

TimeMapping a Library of Congress Collection: “Camilo José Vergara Photographs-Tracking Time to Document America's Post-Industrial Cities”

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Abstract: The Library of Congress’ Prints and Photographs Division possesses a collection of photographs taken by Chilean-American photographer Camilo José Vergara. Many of these consist of time-lapse sequences of individual locations taken in US inner cities from the 1970s to the present. I investigated the following question: How does one optimally take Vergara’s photographs of locations and create timelines to display each sequence of photographs next to a map of the geographic location photographed? To answer this question, I used a number of tools. First, I standardized Vergara’s sample photo metadata, using OpenRefine. Then, I used Google Maps and a latitude/longitude locating website to pinpoint the exact coordinates of 28 of Vergara’s photograph sites. After these two steps were complete, I experimented with various applications for displaying maps and timelines. I chose TimeMapper, an open-source application. While imperfect, this program easily displayed all the photographs corresponding with maps of the locations.

Introduction

The Library of Congress’ Prints and Photographs Division possesses a collection of photographs taken by Chilean-American photographer Camilo José Vergara. There were over 8000 photographs during the time of my project, and the collection at present has over 11,000 photographs¹. Many of these consist of time-lapse sequences of individual locations taken in US inner cities from the 1970s to the present. The sequences document the changing nature of these communities. A selected number of the sequences are available on the Library of Congress website.² They also display diverse aspects of African-American and Hispanic creativity in creating art and adapting old buildings to new purposes. Vergara was a pioneer in bringing much of this material to public attention.

I examined a book of Vergara’s sequences to further understand their cultural and historic context. He notes that “[t]he most distinctive characteristic of my own work is the way in which I combine my photographs with both precise data and sociological analysis. My archive...has the virtue of possessing a genuine continuity over time. It includes the voices of my subjects; and it features my observations about the look and feel of the places I document, as well as through the results of historical research.”³ The combination of rich data and cultural significance made this collection a promising source for my project in the digital humanities.

Problem Statement

¹ Personal communication from Phil Michel, LOC Prints and Photographs Division, dated November 19, 2018.

² “Camilo José Vergara Photographs: Tracking Time to Document America's Post-Industrial Cities,” Library of Congress, last modified May 22, 2017, accessed November 12, 2018, <http://www.loc.gov/rr/print/coll/camilo-vergara-photographs.html>

³ “Photographer’s statement,” Camilo José Vergara, *Camilo José Vergara: Tracking time: documenting America's post-industrial cities*. (Bielefeld: Kerber Verlag, 2014).



I took the Digital Curation for Information Professionals (DCIP) certificate program at the University of Maryland. As part of the program, “Implementing Digital Curation in the Workplace,” students were to “address one or more aspects of digital curation in their own organization through a project, focusing on an aspect of digital curation...[including] implementation of strategies to provide access to a digital collection.”⁴ As part of my position as Digital Conversion Technician at the Library of Congress, I was involved with the Prints and Photographs Division (P&P). In coordination with the class instructor, Dr. Michael Kurtz, and the Digital Project Coordinator at P&P, Phil Michel, I decided to examine the online collection of Vergara photographs. Those photographs which consisted of time-lapse sequences pertaining to particular buildings or addresses were displayed on the P&P website in chronological order (Figure 1). However, they were not displayed in geographical context, that is, in coordination with a map. This project addressed the following questions: **Is there a way to take the photographs of single locations that Vergara has created over several decades and create timelines which will display each sequence of photographs next to the location photographed? If so, which is the best application/platform to display the photographic timeline?** The current presentation does not fully realize the potential of the Vergara collection, nor does it take advantage of technology now available that can present a more complete story. The significance of a dual temporal/spatial presentation would be to: a) more fully contextualize the most essential aspect of Vergara’s work, as his photographs were taken to show how neighborhoods (spatial) change over time (temporal); and b) to provide an (ideally) free and simple means of displaying spatial/temporal change for photographic collections other than Vergara’s at the Library. In sum, presenting geo-referenced photographs that can be viewed chronologically would add value to the collection for users interested in exploring how areas change over time.

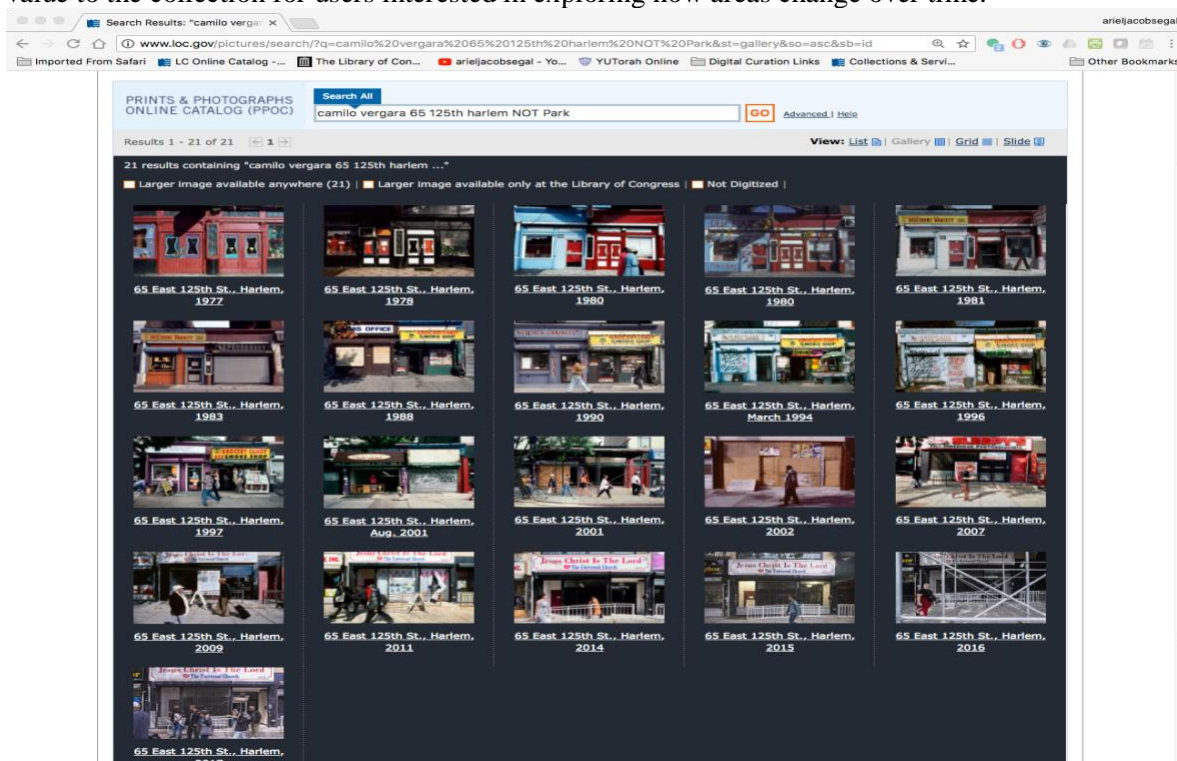


Figure 1. A typical temporal sequence of photographs by Vergara on the Library of Congress website (65 East 125th St., Harlem, N.Y.)

Methodology

⁴ “The Digital Curation for Information Professionals (DCIP) Certificate Program,” University of Maryland College of Information Studies, last modified October 15, 2018, accessed November 12, 2018, <https://ischool.umd.edu/DCIP>

The methodology for my project followed these steps:

1. Research potential platforms for creating time-maps
2. Acquire sample set of Vergara photographs and metadata
3. Clean up metadata
4. Restrict photographs to time-lapse series
5. Create georeferenced map on QGIS of 7 cities/neighborhoods where Vergara took photographs (Harlem, Bronx, Camden, Newark, Chicago, Detroit, Los Angeles)
6. Use selected platform to create time-maps
7. Troubleshoot time-maps
8. Send time-maps to Prints and Photographs staff for examination
9. Suggest follow-ups for refining maps/platform

When writing the project proposal, I initially searched for free online mapping platforms. I looked at Neatline,⁵ a mapping program which seemed to have much promise. An initial attempt to install Neatline on a personal computer indicated that it took up too much memory to be practicable. I decided to attempt to install it on a remote server using Amazon Web Services. I also examined number of tools which I thought might prove useful for appending to the QGIS map, such as JuxtaposeJS, which “helps storytellers compare two pieces of similar media, including photos, and GIFs.”⁶ However, this project would need comparisons with far more than two instances of media, so I would have to see if Juxtapose could be expanded to multiple photos. I also examined KnightLab’s StorymapJS⁷ and TimelineJS⁸ to see if they could be used jointly to create timelines of photographs on a map. I wanted to find a platform which would be simple to use for potential Library of Congress patrons without in-depth experience in library technology. After a preliminary examination of these platforms, I decided to postpone final selection of a platform until I had received and examined Vergara’s photographs and metadata.

In terms of scope, the project was to create georeferenced maps and timelines of photographs. Whereas Vergara has thousands of photographs available, I thought it optimal to limit the number of photographs to those in clear sequential order taken in the communities he focuses on: Harlem & the Bronx, NY; Camden, NJ; Newark, NJ; Los Angeles, CA; Chicago, IL; and Detroit, MI. That comprised 7 major locations, with several addresses within each location having time lapse photos taken, adding up to 28 locations total after removing certain sequences, as will be detailed below. In addition, as the project was to be completed in approximately 10 weeks, I was not able to fully search all mapping projects in the digital humanities. However, I was able to find a platform which provided a satisfactory solution to my project problem: TimeMapper, also to be described below.

I received Vergara’s initial data, which comprised an Excel spreadsheet of approximately 300 columns, most of which dealt with technical photographic details beyond the scope of my project. I reduced those columns to 3: Filename (unique ID of photograph, e.g. 00002v.jpg); Description (original description of photo by Vergara, including address, year, occasionally context, e.g. 65 East 125th St., Harlem, 1977) and Subject (this contained the phrase “time lapse,” which could be filtered for in Excel). Using Excel, I cut

⁵ “Neatline-Plot Your Course in Space & Time,” Neatline, accessed February 18, 2019, <https://neatline.org/>

⁶ “JuxtaposeJS-Easy-to-make frame comparisons,” JuxtaposeJS, accessed February 18, 2019, <https://juxtapose.knightlab.com/>

⁷ “StoryMapJS-Maps that tell stories,” StoryMapJS, accessed February 18, 2019, <https://storymap.knightlab.com/>

⁸ “Timeline JS-Easy-to-make, beautiful timelines,” Timeline, accessed February 18, 2019, <http://timeline.knightlab.com/>

the list of 978 jpg images I was given to approximately 300, which were tagged in the metadata as being part of a time lapse series. I then duplicated the “Description” column, renamed it to “Original Description” and hid it. I then created a fourth column, “Modified Description” to reformat the descriptions so they could be broken into new columns. I used OpenRefine⁹, a tool which enables the cleanup of datasets, to create new columns based on information which had been separated by commas in “Modified Description”: Location Name, Address, City/Neighborhood, Date. I also used OpenRefine to cluster variants of address names Vergara used for identical locations, choose 1 variant for all and recluster (Figure 2).

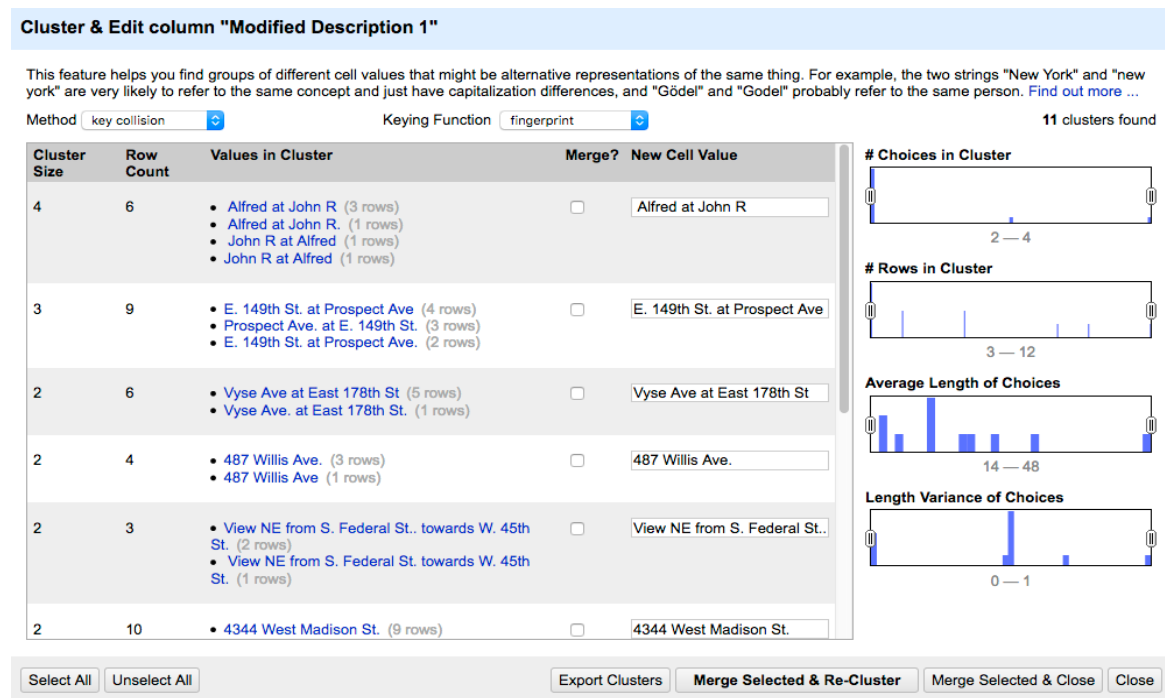


Figure 2. Screenshot of clustering variant names of identical addresses using OpenRefine

Now that the cleanup was complete, I initially used <https://csv2geo.com/>¹⁰ to generate geocoded locations from the location addresses. Having obtained the latitudes/longitudes for the 28 locations, I used the OpenLayers plugin (specifically OpenStreetMap) available through QGIS, an open source Geographic Information System to plot the addresses¹¹. However, when I double-checked the QGIS locations, I found that many of them were slightly off, being a few streets from the actual location of Vergara’s photographs. I had to use a combination of Google Maps Street View and the <https://www.latlong.net/> site¹² to pin down the exact locations of buildings photographed by Vergara. For instance, I needed to use Google Street View to find the location of Vergara’s “Alley parallel to Soto St., from 7th St. 2400 East, LA.” (Figure 3). After consultation with Phil Michel, I removed World Trade Center time lapse photos

⁹ See “OpenRefine,” OpenRefine, last modified November 7, 2018, accessed November 12, 2018, <http://openrefine.org/>

¹⁰ “BATCH GEOCODING CSV-2-GEODATA,” csv2geo, accessed November 14, 2018, <https://csv2geo.com/>

¹¹ “QGIS A Free and Open Source Geographic Information System,” QGIS, last modified November 14, 2018, accessed November 14, 2018, <https://www.qgis.org/en/site/>

¹² “Latitude and Longitude Finder,” LatLong.net, accessed November 14, 2018, <https://www.latlong.net/>

from the set, as they were part of the “Twin Towers Remembered” acquisition separate from the inner cities’ photo series. I decided to focus on neighborhoods where there are unified locations with many photos taken over many years. I also decided to retain time lapse sets of less than 5 photos only if they were featured on the LOC Vergara collection websites. This modification reduced the set of 300 prospective time-lapse photos to a final set of **204** photos. Having created an Excel spreadsheet with latitude/longitude for the 28 locations, I then separated the spreadsheet containing the IDs of the 204 photos into separate sheets for each time-lapse sequence. At this point, I had 2 preliminary research products: 1) the Excel sheets containing metadata needed to put the sequences of photographs on a timeline and 2) the map of accurately georeferenced locations in QGIS (Figure 4).

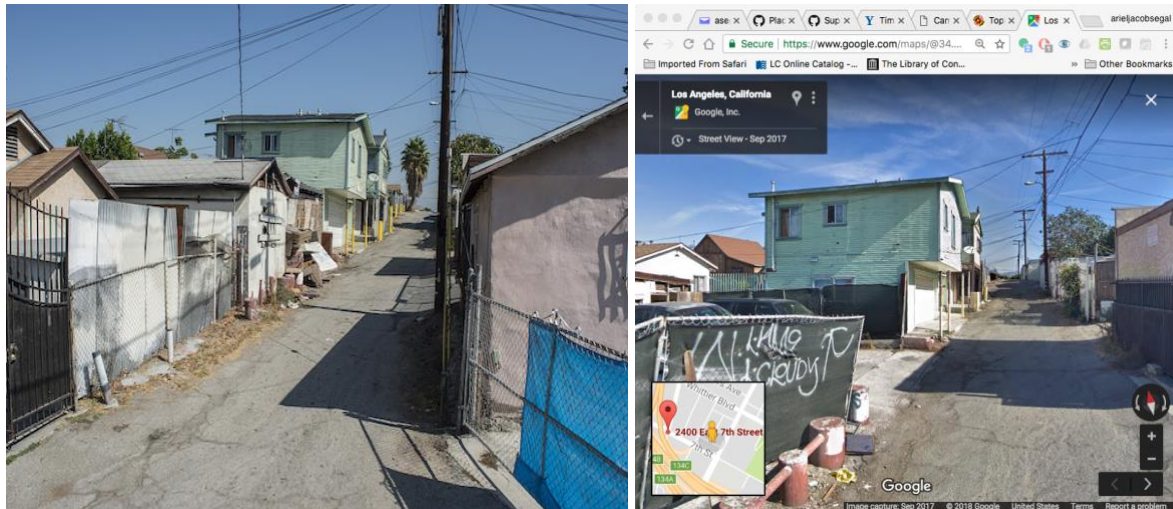


Figure 3. Comparison of Vergara’s 2014 alley photograph (l) and Google Street View 2017 photograph (r)

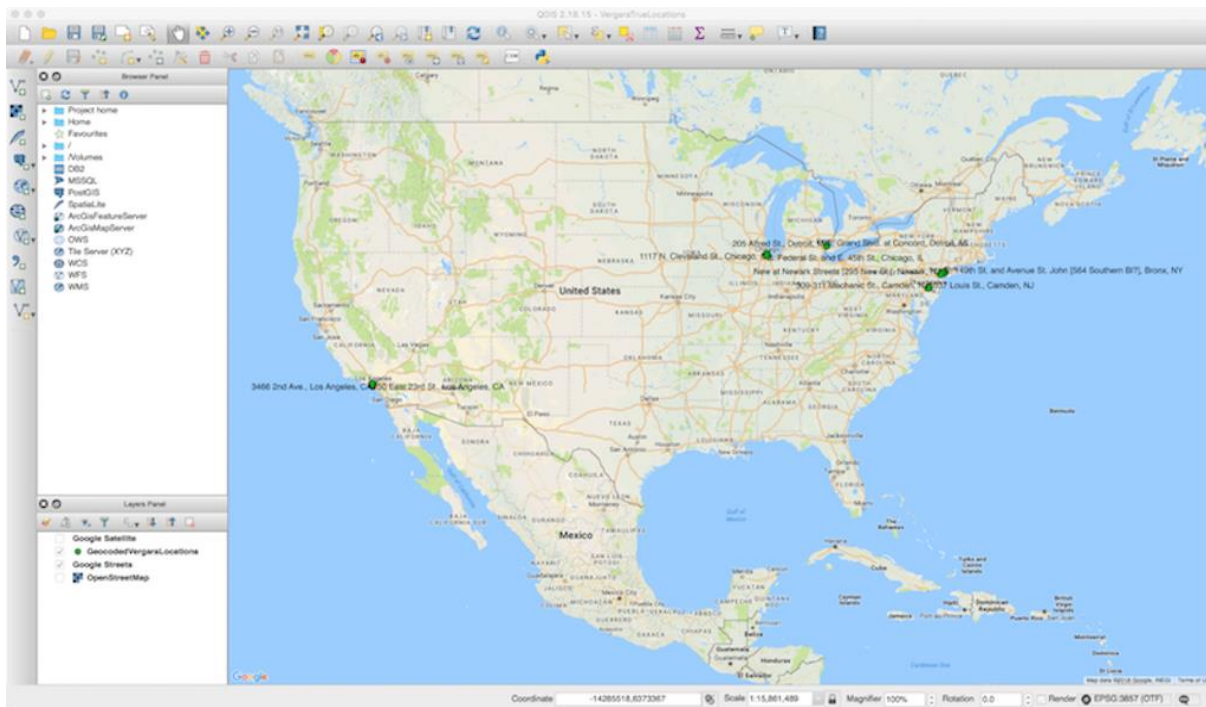


Figure 4. Map of 28 Vergara locations in QGIS

Findings

The Excel spreadsheets I had produced were basically platform-agnostic, and I could apply them to various mapping/timeline software programs. As mentioned above, I examined JuxtaposeJS, StorymapJS, and Neatline as mapping alternatives. JuxtaposeJS was fine for comparing two photos at a time, but could not be embedded on top of the QGIS map. StorymapJS, by providing the map, would obviate the need for the QGIS map, but did not allow for multiple photographs to be placed on the same geographical site on the map. I attempted to use Neatline, but owing to problems setting it up on Omeka through a server on Amazon Web Services, I was never able to get it started. Afterwards, a colleague suggested that I use the TimeMapper program, created by the Open Knowledge Foundation (OKFN), which utilizes Google Drive and a customized Google Spreadsheets form to create timeline sequences juxtaposed with a map locating items on the timeline.¹³ One additional advantage is that one can quickly create a personal account on the site linked to one's Twitter account. I created separate folders of jpg images for each location sequence and put jpgs and spreadsheets on my Google Drive in preparation for conversion to the Google Spreadsheet format. I modified the Excel spreadsheet for the sequences of photographs taken in Harlem to fit the Google Spreadsheet format of the locations for TimeMapper (Figure 5), and a viable TimeMap/Timeline was created for Harlem (Figure 6).

	A	B	C	D	E	F	G	H	I	J	K
1	Title	Start	End	Description	Web Page	Media	Media Caption	Media Credit		Place	Location
2	65 E. 125th St., Harlem, NY	1977				http://irs5.loc.gov/bnp/vrg/0000000002v.jpg	Camilo Jose Vergara	Camilo Jose Vergara		Harlem, NY	40.885712, -73.939771
3	65 E. 125th St., Harlem, NY	1978				http://irs5.loc.gov/bnp/vrg/0000000003v.jpg	Camilo Jose Vergara	Camilo Jose Vergara		Harlem, NY	40.885712, -73.939771
4	65 E. 125th St., Harlem, NY	1980				http://irs5.loc.gov/bnp/vrg/0000000004v.jpg	Camilo Jose Vergara	Camilo Jose Vergara		Harlem, NY	40.885712, -73.939771
5	65 E. 125th St., Harlem, NY	1980				http://irs5.loc.gov/bnp/vrg/0000000005v.jpg	Camilo Jose Vergara	Camilo Jose Vergara		Harlem, NY	40.885712, -73.939771
6	65 E. 125th St., Harlem, NY	1981				http://irs5.loc.gov/bnp/vrg/0000000006v.jpg	Camilo Jose Vergara	Camilo Jose Vergara		Harlem, NY	40.885712, -73.939771
7	65 E. 125th St., Harlem, NY	1983				http://irs5.loc.gov/bnp/vrg/0000000007v.jpg	Camilo Jose Vergara	Camilo Jose Vergara		Harlem, NY	40.885712, -73.939771
8	65 E. 125th St., Harlem, NY	1988				http://irs5.loc.gov/bnp/vrg/0000000008v.jpg	Camilo Jose Vergara	Camilo Jose Vergara		Harlem, NY	40.885712, -73.939771
9	65 E. 125th St., Harlem, NY	1990				http://irs5.loc.gov/bnp/vrg/0000000009v.jpg	Camilo Jose Vergara	Camilo Jose Vergara		Harlem, NY	40.885712, -73.939771
10	65 E. 125th St., Harlem, NY	03/1994				http://irs5.loc.gov/bnp/vrg/0000000010v.jpg	Camilo Jose Vergara	Camilo Jose Vergara		Harlem, NY	40.885712, -73.939771
11	65 E. 125th St., Harlem, NY	1996				http://irs5.loc.gov/bnp/vrg/0000000011v.jpg	Camilo Jose Vergara	Camilo Jose Vergara		Harlem, NY	40.885712, -73.939771
12	65 E. 125th St., Harlem, NY	1997				http://irs5.loc.gov/bnp/vrg/0000000012v.jpg	Camilo Jose Vergara	Camilo Jose Vergara		Harlem, NY	40.885712, -73.939771
13	65 E. 125th St., Harlem, NY	08/2001				http://irs5.loc.gov/bnp/vrg/0000000013v.jpg	Camilo Jose Vergara	Camilo Jose Vergara		Harlem, NY	40.885712, -73.939771
14	65 E. 125th St., Harlem, NY	2001				http://irs5.loc.gov/bnp/vrg/0000000014v.jpg	Camilo Jose Vergara	Camilo Jose Vergara		Harlem, NY	40.885712, -73.939771
15	65 E. 125th St., Harlem, NY	2002				http://irs5.loc.gov/bnp/vrg/0000000015v.jpg	Camilo Jose Vergara	Camilo Jose Vergara		Harlem, NY	40.885712, -73.939771
16	65 E. 125th St., Harlem, NY	2007				http://irs5.loc.gov/bnp/vrg/0000000016v.jpg	Camilo Jose Vergara	Camilo Jose Vergara		Harlem, NY	40.885712, -73.939771

Figure 5. TimeMapper Google Spreadsheet for sequence of photographs in Harlem

¹³ “TimeMapper Elegant timelines and maps created in seconds,” Open Knowledge Foundation Labs, accessed November 15, 2018, <http://timemapper.okfnlabs.org/>

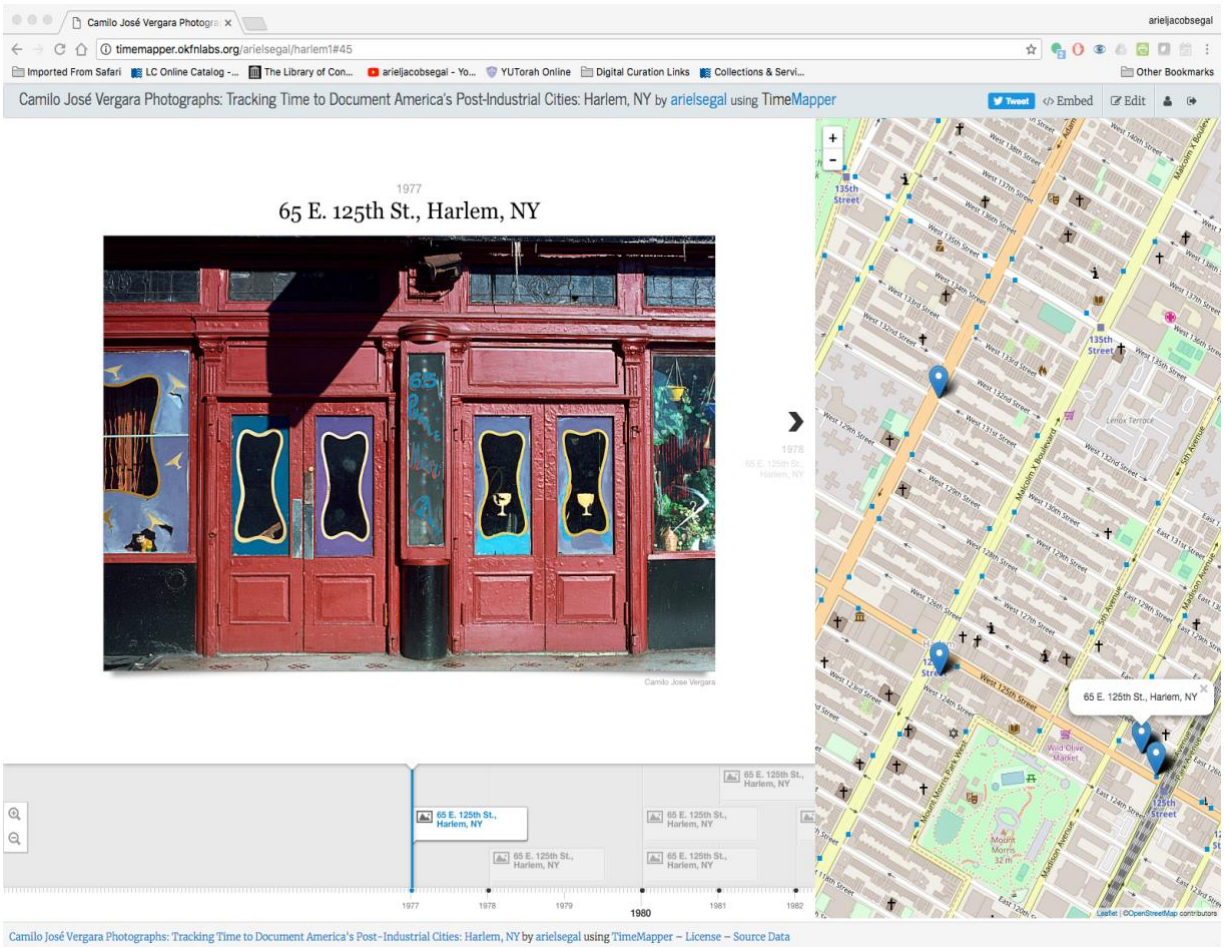


Figure 6. TimeMap for sequence of photographs in Harlem

While manipulating the Harlem TimeMap, I discovered that although the timeline accurately displayed the photos in the proper year, and the maps showed the precise location points, the labels next to the locations in the maps would not always be accurate, and the map location label would not always change when one moved the timeline to the photograph of a different location. After further experimentation, I found that this problem did not occur on the Firefox browser, and seemed to happen on Chrome. Two other display issues were that 1) the map component always began with a world map, and would not automatically zoom in to the desired location—zooming needed to be done manually; and 2) One could not filter for a specific sequence of photographs at one address on the timeline; the display went through photographs chronologically, bouncing between locations as the timeline proceeded forward.

At this point, I had about one month left to finish the project. I made another attempt to consider alternatives to TimeMapper given its limitations. I found a post from the Yale Online Instructional Technology team comparing and contrasting major online time mapping programs. The post noted that TimeMapper had “Simple setup and use” but “Interface impermanence... Uncertain development, sponsored by not-for-profit.”¹⁴ Indeed, TimeMapper had not been updated in over a year. Neatline, which I had not been able to set up, had “Nontrivial learning curve...Sophistication accompanied by

¹⁴ Trip Kirkpatrick, “Timeline + Map Web Tool Comparison,” Yale Instructional Technology Group, last modified January 14, 2015, accessed November 14, 2018, <http://www.itg.yale.edu/2015/01/14/timeline-map-web-tool-comparison/>

sophisticated interface that can be distracting/annoying for students... Requires solid explanation and clearly defined metadata requirements.”¹⁵

At this point, since TimeMapper created accurate maps and accurate timelines of the location photographs for Harlem, I decided to use it to complete the project. I proceeded to create **7 separate TimeMaps** for each of the remaining neighborhoods/cities (Bronx, Camden, Newark, Chicago, Detroit, Los Angeles).¹⁶ This provided the advantage of displaying multiple locations in the same town, although having one TimeMap for each location photographed within the town would allow for a linear sequence of photographs. However, that would have necessitated the creation of 28 TimeMaps, each with only 1 geographic point/location. Instead, of the 28 locations, 4 were displayed in Harlem, 5 in the Bronx, 6 in Camden, NJ, 2 in Newark, NJ, 3 in Chicago, 2 in Detroit, and 6 in Los Angeles. The creation of the TimeMaps completed the work of the project, and provided a platform for displaying the Vergara photographs both spatially and temporally.

Once the TimeMaps had been completed, I further examined them to see what refinements could be made on their display of locations. I determined that the main problem with map labels and timeline labels not matching up happened on the first item/photograph on each timeline. The first and second photographs on the Harlem timeline were of the same location, which masked the problem. I consulted with Phil Michel of Prints and Photographs about what features he would like to see in the TimeMaps. He noted that a workaround which would allow users to look at photos from just 1 address within a TimeMap that comprised several addresses overall (ex. 65 E. 125th St., Harlem, NY vs. E. 125th St. at Park Ave., Harlem, NY) would be ideal. He added that it would also be useful to have a feature allowing automatic zooming from the world map to the specific city/neighborhood mapped. I reached out to Rufus Pollock of the Open Knowledge Foundation, co-creator of TimeMapper, to see if any modifications could be made. He said that in theory, he or a team of volunteers could update TimeMapper, but practically that would require funding. In the future, it would be useful if updates to TimeMapper could be crowdfunded.

Conclusion

The primary conclusion coming from this project was the need to continue experimenting at solving a digital curation problem when an initial solution proves unworkable. The other alternatives, such as StoryMapJS and JuxtaposeJS, provided parts of the needed display (change over time on a map, a comparison of two photographs) but not all of them. Neatline might have been a promising platform, but the difficulty of installation rendered it unworkable given the 10 week time limit of the project. When Neatline failed to install, switching to TimeMapper salvaged the project. Imperfection is inevitable and tolerable, as long as one identifies directions for future improvement (such as filtering timelines by location)¹⁷. Though TimeMapper has known flaws, it is simple to use and can quickly be implemented for thousands of Vergara timeline photos to come. TimeMapper was able to fulfill the request of Phil Michel for dual temporal/spatial views of Vergara’s photo locations. It will allow the Library of Congress to quickly and efficiently create new TimeMaps for the rapidly increasing forthcoming sequences of photographs donated by Vergara, as well as for other similar collections. These TimeMaps would presumably be located on a free TimeMapper account created by the Library.

¹⁵ Ibid.

¹⁶ The completed TimeMaps can be found at <http://timemapper.okfnlabs.org/arielsegal/>

¹⁷ M. Bali, A. Caines, R. J. Hogue. “Pedagogy of Imperfection,” ProffHacker, Chronicle of Higher Education, last modified January 13, 2017, accessed November 15, 2018, <https://www.chronicle.com/blogs/profhacker/pedagogy-of-imperfection/63435>

In summary, this project has shown that the use of free online tools for digital curation (OpenRefine, QGIS, and TimeMapper) can allow librarians, historians, and other users to visualize how neighborhoods in the United States have changed over time. TimeMapper can be easily used by anyone who has a Google Drive and a Twitter account to log in to their personal TimeMap account. It thus provides a simple entry point for digital humanities research for a diverse potential group of users.

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I would like to thank the instructors who taught the courses in the Digital Curation program at the University of Maryland, Drs. Jesse Johnston, Richard Marciano, and Michael Kurtz for their encouragement and tips on experimenting with different platforms. My supervisor on the Digital Curation Team at the Library of Congress, Michael Neubert, provided useful feedback for my work turning the project into a poster presentation at the SAA 2018 Meeting. I am grateful to Phil Michel from the Prints and Photographs Division at the Library for proposing the initial idea of working with the Vergara collection, providing me with the photograph images and metadata, and his suggestions for improving TimeMapper. I also appreciate Rufus Pollock's creation of TimeMapper. Lastly, I would like to thank Camilo José Vergara for permission to reproduce his photographs and his invaluable documentation of urban cultural and economic change over time in the United States.

Resources

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