

Only One Out of Five Archived Web Pages Existed as Presented

Scott G. Ainsworth, Michael L. Nelson, Herbert Van de Sompel
(Proceedings of Hypertext 2015)

CS895 - Web Archiving Forensics, Fall 2020

Old Dominion University

Department of Computer Science

Kritika Garg, kgarg001@odu.edu

Weather Underground: Varina, Iowa Forecast

https://web.archive.org/web/20041209190926/http://www.wunderground.com/cgi-bin/

Wayback Machine

21 captures
27 Oct 02 - 25 Jan 11

Find the weather for any City, State or ZIP Code, or Airport Code or Country

Link to Wunder Photos

Wunderground.com
PDA/Mobile

Member Benefits:
No Ads
Weather Email
\$5 a year
Signup Here

Email

Password

Login

Print This Page

Maps

Temperature

Heat Index

Windchill

Humidity

Radar

Dew Point

Wind

Visibility

Visible Satellite

Satellite

Fronts

Snow Depth

Jet Stream

Flight Rules

Health Maps

UV Forecast

Air Quality

Peak Air Quality

Index

International

United States

Features: Wunder Photos NEXRAD radar Regional Radar NEW Zoom Satellite Maps Trip Planner

Tropical / Hurricane Marine Severe Astronomy Ski Education Favorites Personal Weather Stations

Varina, Iowa

Local Time: 1:09 PM CST Set My Timezone Lat/Lon: 42.6° N 94.8° W | MSN Map

Current Conditions

Updated: 12:55 PM CST on December 09, 2004
Observed at Storm Lake, Iowa (History)
Elevation: 1486 ft / 453 m

41 °F / 5 °C
Light Drizzle
Windchill: 37 °F / 3 °C
Humidity: 100%
Dew Point: 41 °F / 5 °C
Wind: 6 mph / 9 km/h from the South
Pressure: 29.56 in / 1001 hPa
Visibility: 5.0 miles / 8.0 kilometers
UV: 1 out of 12
Clouds: Overcast 6500 ft / (AGL): 1981 m
[Show full METARS \(help\)](#)

Local Radar
Regional Radar
Local Satellite
Ski Conditions
Trip Planner
Personal Weather Stations

5-Day Forecast for ZIP Code 50593

| Thu | Fri | Sat | Sun | Mon |
|------------------------|------------------------|------------------------|------------------------|------------------------|
| | | | | |
| 43° 29° | 36° 22° | 47° 34° | 41° 15° | 31° 15° |
| Chance of Rain | Mostly Cloudy | Mostly Cloudy | Partly Cloudy | Partly Cloudy |
| Detail | Detail | Detail | Detail | Detail |

Click [Detail](#) for hourly wind, temperature, humidity and UV forecasts.

Alternate Computer Forecast: [AVN MOS Weather Graph](#) | [Local Allergy Info from Pollen.com](#)

Meet Locals
read their Hotel Tips and Travel Guides for Varina, IA

tripadvisor
Unbiased reviews and advice for Varina hotels and other cities

Find a Hotel in Varina
Hotels.com
Best Rates GUARANTEED
Discount Hotels

Wunder Photos

Show -Varina or -Iowa

Nowcast as of 11:42 am CST on December 9, 2004

Now
Dense fog will persist along and west of Highway 169 through the early afternoon. Locations from Algona to Estherville can expect visibilities to remain around a quarter mile or less with localized areas in low lying spots under one eighth of a mile.

Forecast for Pocahontas County

Updated: 11:20 am CST on December 9, 2004

No Active Advisories ([US Severe Weather](#))

This Afternoon
Cloudy with a chance of light rain showers. High in the

STATE FARM
INSURANCE
[Talk to State Farm agents near you:](#)

Conditions Nearby

| City | Temp | Conditions | Updated |
|-------|-------|------------|----------|
| Storm | 41 °F | Light | 12:55 PM |

Today's pollen report
Pollen.com

Figure 1: Wunderground Composite Memento, MementoDatetime 2004-12-09 19:09:26
<https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.711.77&rep=rep1&type=pdf>

Weather Underground: Varina, Iowa Forecast

https://web.archive.org/web/20041209190926/http://www.wunderground.com/cgi-bin/

Wayback Machine

21 captures
27 Oct 02 - 25 Jan 11

Find the weather for any City, State or ZIP Code, or Airport Code or Country

Link to Wunder Photos

Wunderground.com
PDA/Mobile

Member Benefits:
No Ads
Weather Email
\$5 a year
Sign Up Here

Email

Password

Login

Print This Page

Maps

Temperature

Heat Index

Windchill

Humidity

Radar

Dew Point

Wind

Visibility

Visible Satellite

Satellite

Fronts

Snow Depth

Jet Stream

Flight Rules

Health Maps

UV Forecast

Air Quality

Peak Air Quality

Index

International

United States

Features: Wunder Photos NEXRAD radar Regional Radar NEW Zoom Satellite Maps Trip Planner

Tropical / Hurricane Marine Severe Astronomy Ski Education Favorites Personal Weather Stations

Varina, Iowa

Local Time: 1:09 PM CST Set My Timezone Lat/Lon: 42.6° N 94.8° W | MSN Map

Current Conditions

Updated: 12:55 PM CST on December 09, 2004
Observed at Storm Lake, Iowa (History)
Elevation: 1486 ft / 453 m

 **41 °F / 5 °C**
Light Drizzle

Windchill: 37 °F / 3 °C
Humidity: 100%
Dew Point: 41 °F / 5 °C
Wind: 6 mph / 9 km/h from the South
Pressure: 29.56 in / 1001 hPa
Visibility: 5.0 miles / 8.0 kilometers
UV: 1 out of 12
Clouds: Overcast 6500 ft / (AGL): 1981 m



Local Radar
Regional Radar
Local Satellite
Ski Conditions
Trip Planner
Personal Weather Stations

Show full METARS (help)

Talk to State Farm agents near you:

5-Day Forecast for ZIP Code 50593

| Thu | Fri | Sat | Sun | Mon |
|--|---|---|---|---|
|  |  |  |  |  |
| 43° 29° | 36° 22° | 47° 34° | 41° 15° | 31° 15° |
| Chance of Rain | Mostly Cloudy | Mostly Cloudy | Partly Cloudy | Partly Cloudy |
| Detail | Detail | Detail | Detail | Detail |

Click [Detail](#) for hourly wind, temperature, humidity and UV forecasts.
Alternate Computer Forecast: [AVN MOS Weather Graph](#) | [Local Allergy Info](#) from [Pollen.com](#)

Most Local's

read their Hotel Tips and Travel Guides for Varina, IA

tripadvisor

Unbiased reviews and advice for Varina hotels and other cities

Find a Hotel in Varina

Hotels.com

Best Rates GUARANTEED Discount Hotels

Wunder Photos

Show Varina or Iowa

Today's pollen report

Pollen.com

Nowcast as of 11:42 am CST on December 9, 2004

Now
Dense fog will persist along and west of Highway 169 through the early afternoon. Locations from Algona to Estherville can expect visibilities to remain around a quarter mile or less with localized areas in low lying spots under one eighth of a mile.

Forecast for Pocahontas County

Updated: 11:20 am CST on December 9, 2004

No Active Advisories (US Severe Weather)

This Afternoon

Cloudy with a chance of light rain showers. High in the

Conditions Nearby

| City | Temp | Conditions | Updated |
|-------|-------|------------|----------|
| Storm | 41 °F | Light | 12:55 PM |

Figure 1: Wunderground Composite Memento, MementoDatetime 2004-12-09 19:09:26
<https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.711.77&rep=rep1&type=pdf>

Weather Underground: Varina, Iowa Forecast

Weather Underground: Varina, I...

https://web.archive.org/web/20041209190926/http://www.wunderground.com/cgi-bin/

Internet Archive Wayback Machine

21 captures 27 Oct 02 - 25 Jan 11

Find the weather for any City, State or ZIP Code, or Airport Code or Country

Link to Wunder Photos

missing

-15 hours

Member Benefits: No Ads Weather Email \$5 a year Signup Here

Email

Password

Login

Print This Page

Maps

Temperature

Heat Index

Windchill

Humidity

Radar

Dew Point

Wind

Visibility

Visible Satellite

Satellite

Fronts

Snow Depth

Jet Stream

Flight Rules

Health Maps

UV Forecast

Air Quality

Peak Air Quality Index

International

United States

Varina, Iowa

Add this page to your Favorites Weather Email

Local Time: 1:09 PM CST Set My Timezone Lat/Lon: 42.6° N 94.8° W | MSN Map

Current Conditions

Updated: 12:55 PM CST on December 09, 2004

Observed at Storm Lake, Iowa (History)

Elevation: 1486 ft / 453 m

41 °F / 5 °C

Light Drizzle

Windchill: 37 °F / 3 °C

Humidity: 100%

Dew Point: 41 °F / 5 °C

Wind: 6 mph / 9 km/h from the South

Pressure: 29.56 in / 1001 hPa

Visibility: 5.0 miles / 8.0 kilometers

UV: 1 out of 12

Clouds: Overcast 6500 ft / 1981 m

AGL: 1981 m

Show full METARS (help)

Local Satellite

Ski Conditions

Trip Planner

Personal Weather Stations

5-Day Forecast for ZIP Code 50593

| Thu | Fri | Sat | Sun | Mon |
|------------------------|------------------------|------------------------|------------------------|------------------------|
| 43° 29° | 36° 29° | 36° 29° | 15° 15° | 31° 15° |
| Chance of Rain | Mostly Cloudy | Mostly Cloudy | Cloudy | Partly Cloudy |
| Detail | Detail | Detail | Detail | Detail |

Click [Detail](#) for hourly wind, temperature, humidity and UV forecasts.

Alternate Computer Forecast: [AVN MOS Weather Graph](#) | [Local Allergy Info](#) from [Pollen.com](#)

Meet Locals

read their Hotel Tips and Travel Guides for Varina, IA

tripadvisor

Unbiased reviews and advice for Varina hotels and other places

Find a Hotel in Varina

Hotels.com

Unbiased reviews and advice for Varina hotels and other places

Best Rates GUARANTEED

Wunder Photos

Nowcast as of 11:42 am CST

Now

Dense fog will persist along and west of Highway 169 through the early afternoon. Locations from Algona to Estherville can expect visibilities to remain around a quarter mile or less with localized areas in low lying spots under one eighth of a mile.

Forecast for Pocahontas County

Updated: 11:20 am CST on December 9, 2004

No Active Advisories (US Severe Weather)

This Afternoon

Cloudy with a chance of light rain showers. High in the

Today's pollen report

Pollen.com

+9 months

+9 hours

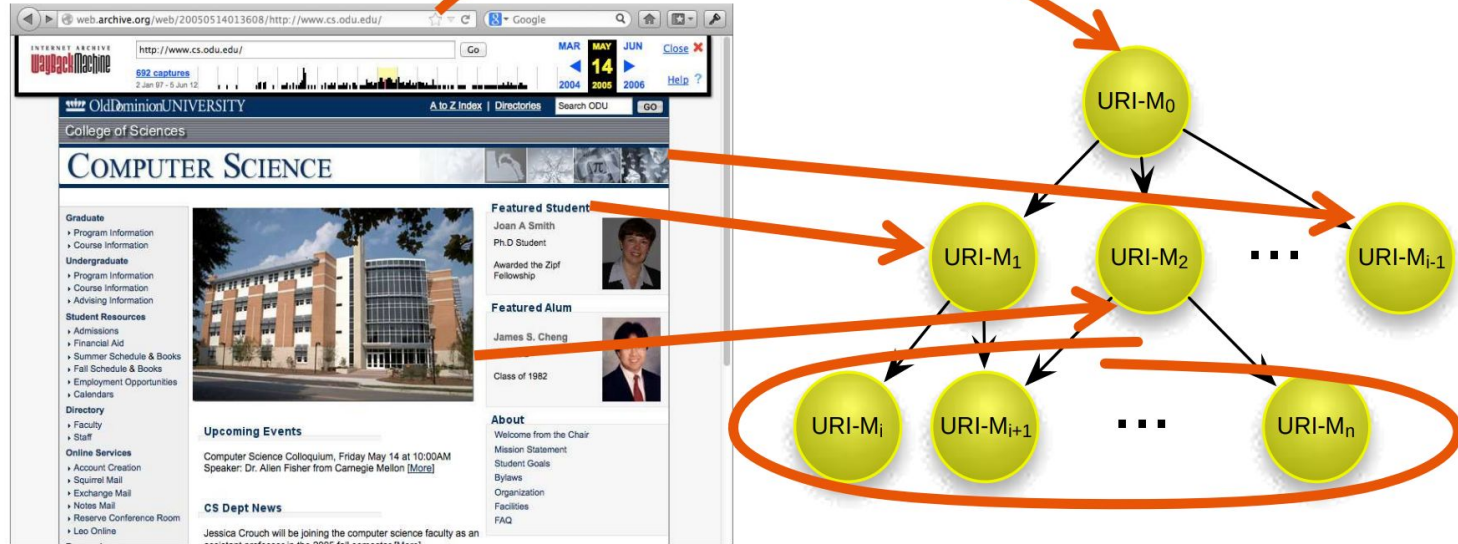
-20 days

-17 days

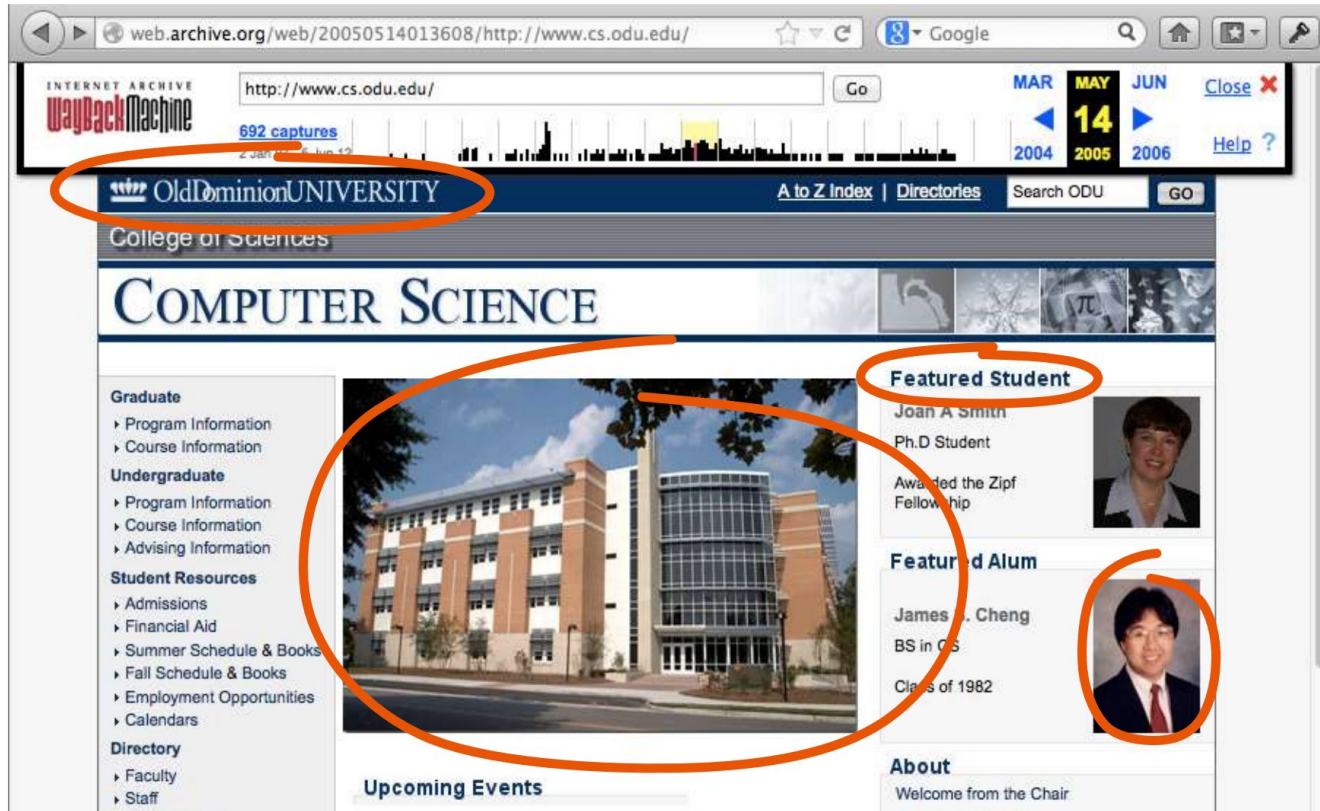
Talk to State Farm agents near you:

Figure 2: Wunderground Composite Memento, MementoDatetime 2004-12-09 19:09:26 <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.711.77&rep=rep1&type=pdf>

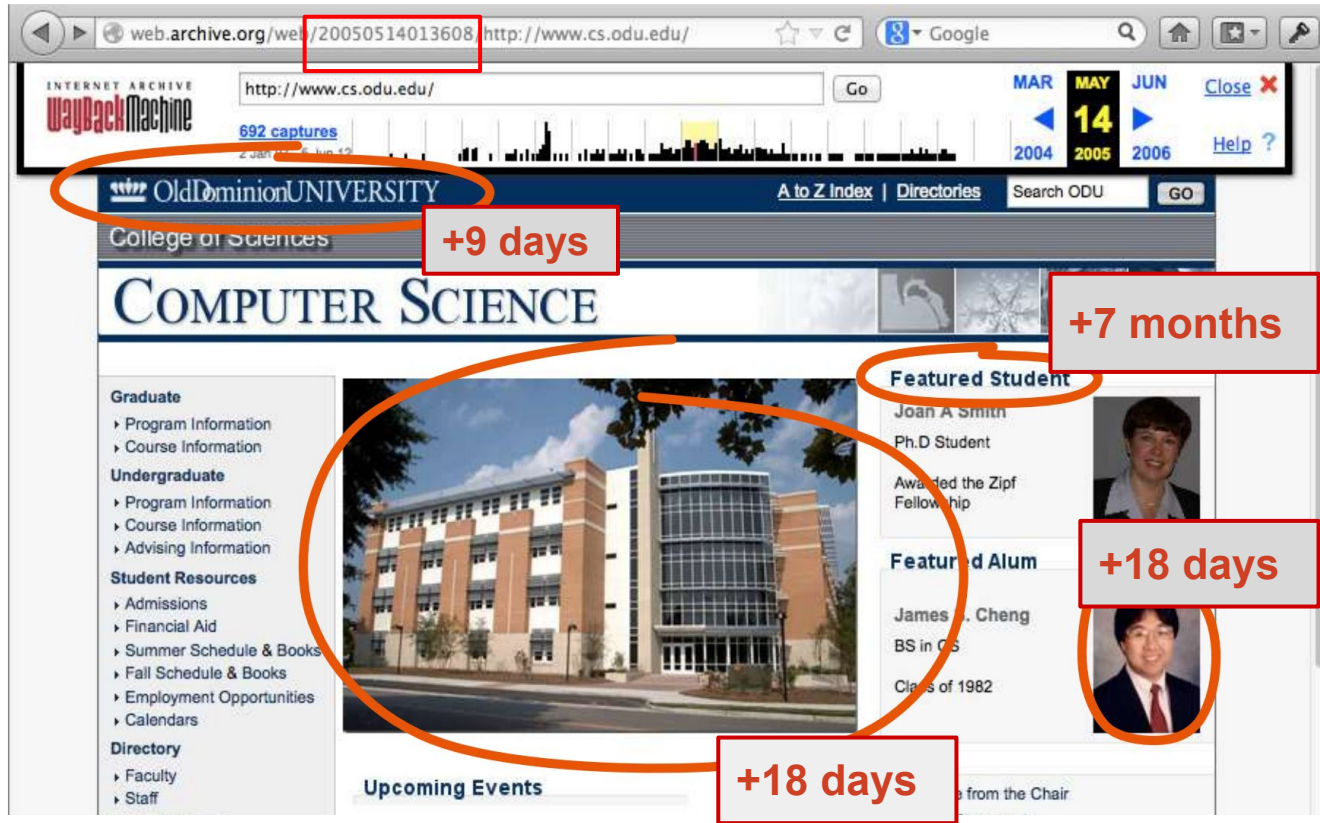
Composite Memento



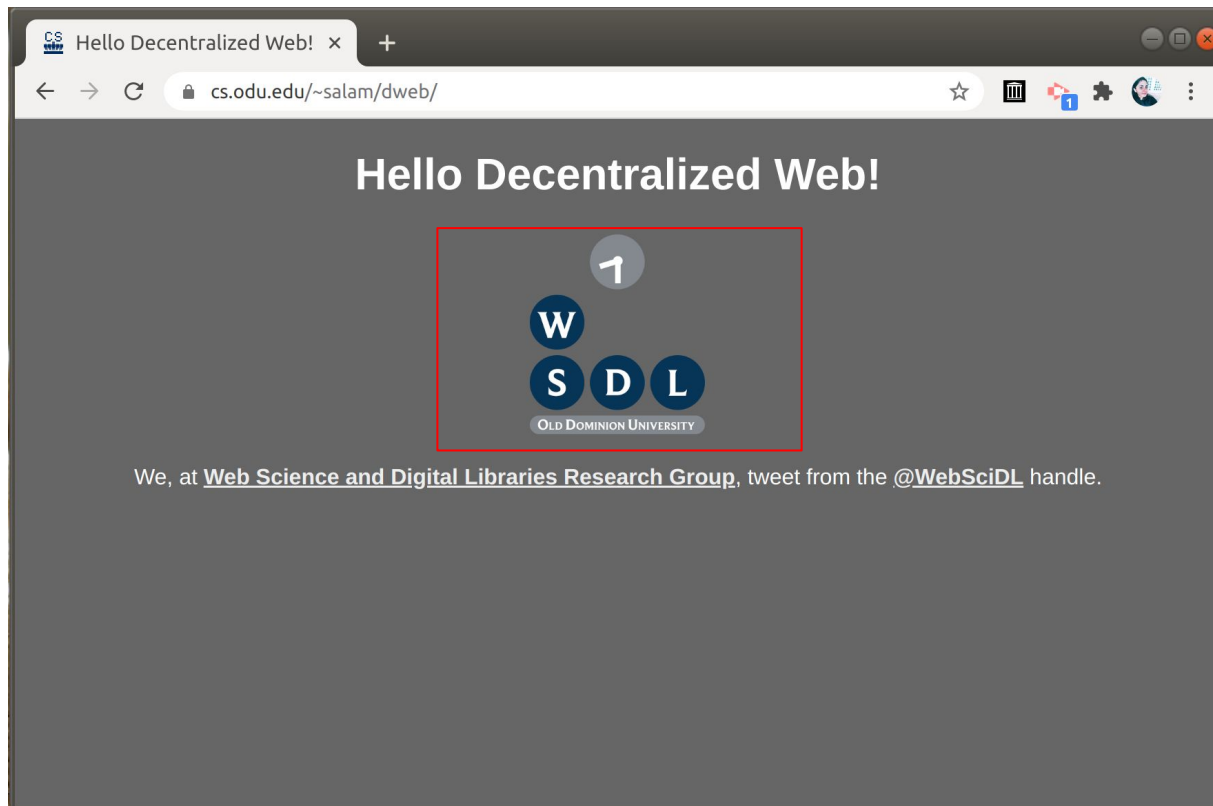
Temporal Coherence



Temporal Coherence



Completeness



Weather Underground: Varina, Iowa Forecast

Weather Underground: Varina, I...

https://web.archive.org/web/20041209190926/http://www.wunderground.com/cgi-bin/

Internet Archive Wayback Machine

21 captures 27 Oct 02 - 25 Jan 11

Find the weather for any City, State or ZIP Code, or Airport Code or Country

Link to Wunder Photos

missing

–15 hours

Member Benefits: No Ads Weather Email \$5 a year Signup Here

Email

Password

Login

Print This Page

Maps

Temperature

Heat Index

Windchill

Humidity

Radar

Dew Point

Wind

Visibility

Visible Satellite

Satellite

Fronts

Snow Depth

Jet Stream

Flight Rules

Health Maps

UV Forecast

Air Quality

Peak Air Quality Index

International

United States

Varina, Iowa

Local Time: 1:09 PM CST Set My Timezone Lat/Lon: 42.6° N 94.8° W | MSN Map

Current Conditions

Updated: 12:55 PM CST on December 09, 2004

Observed at Storm Lake, Iowa (History)

Elevation: 1486 ft / 453 m

41 °F / 5 °C

Light Drizzle

Windchill: 37 °F / 3 °C

Humidity: 100%

Dew Point: 41 °F / 5 °C

Wind: 6 mph / 9 km/h from the South

Pressure: 29.56 in / 1001 hPa

Visibility: 5.0 miles / 8.0 kilometers

UV: 1 out of 12

Clouds: Overcast 6500 ft / 1981 m

AGL: 1981 m

Show full METARS (help)

Local Satellite

Ski Conditions

Trip Planner

Personal Weather Stations

5-Day Forecast for ZIP Code 50593

| Thu | Fri | Sat | Sun | Mon |
|------------------------|------------------------|------------------------|------------------------|------------------------|
| 43° 29° | 36° 29° | 36° 29° | 15° 15° | 31° 15° |
| Chance of Rain | Mostly Cloudy | Mostly Cloudy | Cloudy | Partly Cloudy |
| Detail | Detail | Detail | Detail | Detail |

Click [Detail](#) for hourly wind, temperature, humidity and UV forecasts.

Alternate Computer Forecast: [AVN MOS Weather Graph](#) | [Local Allergy Info](#) from [Pollen.com](#)

Meet Locals

read their Hotel Tips and Travel Guides for Varina, IA

tripadvisor

Unbiased reviews and advice for Varina hotels and other places

Find a Hotel in Varina

Hotels.com

Unbiased reviews and advice for Varina hotels and other places

Best Rates GUARANTEED

Wunder Photos

Nowcast as of 11:42 am CST

Now

Dense fog will persist along and west of Highway 169 through the early afternoon. Locations from Algona to Estherville can expect visibilities to remain around a quarter mile or less with localized areas in low lying spots under one eighth of a mile.

Forecast for Pocahontas County

Updated: 11:20 am CST on December 9, 2004

No Active Advisories (US Severe Weather)

This Afternoon

Cloudy with a chance of light rain showers. High in the

–9 months

–20 days

–17 days

Talk to State Farm agents near you:

STATE FARM INSURANCE

Today's pollen report

Pollen.com

Figure 2: Wunderground Composite Memento, MementoDatetime 2004-12-09 19:09:26 <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.711.77&rep=rep1&type=pdf>

Table 3: Embedded Memento Capture Datetimes (15 of 128)

| URI | Memento-Datetime | Delta |
|---|----------------------|-------------|
| http://ads.wunderground.com/ads/images/wu-9.jpg | 2004-10-16 03:40:53Z | -1.8 months |
| http://icons.wunderground.com/graphics/smalllogo2.gif | 2004-11-22 05:46:03Z | -18 days |
| http://ads.wunderground.com/ads/images/Statefarm-sfcom001_120x30.gif | 2004-11-22 05:46:32Z | -18 days |
| http://icons.wunderground.com/ads/images/Davi-00009-vp2_125x125.gif | 2004-12-08 07:01:08Z | -2 days |
| http://icons.wunderground.com/graphics/smash/wunderTransparent.gif | 2004-12-09 04:36:14Z | -15 hours |
| http://www.wunderground.com/cgi-bin/findweather/getForecast?query=50593 | 2004-12-09 19:29:26Z | – root |
| http://icons.wunderground.com/graphics/conds/cloudy.GIF | 2004-12-10 04:48:55Z | +21 minutes |
| http://icons.wunderground.com/graphics/conds/mostlycloudy.GIF | 2004-12-10 04:48:55Z | +10 hours |
| http://icons.wunderground.com/graphics/conds/rait.GIF | 2004-12-12 14:54:01Z | +3 days |
| http://icons.wunderground.com/ads/images/TripAdvisor-Blinky.gif | 2005-01-27 02:58:30Z | +1.6 months |
| http://banners.wunderground.com/cgi-bin/statefarmbanner?zip=50593&width=150 | 2006-03-26 03:29:00Z | +1.3 years |
| http://www.valueclick.com/system/files/coupon-mountain-slider.png?1310511429 | 2011-07-13 09:08:00Z | +6.6 years |
| http://z1.adserver.com/system/files/logo.gif | 2013-01-13 06:09:14Z | +8.1 years |
| http://icons.wunderground.com/data/wximagenew/d/d70dave/0-thumb.jpg | Not Archived | |
| http://pagead2.googleadsyndication.com/pagead/show_ads.js | Missing Memento | |

Temporal Spread = 8.3 years

Mean delta = 1.8 years

standard deviation = 2.9 years

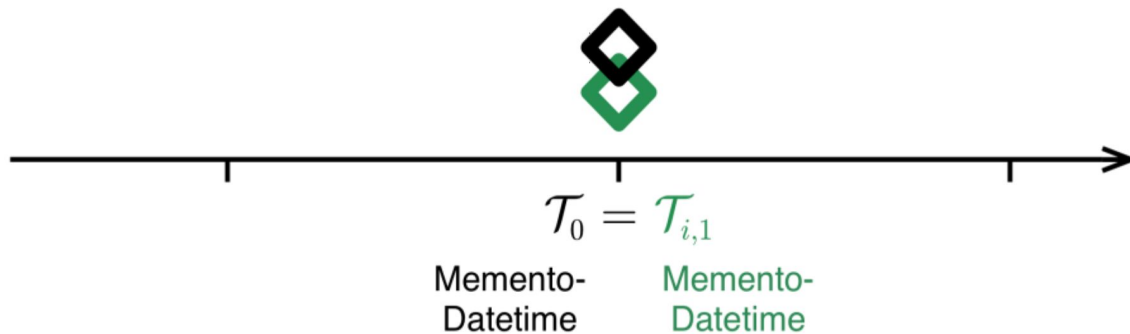
- Embedded resource captured within the seconds of root, may still not be temporally coherent
- Embedded resource captured much after than root, may not be incoherent.

Temporal Coherence States

- Prima Facie Coherent
- Possibly Coherent
- Probably Violative
- Prima Facie Violative

Prima Facie Coherent

An embedded memento existed in its archived state at the time the root memento was captured.

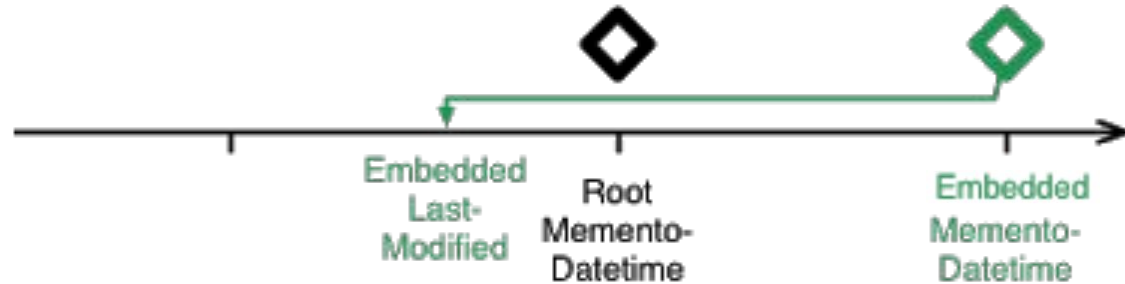


```
<html>  
  
</html>
```

```
HTTP/1.1 200 OK  
Server: Tengine/2.0.3  
Date: Mon, 27 Apr 2015 22:03:32 GMT  
Content-Type: image/jpeg  
Content-Length: 15632  
Connection: keep-alive  
Memento-Datetime: Tue, 07 Feb 2006 00:58:23 GMT  
Link: <Memento links deleted...>  
X-Archive-Orig-server: Apache/1.3.26 (Unix)  
ApacheJServ/1.1.2 PHP/4.3.4  
X-Archive-Orig-etag: "4978-3d10-3e4d822e"  
X-Archive-Orig-content-length: 15632  
X-Archive-Orig-accept-ranges: bytes  
X-Archive-Orig-date: Tue, 07 Feb 2006 00:58:20 GMT  
X-Archive-Orig-content-type: image/jpeg  
X-Archive-Orig-last-modified: ↵  
    Fri, 14 Feb 2003 23:56:30 GMT  
X-Archive-Orig-connection: close  
<other headers deleted>
```

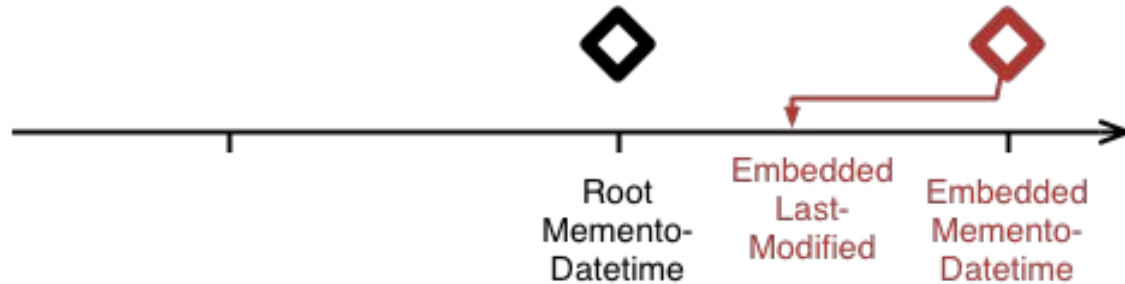
Prima Facie Coherent

➤ Bracket Pattern



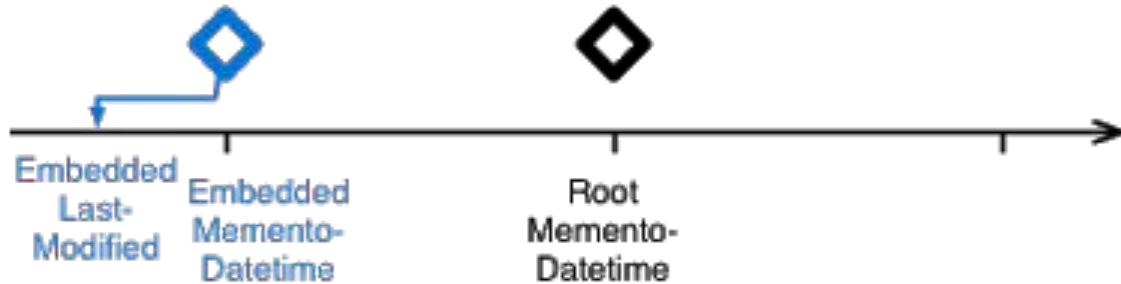
Prima Facie Violative

An embedded memento that did not exist in its archived state at the time the root memento was captured.



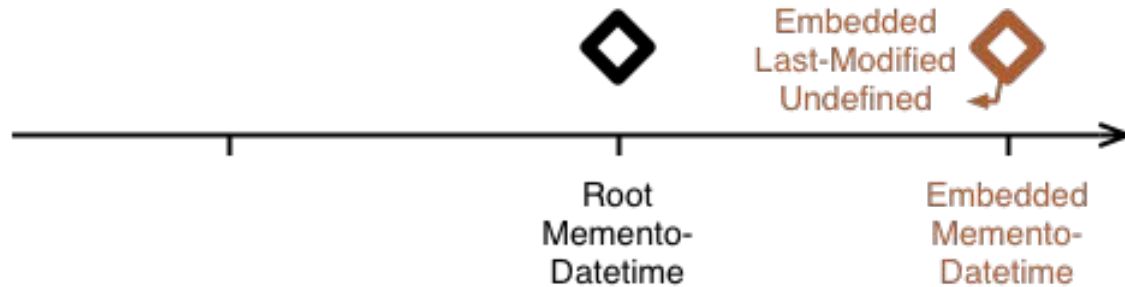
Possibly Coherent

An embedded memento might have been in its archived state at the time the root memento was captured.



Probably Violative

An embedded memento might not have existed in its archived state at the time the root memento was captured.



Representing Coherence

Table 1: Sample Mementos from <http://www.rpgdreamers.com/>

| URI-R | Last-Modified | Memento-Datetime | Delta | Root? | Bracket? | Coherence | Color |
|---|---------------------|---------------------|-------|-------|----------|-----------|--------|
| http://www.rpgdreamers.com/ | N/A | 2006-11-10 04:37:51 | – | Y | – | C | Black |
| .../aslmain.js | 2006-04-25 14:03:39 | 2006-11-10 23:44:02 | – | N | Y | C | Green |
| .../home_exp_leader_728x90_468x60.js | 2006-11-11 00:30:18 | 2006-11-11 01:02:19 | 19.9h | N | N | V | Red |
| http://www.rpgdreamers.com/ | N/A | 2006-12-06 08:04:42 | – | Y | – | C | Black |
| .../aslmain.js | 2006-04-25 14:03:39 | 2006-12-07 01:07:32 | – | N | Y | C | Green |
| .../home_exp_leader_728x90_468x60.js | 2006-12-05 17:54:31 | 2006-12-05 18:30:00 | 13.6h | N | N | PC | Blue |
| .../show_ads.js | N/A | 2006-12-06 12:00:00 | 3.9h | N | N | PV | Yellow |
| http://www.rpgdreamers.com/ | N/A | 2007-01-01 21:31:16 | – | Y | – | C | Black |
| .../aslmain.js | 2006-04-25 14:03:39 | 2007-01-02 16:23:01 | – | N | Y | C | Green |
| .../home_exp_leader_728x90_468x60.js | 2006-12-09 14:41:27 | 2006-12-09 15:04:45 | 23.3d | N | N | PC | Blue |
| .../show_ads.js | N/A | 2007-01-05 12:00:00 | 86.5d | N | N | PV | Yellow |

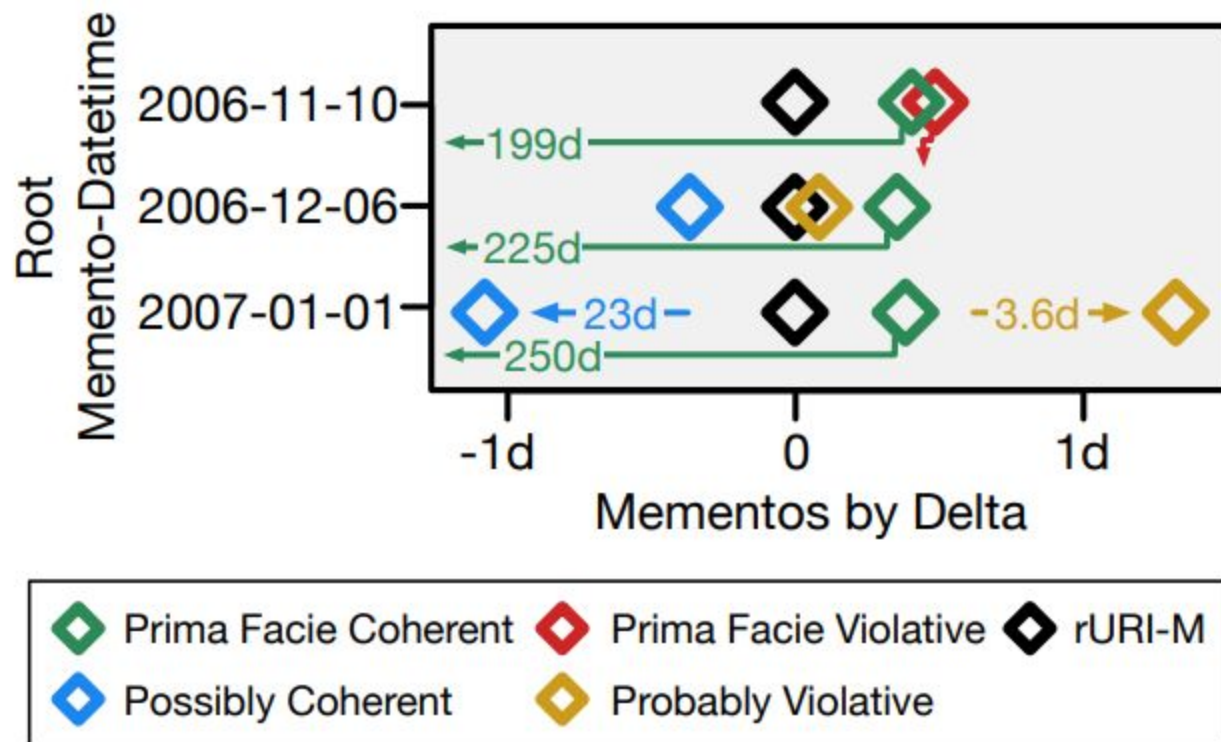


Figure 5: Scatter Plot Sample

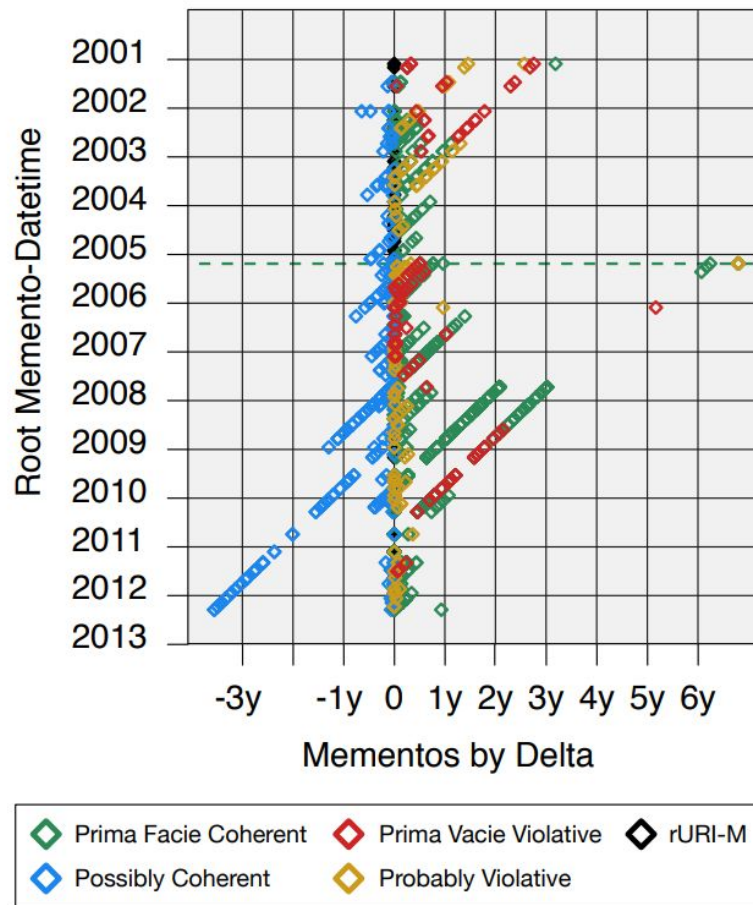


Figure 6: Full Scatter Plot

Dataset

Table 3: Archival Rates

| Sample | This study | Jan'13 [1] | Jan'11 [3] |
|---------------|------------|------------|------------|
| DMOZ | 97.0% | 95.2% | 79% |
| Search Engine | 55.2% | 26.4% | 19% |
| Bitly | 28.3% | 23.5% | 16% |
| Delicious | 95.0% | 91.9% | 68% |
| Aggregate | 68.9% | 59.4% | 46% |

➤ **Single and Multiple Archives**

➤ **Heuristics**

- **Mindst:** Selects the nearest capture of embedded URI
- **Bracket:** (Last modified, Memento datetime)

Selection of rURIM's

- A. Retrieve timemaps for all 4,000 sample rURI-Rs from 15 archives
- B. Retrieve a single root memento per month

Table 4: rURI-R Timemap Statistics

| Desc. | DMOZ | S.Eng. | Bitly | Deli | Total |
|----------------------|---------|--------|--------|---------|---------|
| URI-Rs | 1,000 | 1,000 | 1,000 | 1,000 | 4,000 |
| URI-Rs Archived | 971 | 552 | 282 | 951 | 2,756 |
| in Multiple Archives | 14.5% | 11.1% | 23.0% | 57.5% | 29.5% |
| Timemaps | 1,154 | 682 | 404 | 2,167 | 4,252 |
| per URI-R | 1.19 | 1.14 | 1.43 | 2.28 | 1.58 |
| Mementos | 120,765 | 11,508 | 36,816 | 174,214 | 343,303 |
| per URI-R | 124.37 | 20.85 | 130.55 | 183.19 | 124.57 |

Recomposition of composite mementos

1. Retrieve 88,054 rURIM-M using curl.
2. Extract eURI-Rs for the root mementos that received 200 response.
3. Retrieve the eURI-R timemap using curl.
4. Select eURI-M for eURI-R using heuristics.
5. Download embedded memento using curl
6. Steps 2–5 were repeated for other resources.

Table 6: eURI-M Retrieval Statistics

| Description | Mindist Single | Mindist Multi | Bracket Single | Bracket Multi |
|---------------------------------|-------------------|------------------|-------------------|------------------|
| Memento Counts | | | | |
| eURI-Rs | 1,620,597 | 1,623,354 | 1,619,805 | 1,623,127 |
| per rURI-M | 19.7 | 19.7 | 19.7 | 19.7 |
| eURI-Ms available | 1,250,641 | 1,330,858 | 1,252,125 | 1,332,993 |
| per rURI-M | 14.2 | 15.1 | 14.2 | 15.1 |
| eURI-Ms not found | 369,956 | 292,494 | 367,680 | 290,134 |
| <i>Not-Found</i> Reasons | | | | |
| No timemaps | 395,545 | 312,843 | 395,065 | 312,641 |
| 404 | 41,588 | 46,330 | 40,428 | 44,852 |
| 403 | 6,186 | 6,194 | 6,105 | 6,116 |
| 503 | 6,092 | 5,806 | 5,697 | 5,442 |
| Other | 2,970 | 3,746 | 2,810 | 3,508 |

Results

Table 7: Completeness and Temporal Coherence

| Description | Mindist Single | Mindist Multi | Bracket Single | Bracket Multi |
|----------------------------|-------------------|------------------|-------------------|------------------|
| Completeness | | | | |
| Mean complete | 76.1% | 80.2% | 76.2% | 80.3% |
| Mean missing | 23.9% | 19.8% | 23.8% | 19.7% |
| Temporal Coherence | | | | |
| Mean Prima Facie Coherent | 41.0% | 40.9% | 54.7% | 54.6% |
| Mean Possibly Coherent | 27.3% | 28.7% | 12.8% | 14.2% |
| Mean Probably Violative | 2.5% | 5.3% | 2.5% | 5.3% |
| Mean Prima Facie Violative | 5.3% | 5.3% | 6.2% | 6.2% |

Results

- 38.7 % of web pages are temporally coherent
- 17.9% (~1 in 5) temporally coherent mementos can be fully recomposed.

Table 9: Composite Memento Coherence

| Description | Mindist Single | | Mindist Multi | | Bracket Single | | Bracket Multi | |
|---|----------------|---------|---------------|---------|----------------|---------|---------------|---------|
| | Quantity | Percent | Quantity | Percent | Quantity | Percent | Quantity | Percent |
| All Root Mementos in Timemaps | 88,054 | 100.0% | 88,054 | 100.0% | 88,054 | 100.0% | 88,054 | 100.0% |
| All Composite Mementos (complete and incomplete) | | | | | | | | |
| All Coherence States | 82,425 | 93.6% | 82,425 | 93.6% | 82,425 | 93.6% | 82,425 | 93.6% |
| Probably Violative through Prima Facie Coherent | 62,749 | 71.3% | 62,603 | 71.1% | 60,525 | 68.7% | 60,525 | 68.7% |
| Possibly Coherent & Prima Facie Coherent | 54,120 | 61.5% | 48,289 | 54.8% | 52,309 | 59.4% | 52,309 | 59.4% |
| Prima Facie Coherent only | 23,147 | 26.3% | 20,262 | 23.0% | 34,074 | 38.7% | 34,074 | 38.7% |
| Complete Composite Mementos Only | | | | | | | | |
| All Coherence States | 26,969 | 30.6% | 29,200 | 33.2% | 27,077 | 30.8% | 27,077 | 30.8% |
| Probably Violative through Prima Facie Coherent | 23,284 | 26.4% | 25,180 | 28.6% | 22,678 | 25.8% | 22,678 | 25.8% |
| Possibly Coherent & Prima Facie Coherent | 21,576 | 24.5% | 21,976 | 25.0% | 21,010 | 23.9% | 21,010 | 23.9% |
| Prima Facie Coherent only | 10,944 | 12.4% | 10,901 | 12.4% | 15,750 | 17.9% | 15,750 | 17.9% |

Future Work

- Develop a heuristic to locate reasonable substitute in timemap.
- Use Lexical signatures and Simhash to find similar resource.
- Interface indicating the temporal coherence of the composite mementos.