

# Tourism Destination Websites

---

Matt Crawford, Viet Doan, Aki Nicholakos, Robert Rizzo, Jackson Salopek

Course: CS 4624 Multimedia/Hypertext/Information Access, Dr. Edward A. Fox  
Virginia Tech, Blacksburg VA 24061, 5/01/2019

# Outline

- I. Project Background
- II. Initial Implementation
- III. Setbacks and Project Review
- IV. Project after Review
- V. Lessons Learned
- VI. Future Work

# Background



# Overview

## Goal:

Provide decision makers at tourism destinations with information about past trends to potentially determine the future direction of destination online marketing.

## Given:

List of DMO websites from each state and Washington DC

## Deliver:

A matrix for each month dating back to 1996 for cross-referencing DMO websites that month and their outbound links

A dictionary structure with historical structural data on the DMO websites dating back to 1996

MAGAZINE

RESERVATIONS

THE COLLEGES

CAMPUS CALENDAR

GETTING THERE

LOCAL EVENTS

CONTACT US

Online Assistance for the College-Bound & Philadelphia-Bound

It seems wherever you turn in this town, there's  
a great college. Or at least a college student.

With more than 50 colleges and 220,000 students, Philadelphia  
is just

**one big campus**

Now, how can we help you?

Whether you want more information on the area's top colleges  
or you're planning to visit one soon,  
you've arrived at the right place.

Philadelphia is one campus you'll never outgrow.

*Fly Free*

*Request a Viewbook*

*Travel Desk Updates*

*Receive our Magazine*

*Recommended Links*

SEARCH

Also visit our presenting sponsors



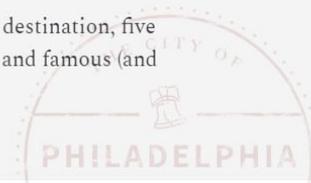
SAVE 5% when you fly

2001

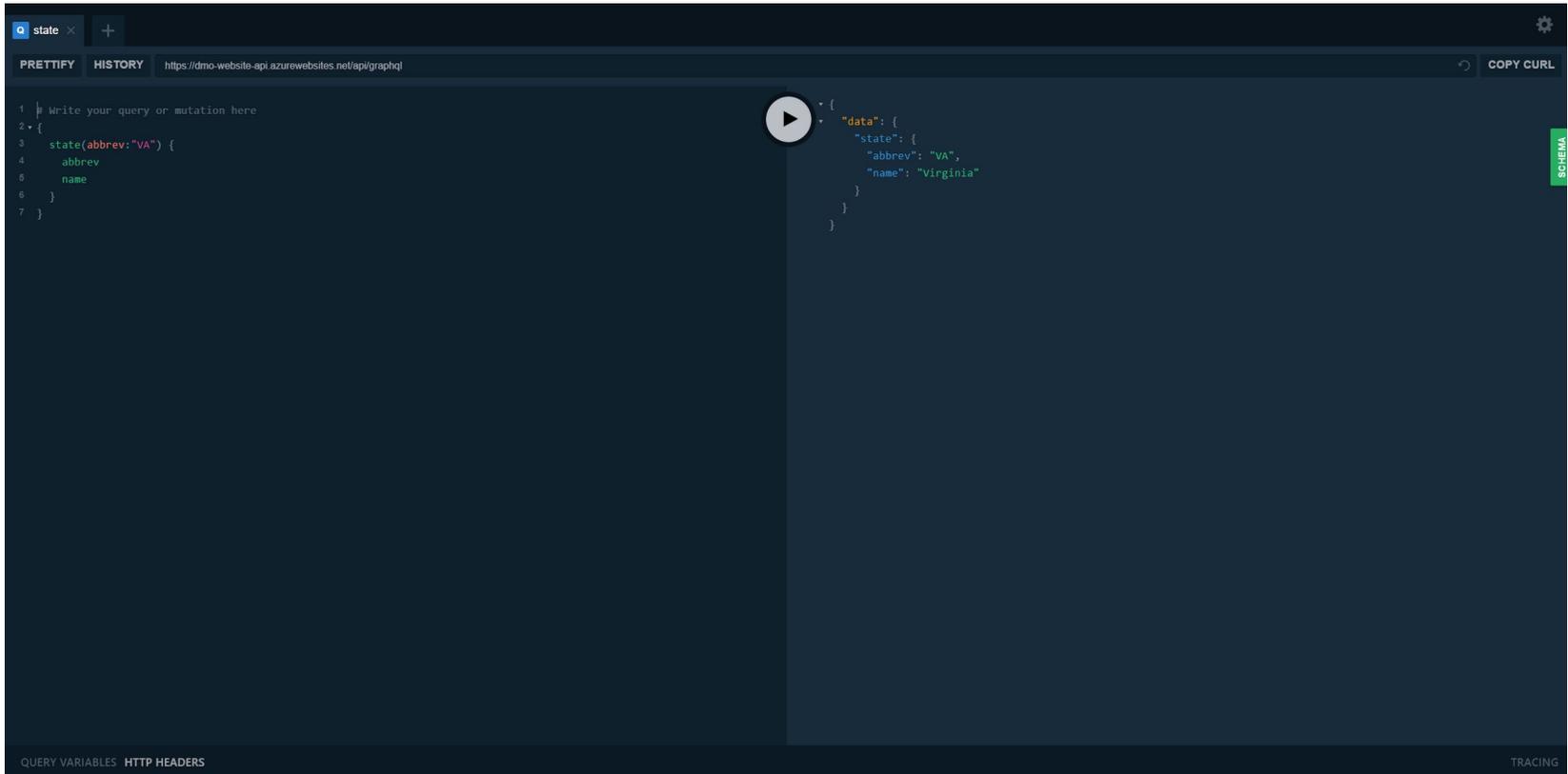


## EXPLORE PHILADELPHIA AND THE COUNTRYSIDE

Famous as the birthplace of life, liberty and the pursuit of happiness, Philadelphia delivers one destination, five counties and countless things to do: fascinating museums, vibrant parks, national historic sites and famous (and delicious) food. Yo, welcome to Philly!



# Initial Implementation



The screenshot shows a GraphQL IDE interface with a dark theme. At the top, there is a tab labeled 'state' and a URL 'https://dmo-website-api.azurewebsites.net/api/graphql'. The interface is divided into two main sections: a query editor on the left and a response viewer on the right. A play button is positioned between them.

**Query Editor (Left):**

```
1 | Write your query or mutation here
2 | {
3 |   state(abbrev: "VA") {
4 |     abbrev
5 |     name
6 |   }
7 | }
```

**Response Viewer (Right):**

```
{
  "data": {
    "state": {
      "abbrev": "VA",
      "name": "Virginia"
    }
  }
}
```

At the bottom of the IDE, there are tabs for 'QUERY VARIABLES', 'HTTP HEADERS', and 'TRACING'. A vertical 'SCHEMA' tab is visible on the right edge.

# Initial Implementation

VIRGINIA TECH | DMO Website History

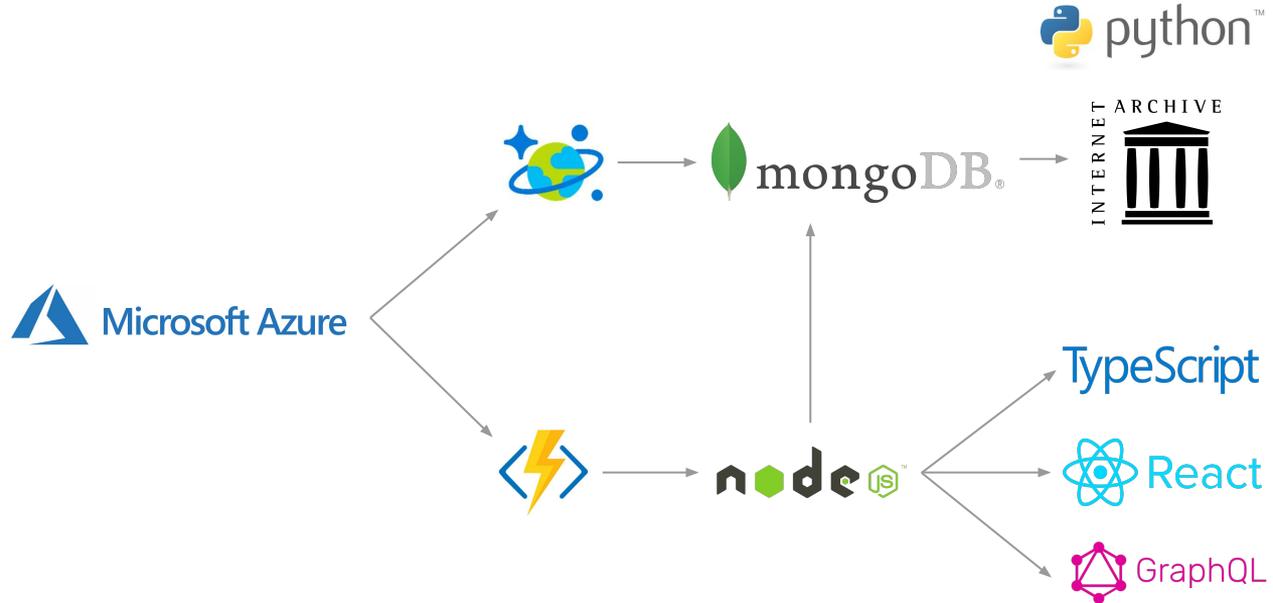
Home About Visualizations

## Understanding the Development of US Tourism Websites

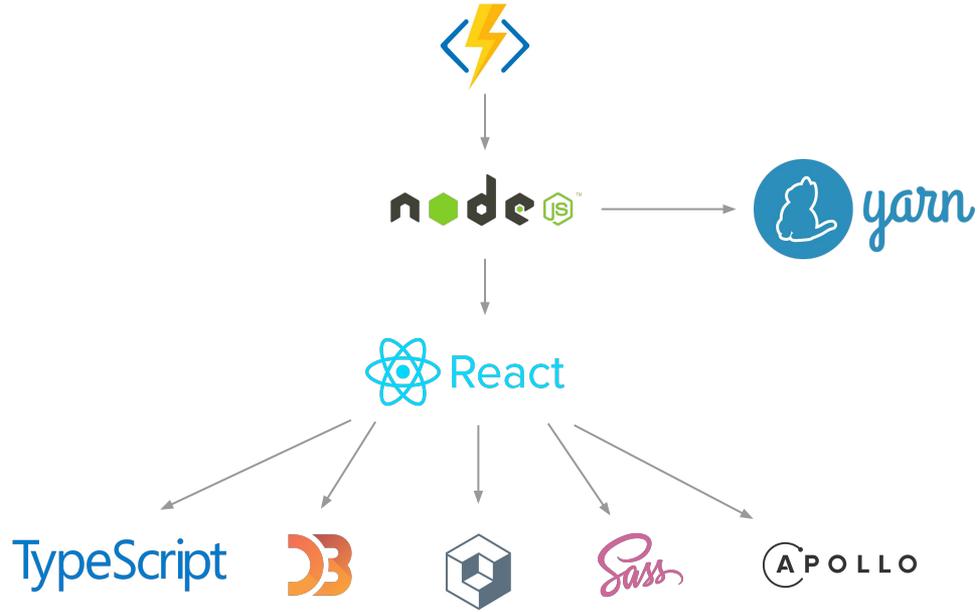


The image shows a screenshot of a web application interface. At the top left, there is a logo for 'VIRGINIA TECH' and the text 'DMO Website History'. At the top right, there are navigation links: 'Home', 'About', and 'Visualizations'. The main content area features a title 'Understanding the Development of US Tourism Websites' and a large, light green map of the United States with state boundaries outlined. The map is centered on the page.

# Tech Stack



# Front-End Tech Stack



# Setbacks and Project Review

1. Desired product too expensive
2. Scope of project too large for one semester of work
1. Abandon website
2. Downsize scope of data to manageable size
3. Visualizations are stretch goals, no longer requirements

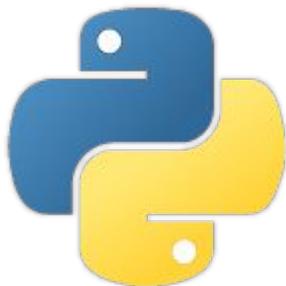
# Project After Review

## Matrices:

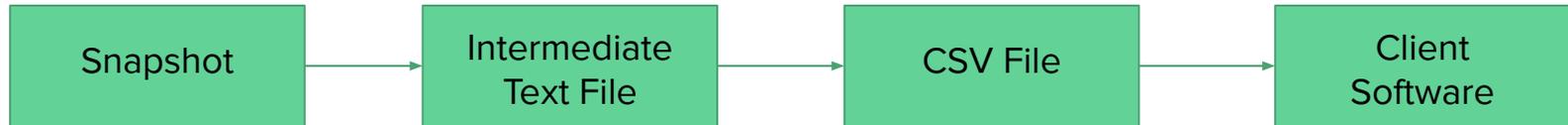
A matrix for each month dating back to 1996 for cross-referencing DMO websites that month and their outbound links

## Dictionary:

A dictionary structure with historical structural data on the DMO websites dating back to 1996



# Matrices



# Snapshot

```
</div> <div class="group-image-info field-group-div">
<article class="node node-author view-mode-brand_channel clearfix node-73184" about="/pagosa-springs-channel" typeof="sioc:Item foaf:Document">
  <header>
    <h2><a href="/pagosa-springs-channel">Pagosa Springs</a></h2>
    <span property="dc:title" content="Pagosa Springs" class="rdf-meta element-hidden"></span>
  </header>
  <div class="group-full-author-block field-group-div">
  <div class="field field-name-field-author-icon field-type-image field-label-hidden">
    <a href="/pagosa-springs-channel"></a> </div>
</div>
</article>
<div class="field field-name-title-field field-type-text field-label-hidden">
<h2><a href="/articles/chimney-rock-national-monument-view-ancient-world">Chimney Rock National Monument</a></h2>
</div>
<div class="field field-name-body field-type-text-with-summary field-label-hidden">
<p>Glimpse into the ancient past at this off-the-beaten-path gem just 20 miles from Pagosa Springs.<a href="/articles/chimney-rock-national-monument-view-ancient-world" class="more-link"> Read more</a></p>
</div>
</div></div>
</article>
<article class="node node-video node-promoted view-mode-brand_channel clearfix node-304891" about="/videos/best-boulder" typeof="sioc:Item foaf:Document">
  <header>
    <h2><a href="/videos/best-boulder">The Best of Boulder</a></h2>
    <span property="dc:title" content="The Best of Boulder" class="rdf-meta element-hidden"></span>
  </header>
  <div class="group-widget-wrapper field-group-div">
  <div class="field field-name-field-video-image field-type-image field-label-hidden">
    <a href="/videos/best-boulder"></a> </div>
  <div class="group-image-info field-group-div"><div class="author logo"><a href="/node/304241" title="Visit Boulder"></a></div><h2><a href="/node/304241" title="Visit Boulder">Visit Boulder</a></h2><div class="field field-name-title-field field-type-text field-label-hidden"><div class="field-items"><div class="field-item even"><h2><a href="/videos/best-boulder">The Best of Boulder</a></h2>
</div></div></div><div class="field field-name-body field-type-text-with-summary field-label-hidden"><div class="field-items"><div class="field-item even" property="content:encoded">Awe-inspiring views and amazing eats are just the beginning.<a href="/videos/best-boulder" class="more-link"> Read more</a></div></div></div></div></div>
```





# Client Software

201903	State	<a href="#">facebook.com</a>	<a href="#">twitter.com</a>	<a href="#">instagram.com</a>	<a href="#">youtube.com</a>	<a href="#">pinterest.com</a>	<a href="#">alabama200.org</a>	<a href="#">visittheusa.com</a>	<a href="#">cdnjs.cloudflare.com</a>	<a href="#">flickr.com</a>	<a href="#">foursquare.com</a>	<a href="#">visitcolorado.tum</a>	<a href="#">fonts.googleapis</a>
<a href="#">www.alabama.tre</a>	Alabama	1	1	1	1	1	1	1	0	0	0	0	0
<a href="#">www.colorado.co</a>	Colorado	1	1	1	1	1	0	1	1	1	1	1	0
<a href="#">www.ctvisit.com</a>	Connecticut	2	2	2	2	2	0	0	0	0	0	0	1
<a href="#">www.discoverso</a>	South Carolina	2	2	2	2	2	0	1	0	0	0	0	0
<a href="#">www.experience</a>	Washington	5	5	0	0	0	0	1	0	2	0	0	1
<a href="#">www.exploregea</a>	Georgia	1	1	1	1	1	0	1	0	0	0	0	0
<a href="#">www.gohawaii.c</a>	Hawaii	2	2	0	1	0	0	0	1	0	0	0	1
<a href="#">www.louisiana</a>	Louisiana	3	3	3	3	3	0	0	1	3	0	0	0
<a href="#">www.michigan.o</a>	Michigan	1	1	1	1	1	0	0	1	1	0	0	0
<a href="#">www.newmexico</a>	New Mexico	1	1	1	3	1	0	0	0	0	0	0	0
<a href="#">www.tnyacation</a>	Tennessee	1	1	1	1	1	0	1	0	0	0	0	0
<a href="#">www.traveloreg</a>	Oregon	1	1	1	1	1	0	0	0	0	0	0	0
<a href="#">www.travelwyom</a>	Wyoming	1	1	1	1	1	0	0	1	0	0	0	2
<a href="#">www.visitcalfor</a>	California	0	0	0	0	0	0	1	0	0	0	0	0
<a href="#">www.visitdelawa</a>	Delaware	2	2	2	2	2	0	0	0	0	0	0	0
<a href="#">www.visitidaho</a>	Idaho	1	1	2	1	1	0	1	0	0	0	0	0
<a href="#">www.visitmaryla</a>	Maryland	3	3	4	3	3	0	1	0	0	0	0	0
<a href="#">www.visitmo.com</a>	Missouri	1	1	1	1	1	0	0	0	0	0	0	0
<a href="#">www.visitmt.com</a>	Montana	2	2	2	2	0	0	1	0	0	0	0	0
<a href="#">www.visitnc.com</a>	North Carolina	1	1	37	1	0	0	0	0	0	0	0	0
<a href="#">www.visitnj.org</a>	New Jersey	1	1	1	2	0	0	0	0	0	0	0	1
<a href="#">www.visitpa.com</a>	Pennsylvania	1	1	1	1	1	0	0	0	0	0	0	0
<a href="#">www.washington</a>	District of Colum	1	1	1	1	0	0	0	0	0	0	0	0
<a href="#">www.wvtourism.c</a>	West Virginia	1	1	1	1	0	0	1	1	0	0	0	0

# Dictionary

- Websites
  - Year
    - Month
      - State
        - Domain
          - Internal Links
          - External Links
          - Meta Tags
          - Text
          - Number of Images

# Lessons Learned

- Don't underestimate the learning curve of certain technologies
- Discover the exact format your data will be as early as possible
- When dealing with external organizations, take a lot of care

# Future Work

- Deploy website
- Create visualizations of the data
- Collect additional data
- Further refine parsing

# Acknowledgements

Florian Zach, PhD, <[florian@vt.edu](mailto:florian@vt.edu)>, Assistant Professor, Howard Feiertag Department of Hospitality and Tourism Management, Pamplin College of Business, Virginia Tech, Wallace Hall 362, Blacksburg VA 24061 USA

Zheng (Phil) Xiang, PhD, <[philxz@vt.edu](mailto:philxz@vt.edu)>, Associate Professor, Howard Feiertag Department of Hospitality and Tourism Management, Pamplin College of Business, Virginia Tech, Wallace Hall 353, Blacksburg VA 24061 USA

Edward A. Fox, PhD, <[fox@vt.edu](mailto:fox@vt.edu)>, Professor, Department of Computer Science, Virginia Tech, 114 McBryde Hall, Blacksburg VA 24061 USA

Jim Dickhans, <[jdickhans@vt.edu](mailto:jdickhans@vt.edu)>, Director of IT, Pamplin Office of Information Technology, Pamplin College of Business, Virginia Tech, Pamplin Hall 2004 B, Blacksburg VA 24061 USA

Questions?

---