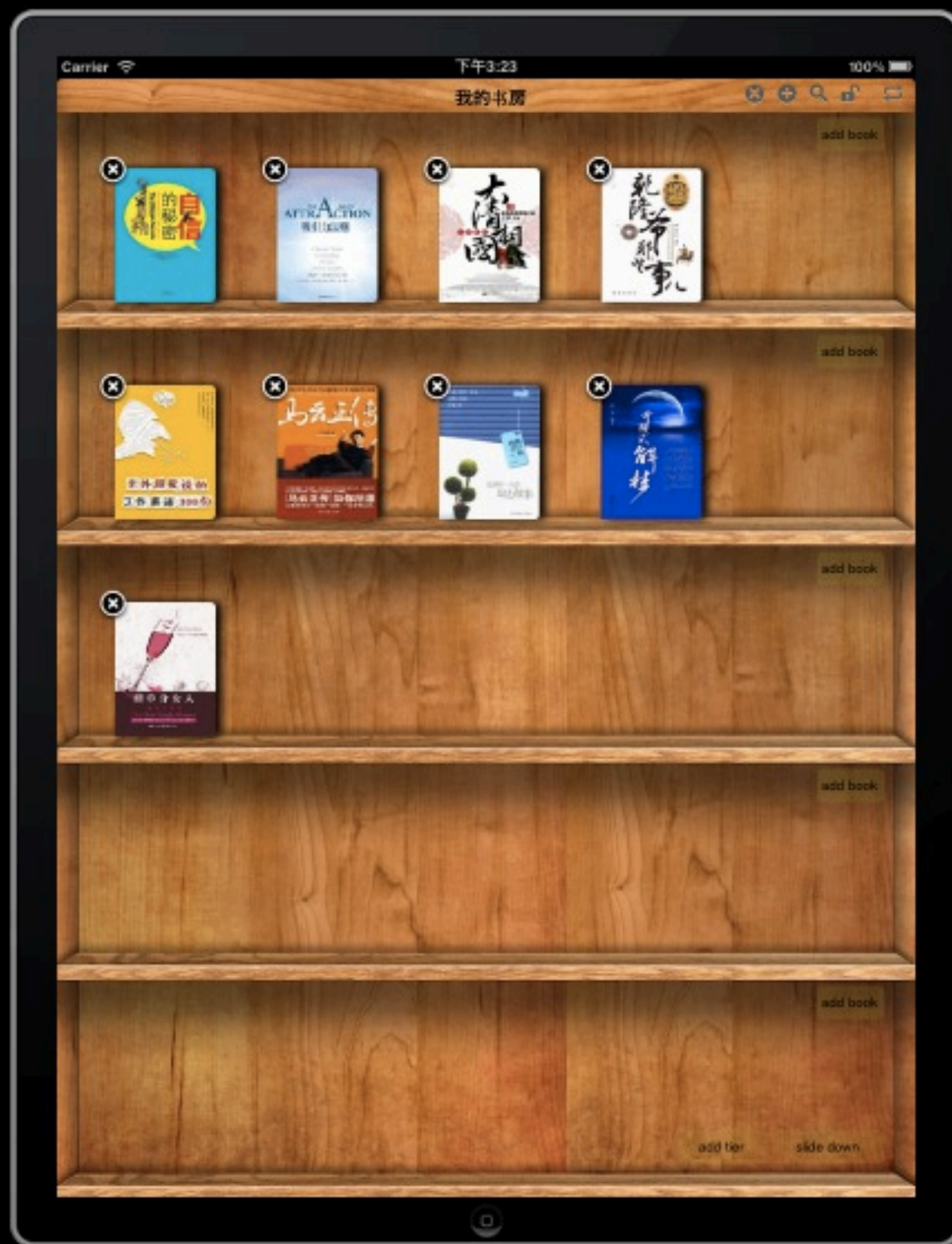
知道吸引力法则之后，你最终会明白，是你自己创造了你的生活，你得为自己在这个世界的生存状态负全部责任。如果你希望外在世界发生变化，首先你必须乐于让自己的内心作出必要改变。而一旦你的内心改变了，这种变化就会散发在空气里，飞舞在电波中，整个宇宙都会接到你的讯号。

我们心中似乎都有一个共同的渴望：回归到一个更简单、更快乐的地方和时代；并且我们也知道，我们的内心世界远比我们外在经历的人生要丰富得多。请相信，获得更美好的现实是可能的，只要为此做好准备，我们渴望去理解彼此之间的联结，生活的目的，以及我们自己。作为一个人，我们常常自省：我们最看重的是什么？我们需要怎样的生活环境？我们在探寻怎样的深层意义？

我希望通过本书，以及你对吸引力法则的透彻理解，你也能获得对自己更清楚、更深刻的认识——一种“你真正是谁”和“你为什么在这里”的觉知。



# 图书馆应用演示 (iPad版)



# 图书馆应用演示 (iPhone版)





如果一种技术很有趣、又很实用？



创意无处不在



# 哪些亮点? (1/2)

- HTML5应用



标准：主流软件厂商全力推动



开放：源码开放，开发者资源共享更容易



方便：几乎等同于本地应用交互体验，但不用任何安装



安全：最大限度保护本地资源



有趣：闪客，趣味小游戏，3D互动，只要想得着

# 哪些亮点? (2/2)

- 主要特性



应用: Web Application (离线) + WebWorker



存储: LocalStorage + IndexedDB + FileReader



通讯: WebSocket + Geolocation (地理位置)



多媒体: Video/Audio + Canvas + Web GL(3D)



表单元素: email,url,password,search, date, tel etc.



# 应用

## ● 离线

- 保证离线状态下的Web应用正常使用
- 应用相关资源文件会被缓存至本地

离线应用支持步骤：

```
1. 设置一个配置文件 reader.manifest
CACHE MANIFEST
#JS files
lib/jquery/jquery-1.4.3.js
module/reader/reader.js
#CSS files
themes/reader/reader.css
#Image files
NETWORK:
# 不需缓存的动态网络资源
2. 应用入口html文件需要设置如下:
<html manifest="reader.manifest">
3. Apache .htaccess 加mimeType
AddType text/cache-manifest manifest
```

## ● 多任务

- 刷屏不影响待执行任务运行
- 窗口级任务管理

多任务步骤：

```
1. 窗口层级动态装载JS
importScripts("jquery-1.4.3.js");
2. 启动一个worker
var worker = new Worker('reader.js');
3. message事件监听
addEventListener("message", messageHandler, true);
4. 调度入口
document.getElementById("resourceButton").onclick = function() {
    worker.postMessage("loadResource");
}
5. 停止Worker
worker.terminate();
```



# 存储

- LocalStorage/SessionStorage

- SessionStorage: 用于运行时数据临时存储
- localStorage: 用于应用高速数据存取，加快运行速度

```
1. 对话级，浏览器关闭后不复存在
// save
sessionStorage['data'] = {"test": "sessionStorage"};
// get
var data = sessionStorage['data1']
2. 浏览器级，浏览器关闭后仍存在
// save
localStorage['data2'] = {"test": "localStorage"};
// get
var data = sessionStorage['data2']
```

- WebSQL

- 需要SQL数据库开发经验
- 该标准已被IndexedDB替代

```
function prepareDatabase(ready, error) {
    return openDatabase('documents', '1.0', 'Offline document
storage', 5*1024*1024, function (db) {
        db.changeVersion('', '1.0', function (t) {
            t.executeSql('CREATE TABLE docids (id, name)');
        }, error);
    });
}
db.readTransaction(function (t) {
    t.executeSql('SELECT title, author FROM docs WHERE id=?', [id],
function (t, data) {
    report(data.rows[0].title, data.rows[0].author);
});
});
```

- 文件API

- 获得本地文件句柄
- 在HTML5内自由读取文件内容

```
var file = document.getElementById('file').files[0];
var reader = new FileReader();
reader.readAsText(readFile, "UTF-16");
```



# 通讯

- WebSocket

- 即时通信
- 服务器推送服务

## WebSocket使用基本步骤

```
1. 建立连接
url = "ws://localhost:8080/echo";
w = new WebSocket(url);
2. open, message, close基本响应
w.onopen = function() {
    log("open");
    w.send("thank you for accepting this websocket request");
}
w.onmessage = function(e) { log(e.data); }
w.onclose = function(e) { log("closed"); }
3. 向已建立的socket通道发送信息
document.getElementById("sendButton").onclick = function() {
    w.send (document.getElementById("inputMessage").value);
}
```

- Geolocation

- Google Map最佳搭档
- 移动终端必选特性

## 位置定位基本示例 <http://html5demos.com/geo>

```
navigator.geolocation.getCurrentPosition(locateMap, errorHandle);
....
locateMap = function(position){
    var latlng = new google.maps.LatLng(position.coords.latitude, position.coords.longitude);
    var myOptions = {
        zoom: 15,
        center: latlng,
        mapTypeControl: false,
        navigationControlOptions:{
            style: google.maps.NavigationControlStyle.SMALL
        },
        mapTypeId: google.maps.MapTypeId.ROADMAP
    };
    var map = new google.maps.Map(document.getElementById("mapcanvas"), myOptions);
}
```

# 技术架构 (1/3)

## HTML5 Based Apps (HTML5 + CSS3 + Javascript)

- ▶ 交互体验
- ▶ 统一认证 (OAuth)
- ▶ 跨终端 (PC, iOS, Android and HTML5-based devices)
- ▶ 用户数据
- ▶ 智能搜索
- ▶ MVC = JS Objects + HTML5/CSS3 + Events

JSON/ATOM/RSS  
WebService  
etc..

## Cloud Services (Java, C#)

- ▶ 复杂计算 (Search, Rule/Calculation Engine)
- ▶ 安全服务
- ▶ 跨平台
- ▶ 数据中心
- ▶ 搜索推荐
- ▶ MVC = Objects + Remote Clients + ESB
- ▶ ...

# 架构案例 – 网络图书馆(2/3)

## Technical Features

Category	Feature	Remark
WebApp	HTML5, CSS3, Ajax, File Reader, SQLite	
	jQuery, JQueryMobile,	
	JSON/OPDS/Epub Standard	
	Touch Devices	
BackServices	Jackrabbit, Hibernate, Servlet	
	Word Converter, Epub Parser, PDF Parser	
	OAuth, Mail	
	JSON/OPDS/Epub Standard	

# 架构案例 – 网络图书馆(3/3)

## Web App vs. Back System

Feature	Item	Web App	Back System
Non-Functional	Object Model	√ (Json)	√ (Hibernate)
	Persistence (Database)	√ (SQLite)	√ (Mysql)
	Independent Application/Services	√	√
Functional	User Interaction	√ (Bookshelf, Reader)	Open API
	Document Management	Partial (SQLite)	√ (Jackrabbit)
	Document Conversion	epub, html	epub, word, blog, pdf txt, html
	OPDS (开放的图书馆目录服务)	×	√
	Search (book, media, blog and internet resources)	User data Level	Internet Level
	User/Authorization Management	OAuth	√
	智能推荐	×	√
OS	OS	Windows, Mac OS, Android, iOS, HTML5 based OS	Unix, Linux, Windows, Mac OS
Hardware	Devices	PC, Android Mobile/Slate, iPhone/iPad, HTML5 based Devices	NA



# 技术框架 (2/2)

- 主流框架
  - jQuery, ExtJS, GWT, Prototype,
  - DWR
  - Dojo
  - Sprout Core (桌面应用)
- 移动框架
  - Sencha Touch, JQueryMobile, PhoneGap

# 示例

- Sample 1 - Elements
- Sample 2 - Form Elements
- Sample 3 - File API
- Sample 4 - Typical Programming
- 项目小技巧分享

# Sample I - Elements

```
<body>
  <header>
    <hgroup>
      <h1>Page title</h1>
      <h2>Page subtitle</h2>
    </hgroup>
  </header>

  <nav>
    <ul>
      Navigation...
    </ul>
  </nav>

  ....

  <aside>
    Top links...
  </aside>

  <footer>
    Copyright © 2009.
  </footer>
</body>
```

```
<section>
  <article>
    <header>
      <h1>Title</h1>
    </header>
    <section>
      Content...
    </section>
  </article>


  <article>
    <header>
      <h1>Title</h1>
    </header>
    <section>
      Content...
    </section>
  </article>


</section>
```


# Sample 2 - Form Elements(1/2)

## 增强已有元素

### UI方面:


`<input type='range' min='0' max='50' value='0' />` 


`<input results='10' type='search' />` 

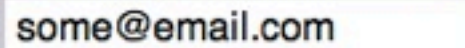
`<input type='text' placeholder='Search inside' />` 

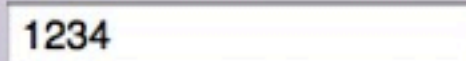
输入检查:(不符合条件的将显示红色背景)

`<style> :invalid { background-color: red; } </style>`

`<input type='color' />` 

`<input type='number' />` 

`<input type='email' />` 

`<input type='tel' />` 

etc...

## 新增的元素

`<meter>`

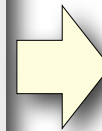
`<progress>`

`<output>`

etc...

# Sample 2 - Form Elements(2/2)

```
<html>
  <head>
    <style>
....
    <style>
  <head>
  <body>
    <form action='/register' enctype="application/x-www-form+xml"
method="post">
      <p> <label for='name'>ID(请使用Email注册)<label>
        <input name='name' required type='email'><input> </p>
      <p> <label for='password'>密码<label>
        <input name='password' required type='password'><input> </p>
      <p> <label for='birthday'>出生日期<label>
        <input type='date' name='birthday' /> </p>
      <p> <label for='gender'>国籍<label>
        <select name='country' data='countries.xml'><select> </p>
      <p> <label for='photo'>个性头像<label>
        <input type='file' name='photo' accept='image/*' /> </p>
      <table>
        <thead>
          <td><button type="add" template="questionId">+<button> 保密
问题<td>
          <td>答案<td>
          <td><td>
        <thead>
        <tr id="questionId" repeat="template" repeat-start="1" repeat-
min="1" repeat-max="3">
          <td><input type="text" name="questions[questionId].q"><td>
<td><input type="text" name="questions[questionId].a"><td>
<td><button type="remove">删除<button><td>
          <tr>
        <table>
        <p> <input type='submit' value='send' class='submit' /> <p>
    </form>
  </body>
</html>
```



ID(请使用Email注册)

密码

出生日期

国籍

个性头像

+ 保密问题	答案	
我的小学班主任	李明	<input type="button" value="删除"/>
<input type="text"/>	<input type="text"/>	<input type="button" value="删除"/>

# Sample 3 - File API

```
....
<td align="left" height="105" ondragenter="return false" ondragover="return false" ondrop="dropIt(event)">
  <output id="thumbs"></output>
</td>
....
<input type="file" id="input" size="10" multiple="true" onchange="imagesSelected(this.files)" />
....
function imagesSelected(myFiles) {
  for (var i = 0, f; f = myFiles[i]; i++) {
    var imageReader = new FileReader();
    imageReader.onload = (function(aFile) {
      return function(e) {
        var span = document.createElement('span');
        span.innerHTML = [''].join("");
        document.getElementById('thumbs').insertBefore(span, null);
      };
    })(f);
    imageReader.readAsDataURL(f);
  }
}
function dropIt(e) {
  imagesSelected(e.dataTransfer.files);
  e.stopPropagation();
  e.preventDefault();
}
.....
```



# Typical Programming

```
Reader = function(resource){
    this.resource = resource;
};
Reader.prototype = {
    resource : {},
    view: {},
    toolbar : {},
    display : function(){
        this.constructView();
        this.bindEvents();
        $(document.body).append(this.view).show();
    },
    bindEvents : function(){
        var reader = this;
        this.view.bind({
            click:function(e){...},
            tap:function(e){...},
        });
        this.toolbar.bind({
            click:function(e){ reader.handleToolbar(e);}
        });
    },
    handleToolbar : function(e){
        if(e.currentTarget.getAttribute('data-action') == 'showNote'){
            this.loadNotes(function(){
                this.showNotes(notes)
            });
        },
    },
    constructView : function(){
        this.constructToolbar();
        this.constructSearchView();
        this.constructContentView();
        this.loadNotes(function(notes){
            reader.constructNotes(notes);
        });
    },
    loadNotes : function(callback){
        db.transaction(function(tx){
            var sql = "SELECT * FROM T_NOTES WHERE resourceId = ?";
            tx.executeSql(sql, [ resourceId ], function(tx, result) {
                callback(result.rows.item(i));
            }, function(tx, error) {
                console.log("Failed to load book notes from local database - " + error.message);
            });
        });
    },
    ...
};
```

```
<!DOCTYPE HTML>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=utf-8"/>
        <title>Reader</title>
        <link rel='stylesheet' type='text/css' media='screen' href='reader.css'/>
        <script type="text/javascript" src="jQuery.js" ></script>
        <script type="text/javascript" src="reader.js" ></script>
        <script language="javascript">
            $(document).ready(function(){
                openDatabase();
                var loadResource = function(callback){
                    var localData = localStorage["resource"];
                    if(!localData){
                        $.get(url, function(data){
                            localStorage.resource = data;
                            callback(data);
                        },function(){alert("error")});
                    }else{
                        callback(localData);
                    }
                };
                loadResource(function(data){
                    var reader = new Reader(JSON.parse(data));
                    reader.display();
                });
            });
        </script>
    </head>
    <body></body>
</html>
```

JSON  
Database (WebSQL)  
LocalStorage  
Ajax  
jQuery  
Callback

# 小技巧 分享

```
....
// 获取压缩文件内容
this.archive = new Zip.Archive(source);
file = this.archive.files[filePath].content();
....

// 传文件处理，在回调函数中传入当前文件的二进制流
handleFileDrop: function(callback){
    var selfRef = this;
    event.stopPropagation();
    event.preventDefault();
    var eventTarget = event.target;
    var eventTarget = tierIdentifier = $(eventTarget).attr("data-identifier");
    var fileList = event.dataTransfer.files;
    for(var i=0;i<fileList.length;i++){
        var file = fileList[i];//取得file对象
        var fileName = file.name;//文件名
        var contentType = fileName.substr(fileName.lastIndexOf('.') + 1);//后缀名
        var textContent = event.target.textContent;
        if('epub' === contentType || 'doc' === contentType || 'rtf' === contentType || 'pdf'
=== contentType || 'txt' === contentType || 'docx' === contentType){//合法的文件名
            var reader = new FileReader();
            reader.readAsBinaryString(file);//按二进制方式取得文件内容
            reader.onload = function(){
                var binaryStream = reader.result;//二进制的文件内容
                selfRef.binaryStream = binaryStream;
                selfRef.fileName = fileName;
                callback(selfRef);
            };
        } else{//非法的文件格式
            alert("\\" + contentType + "\" is not the format we support now!");
            return false;
        }
    }
},
....
// 网络二进制资源读取
handleUrlRead : function(url) {
    this.linkUrl = url;
    this.fileName = url.substring(url.lastIndexOf("/") + 1);
    var epubFile = new BinFileReader(url);
    this.binaryStream = epubFile.readString(epubFile.getFileSize(),0);
},
```



# 怎么学？

- 实用资源
  - [HTML5演示教程](#)
  - [HTML5开发可能用到的工具](#)
- W3C
  - [HTML5](#) [WebStorage](#) [IndexedDB](#) [FileAPI](#) [Canvas 2D](#) [WebSocket](#) [WebSQL](#) [Geolocation](#)
- 博客推荐:
  - [Robert's talk](#)
  - [NTT.CC](#)
- 好书推荐
  - Pro HTML5 Programming (Peter Lubbers, Brian Albers and Frank Salim)
- 好文推荐
  - [Design of HTML5 \(译文\)](#)
  - [20 Things I learned about Browser and Web Content \(译文\)](#)
  - [《Thoughts on Flash》 \(译文\)](#)
  - [HTML5不只会“干掉Flash”](#)



Thank  
You

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