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Storytelling for Summarizing Collections in Web Archives

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1. Use small “stories” to summarize much larger collections of archived web pages
   – big → small

2. Generate web archive collections by mining user-generated stories for seed URIs
   – small → big

Archive-It, a subscription-based service, hosts curated web collections

> 3,000 collections
> 400 partners
> 10B archived pages
Problem:
Collection understanding and collection summarization are not currently supported

Not easy to answer “what’s in that collection?”
There is more than one collection about the Egyptian Revolution

- “2010-2011 Arab Spring” https://archive-it.org/collections/3101
- “Egypt Revolution and Politics” https://archive-it.org/collections/2358
(1000s of Seeds X 1000s of Mementos) + Dimension of Time == *Conventional Vis Methods Not Applicable*

Idea: Storytelling
Stories in Literature

Once upon a time…

Story elements: setting, characters, sequence, exposition, conflict, climax, resolution

http://www.learner.org/interactives/story/
Stories in social media

“It's hard to define a story, but I know it when I see it”  (Alexander, 2008)

A sampling and arrangement of web resources for summarization.
Collection == thematic sample from the Web
Story == arranged sample from the collection

We sample $k$ mementos from $N$ pages of the collection to create a summary story
Collections have two dimensions

URI

Time
Fixed Pages, Fixed Time

R1
R1
R1
R1

$t_1$ $t_2$ $t_3$ $t_4$ $t_5$ $t_6$
Andriod Chrome user-agent  

A desktop Chrome user-agent  

First Steps in Archiving the Mobile Web: Automated Discovery of Mobile Websites, JCDL 2013:  

A Method for Identifying Personalized Representations in Web Archives, D-Lib Magazine, 2013:  
http://www.dlib.org/dlib/november13/kelly/11kelly.html
Fixed Page, Sliding Time
Sliding Page, Fixed Time
Feb. 11, 2011
Mubarak resigns
Sliding Page, Sliding Time
What do stories in Storify look like?

“Characteristics of Social Media Stories”, TPDL 2015
What is the length of a story (the number of resources per story)?

• This story has 31 resources.
What are the types of resources that compose a story?

• This story has
  – 19 quotes
  – 8 images
  – 4 videos
What are the most frequently used domains?

• This story uses:
  – 90% twitter.com
  – 7% instagram.com
  – 3% facebook.com
What differentiates a popular story?

Va. reporter, cameraman killed
during live broadcast

WDBJ7’s photographer Adam Ward and reporter Alison Parker were killed Aug. 26, 2015. Updates from social media that morning:

19,795 views

Here’s my Facebook movie. Find yours at
https://facebook.com/lookback/
#FacebookIs10

lookback in Facebook’s 10th Birthday
Reactions and coverage of lookback...

64 views
(skipping many details, see TPDL 2015 paper)
We should create stories with:

• ~28 pages
• moar images!
• where possible, select pages from social media, news, blogs
• additional dimensions of quality:
  – are well archived (e.g., not missing images, stylesheets)
  – generate nice summaries in the Storify interface
Stories from collections about the Egyptian Revolution

https://storify.com/yasmina85/auto-stories-from-archived-collections-56fb3c361b8d27c6f6571c647
https://storify.com/yasmina85/auto-stories-from-archived-collections-5702ff8f228eede273d49c21
https://storify.com/yasmina85/auto-stories-from-archived-collections-5702c7f1228eede273d48ddf
Evaluation: can humans tell human generated stories from machine generated?

Russia Plane Crash Sept 7, 2011
Story: Summary
This is a manually generated story from archive-It collections.

Russia Plane Crash Sept 7, 2011 - Broad summary
This is an automatically generated story from Archive-It collection.

https://storify.com/yasmina85/this-is-manually-generated-story-from-archive-it-c-56b25ae72c0664474ee34f13
https://storify.com/yasmina85/auto-stories-from-archived-collections-56f1cfd36bc660f47f1b9f5e
Use an interface people already know how to use to summarize collections

Storytelling services

Archived collections

Archived enriched stories

more info:
https://github.com/yasmina85/OffTopic-Detection