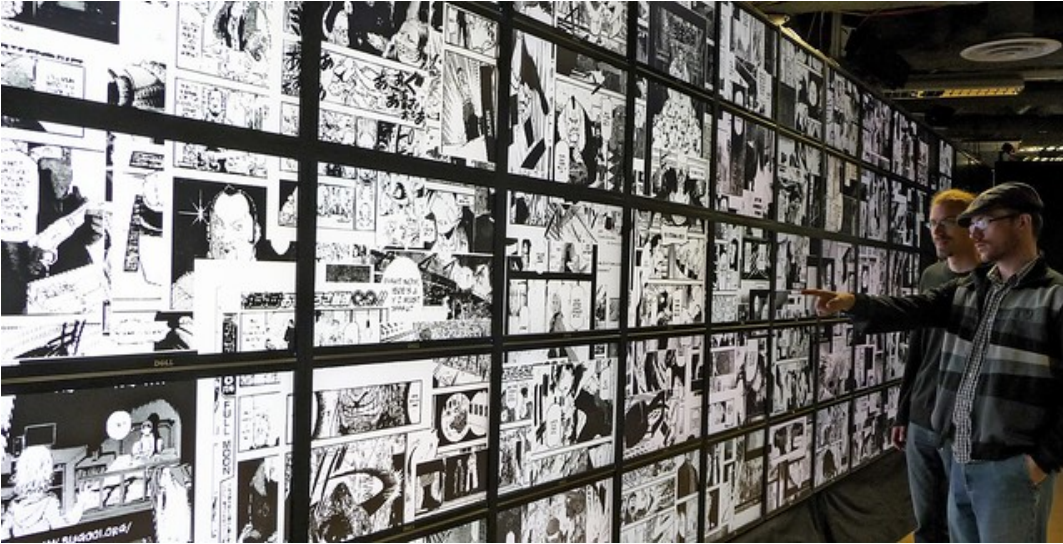


Situated Data Visualization

Context, Interaction and Building Meaning

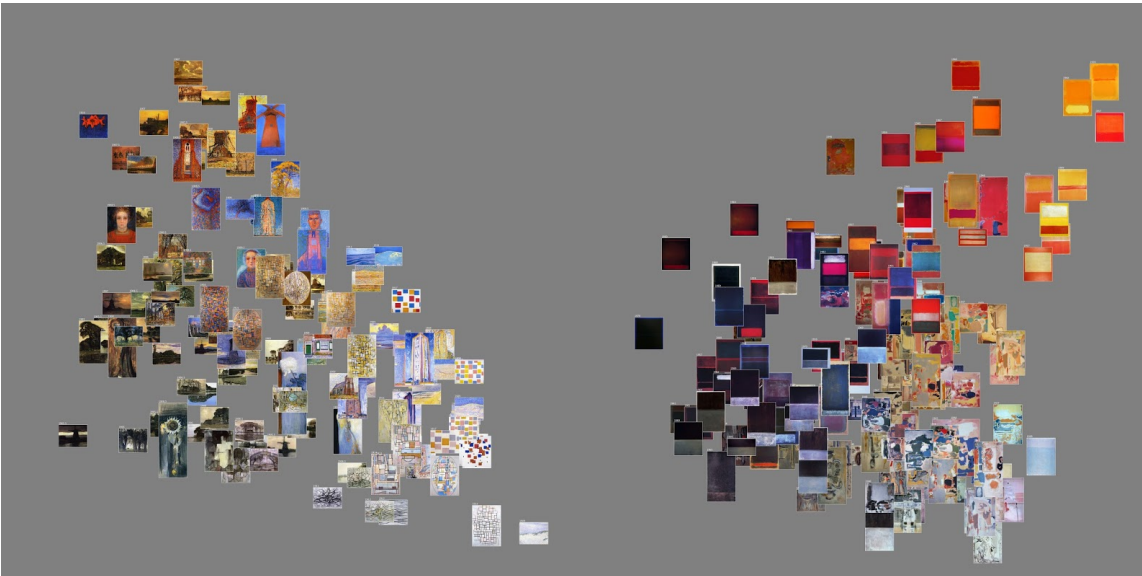
Tara Zepel, PhD

Critical Visualization for Humanities Research
viz@UBC Workshop, Vancouver, BC
March 4th, 2020



Exploring 1,000,000 manga pages on HPerSpace visual supercomputer at Calit2..

Art History



Data: 128 paintings by Piet Mondrian (1905 - 1917) and 151 paintings by Mark Rothko (1944 - 1957). Mapping: X-axis: brightness mean, Y-axis: saturation mean.

Cultural Analytics

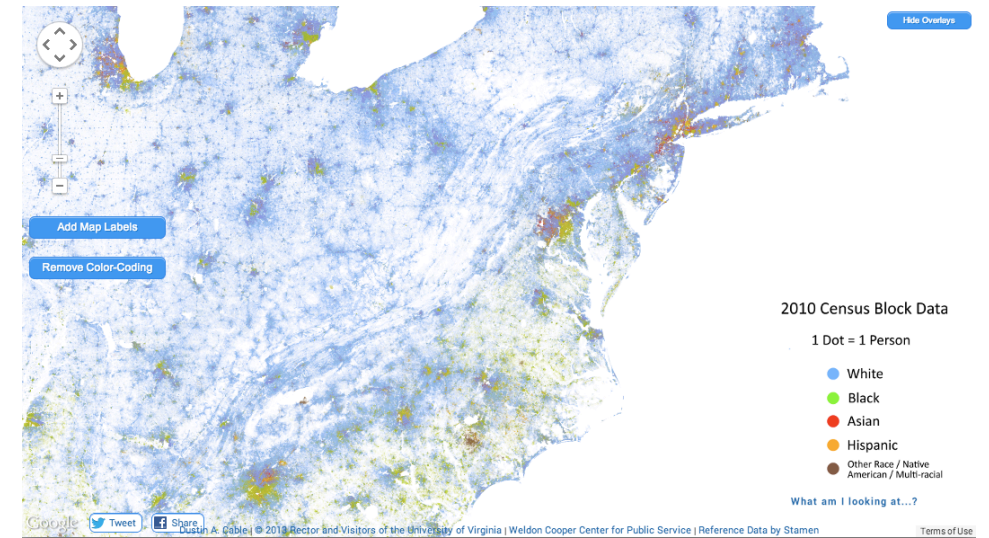
Using data science methods to analyze contemporary global image and video collections - while critically interrogating these methods from the perspectives of humanities and media theory.

Contemporary Data Visualization

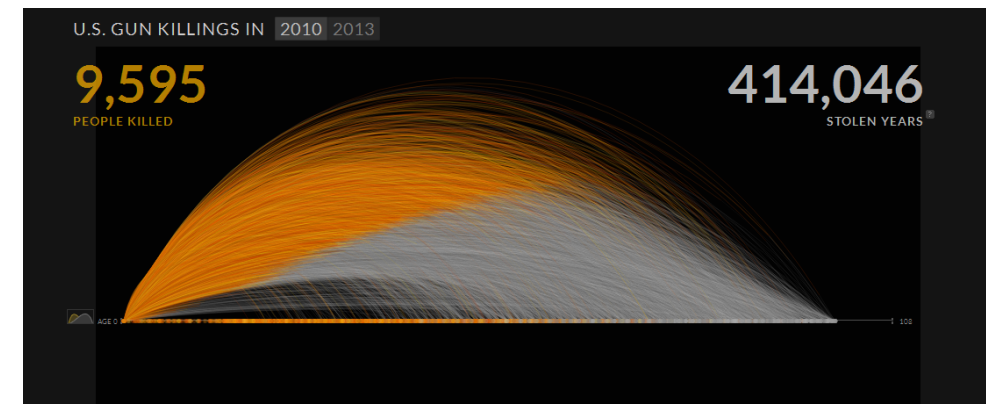
Cultural History and Close Readings

Data visualization has become a **pervasive socio-cultural form**. As such it reflects and affects the way we see and experience the world.

seeing data visualization as a socially and culturally situated medium



Racial Dot Map (2015)



U.S. Gun Deaths (2013)

Situated Data Visualization

Data visualizations are inseparable from the context in which they are created and seen.

Situated Cognition (Learning)

Knowing is inseparable from doing –

knowledge is embedded in the activity, context, and culture in which it was learned

Winograd, T. & Flores, F. (1986). *Understanding Computers and Cognition*;

Brown, J. S., Collins, A., & Duguid, P. (1989). Situated Cognition and the Culture of Learning. *Educational Researcher*, 18(1), 32-42.

Situated Plans and Actions

“Situated plans are *ad hoc* responses to the actions of others and the contingencies of particular situations.”

- against planning models
- collaborative production of mutual intelligibility

Situated Knowledges

Knowledge comes from positional perspectives

- “view of infinite vision is an illusion, a god trick” (p.582)
- Situatedness entails taking responsibility for positions from which we articulate our claims and beliefs...actively working to see differently

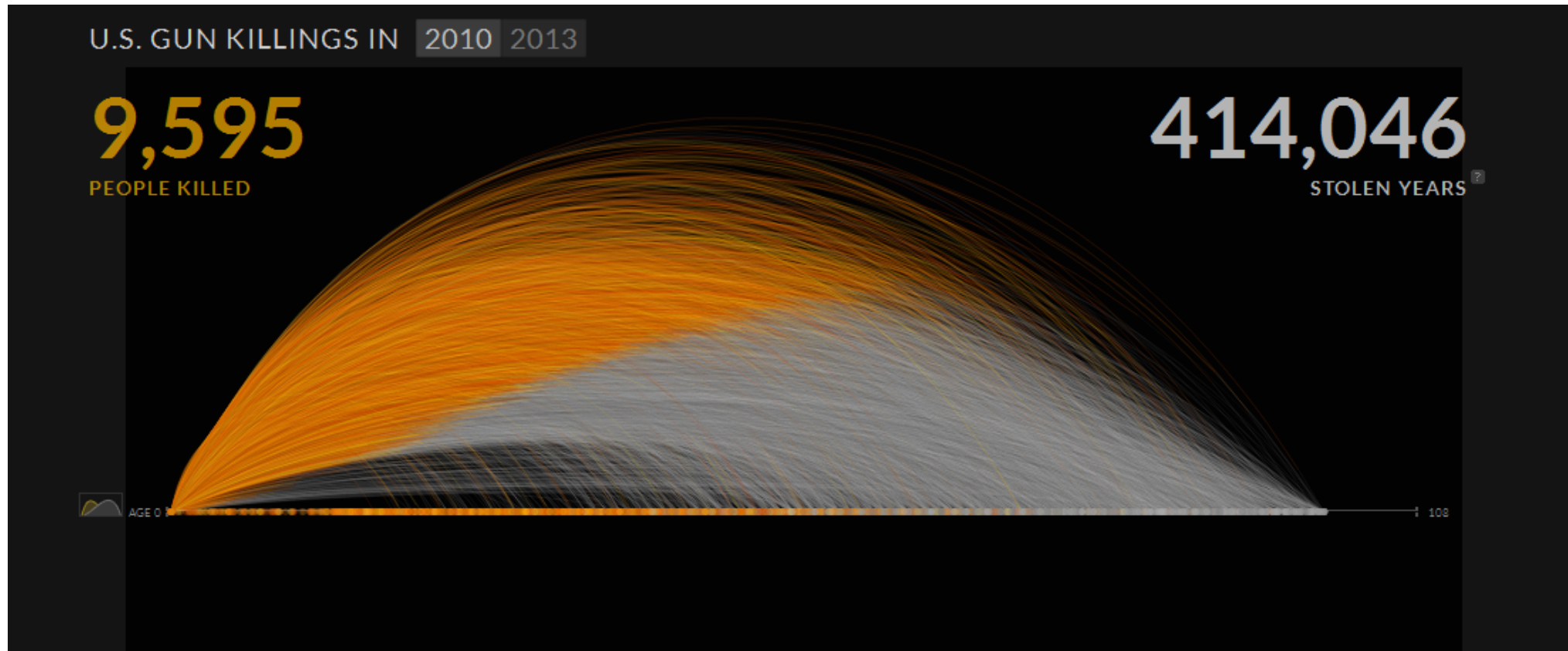
Situated Data Visualization

Data visualizations are inseparable from the context in which they are created and seen.

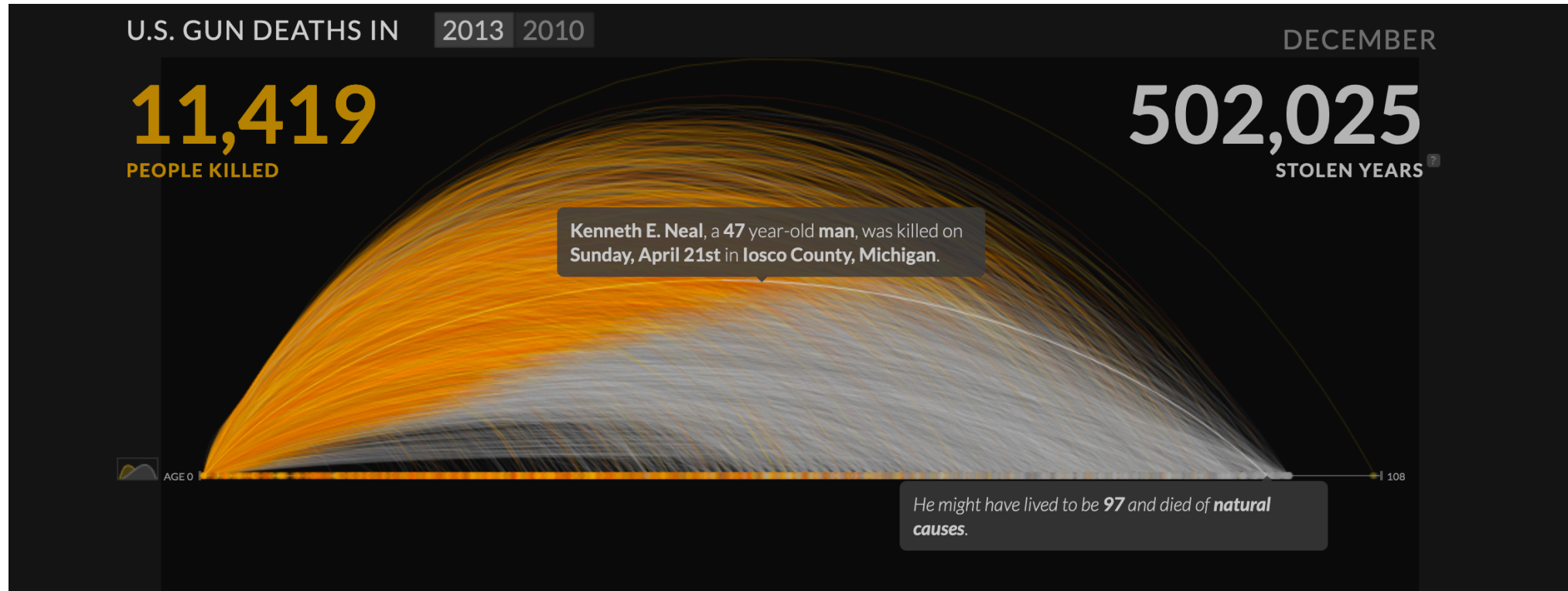
Situated Data Visualization

Data visualizations have a life that extends beyond the page/screen.

Data visualizations are inseparable from the context in which they are created and seen.



- U.S. Gun Deaths (2013)



- U.S. Gun Deaths (2013)

11,419
PEOPLE KILLED

502,025
STOLEN YEARS

962 | 8%

- ☒ Young Adult 0-30
- ☒ Northeast



AGE 0

10,457 | 92%

All Other Victims

108

Use the categories below as additive filters.

Remove filters

<input type="checkbox"/> Female	<input type="checkbox"/> Adults 30+	<input type="checkbox"/> Southeast	<input type="checkbox"/> Past 30 Days
<input type="checkbox"/> Male	<input checked="" type="checkbox"/> Young Adult 0-30	<input type="checkbox"/> Southwest	<input type="checkbox"/> Past 7 Days
	<input type="checkbox"/> Children 0-18	<input checked="" type="checkbox"/> Northeast	<input type="checkbox"/> Yesterday
		<input type="checkbox"/> Northwest	
		<input type="checkbox"/> Midwest	
SEX	AGE GROUP	REGION	TIME

7,585

PEOPLE KILLED

Sources and Methods

2010

Our data comes from the [FBI's Uniform Crime Reports](#), which include voluntarily-reported data from police precincts across the country. In 2007, according to the FBI, law enforcement agencies active in the UCR Program represented more than 285 million US inhabitants—94.6% of the total population. This special dataset is at the raw, or incident, level—containing details of each person who was killed, including their age, gender, race, relationship to killer, and more.

For the gray lines, we calculated alternate stories for the people killed with guns using [data from the World Health Organization](#). To calculate an alternate story, we first performed an age prediction weighted according to the age distribution of US deaths. Using this age, we then predicted a likely cause of death at that age. We do not adjust for life-expectancy differences between demographic groups, as we have not yet found data to that extent. We used data from 2005, the most recent year available.

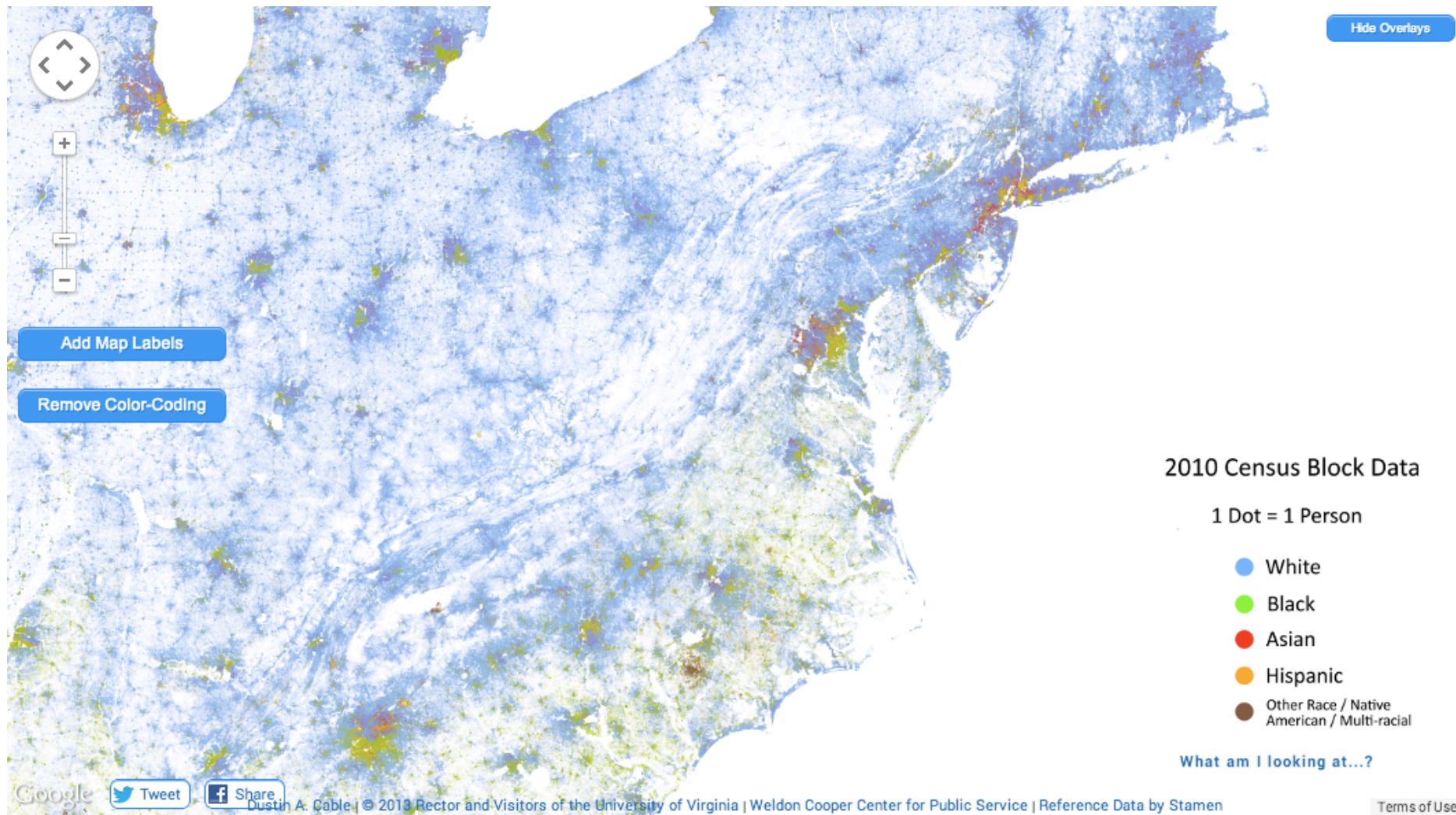
2013

Our 2010 data was the latest such information released by the federal government, but we had to resort to a less refined source to obtain current data for 2013. Anonymous Twitter user, @GunDeaths, continuously gathers and tweets gun-related deaths in the U.S. As long as a verifiable source is provided, anyone can contribute through Twitter or email. He—as well as we—acknowledge that this data is incomplete. Some of the data may be missing or inaccurate, and many killings are not even reported in an online news source. While this data is less reliable, it provides a real-time window into daily gun violence on a national scale.

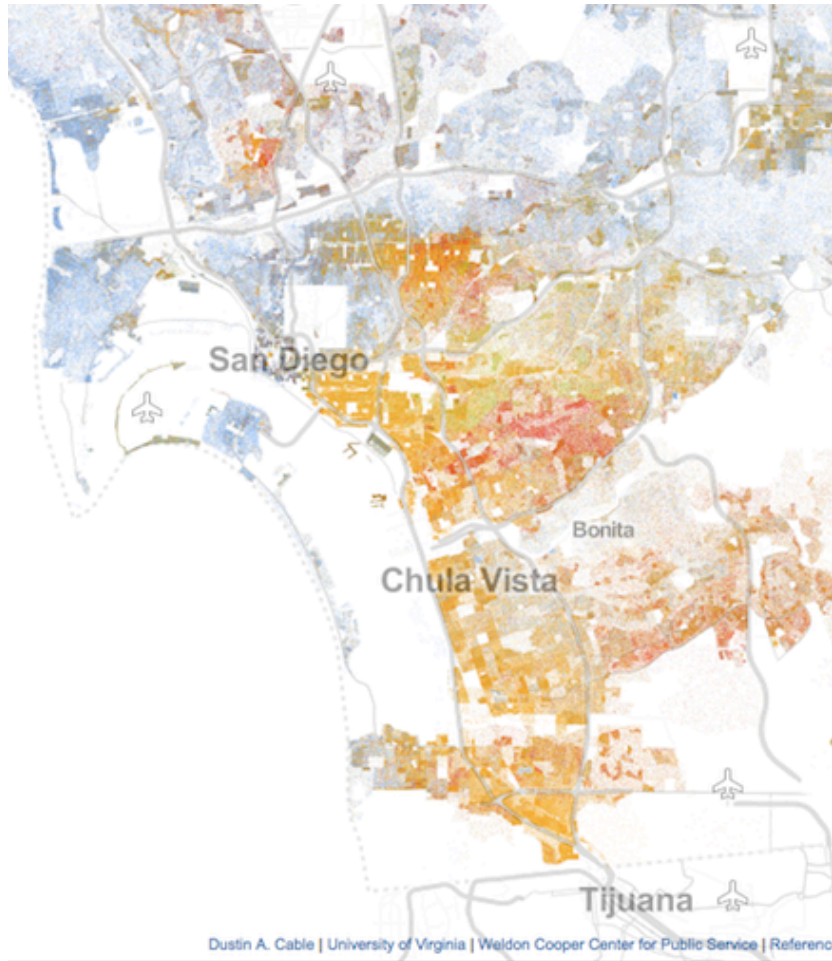
The FBI 2010 dataset included only homicides. However, because the 2013 deaths are crowdsourced from online news sources, it becomes much more difficult to programmatically distinguish which reports are suicides and which are homicides. Therefore, suicides are included in this 2013 visualization.

321,688

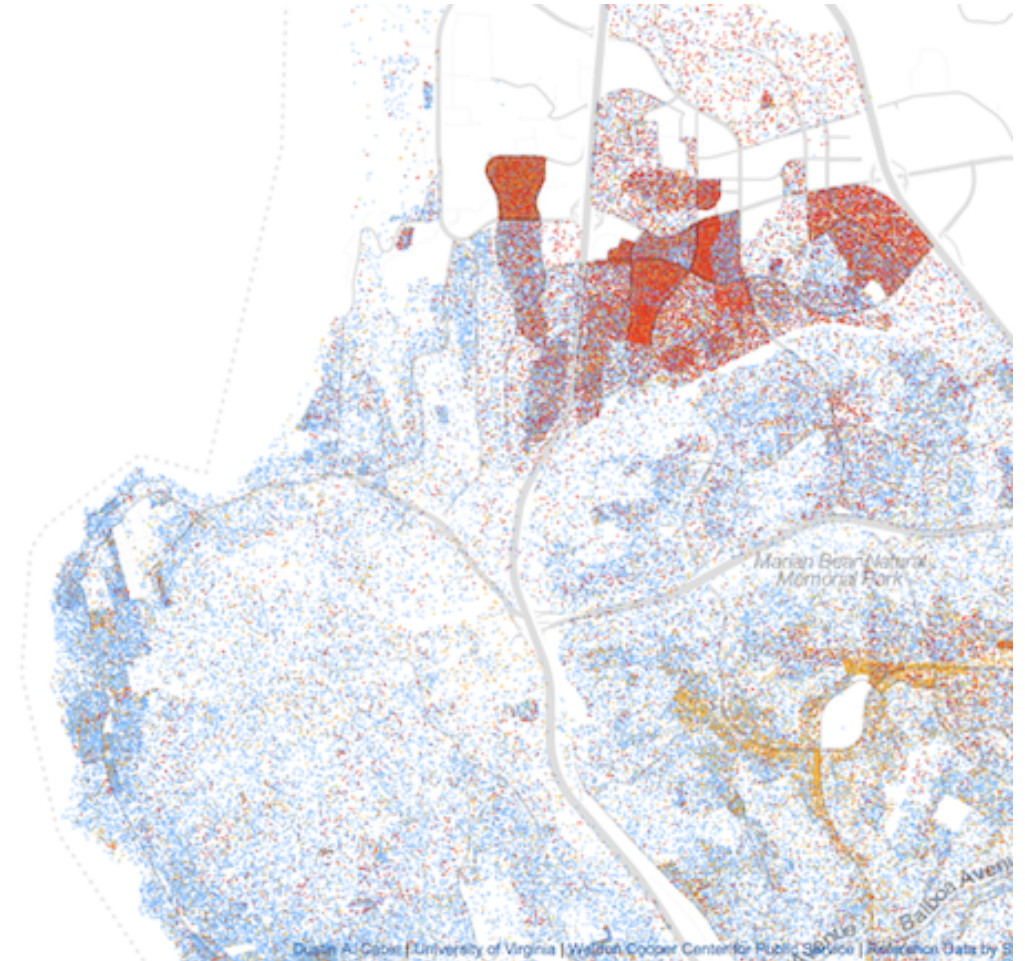
STOLEN YEARS

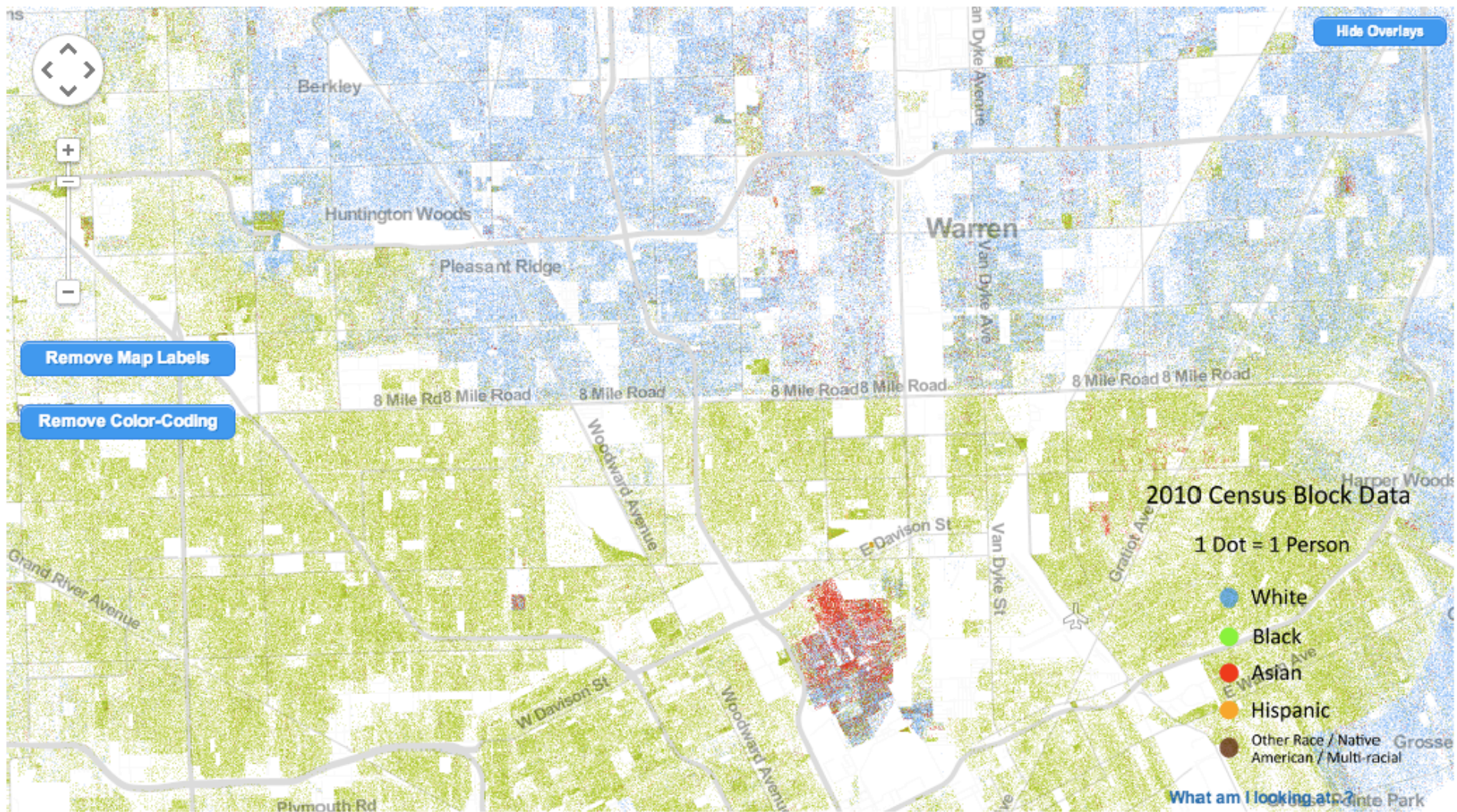


-The Racial Dot Map (2015)



San Diego





- The Racial Dot Map (2015)

Situated Data Visualization

Approach to designing and viewing data viz that:

- Acknowledges rhetorical purpose.
- Incorporates context (always).
- Shows the work (and sources).
- Recognizes knowledge as embodied.

Situated Data Visualization

Context, Interaction and Building Meaning

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