Data for Social Impact: Racial and Economic Justice



Data Strategy Mentorship Program

- This was the first year of the program
- The goal was to develop data talent for the social impact sector
- Self-directed project-based learning that yielded impressive results







Stefan Byrd-Krueger

Katia Williams

ParsonTKO

TechSoup

Program creators



EST	PST	What's happening
12:30 – 1:00pm	9:30 - 10:00am	OPENING SESSION AND WELCOME
1:00 – 2:00pm	10:00 – 11:00am	LIGHTNING PROGRAM PRESENTATIONS
2:00 – 2:30pm	11:00 – 11:30am	BREAKOUT SESSIONS (Round 1)
2:30 – 3:00pm	11:30am – 2:00pm	BREAKOUT SESSIONS (Round 2)

View the full program at **parsonstko.com/dsm**

Ask questions in **Zoom Chat**, or join us on Twitter and LinkedIn **#Data4Impact**

Welcome





Stefan Byrd-Krueger

ParsonTKO Data Strategy Mentorship Program Co-Director **Tony Kopetchny**

ParsonsTKO Co-founder and CEO



Chris Worman

TechSoup Vice President, Alliances & Program Development



Katia Williams

TechSoup Data Strategy Mentorship Program Co-Director

Data for Social Impact: Racial and Economic Justice



PARSONS | TKO

Data for Social Impact: Racial and Economic Justice

August 26, 2020

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Project Lineup

- Black Lives Matter, Always
- The impact of diversity in education
- Environmental Effects from the textile industry
- Urban inequities in air quality
- Police funding in America



Black Lives Matter, Always Sentiment analysis of the Black Lives Matter movement

Who we are









Chelsie Lui

Hoa Nguyen

California Polytechnic State University, Communications Studies San Francisco State University, Business Analytics Jin Pu

Columbia University, Business Analytics Mikayla O'Reggio

University of California, Berkeley, Environmental Economics

BLACK LIVES MATTER, ALWAYS.

Sentiment Analysis of the Black Lives Matter Movement

Research Questions



- 2 Topical Spread
- Sentiments (Positive versus Negative)
- **4** Public perceptions of BLM



Public perceptions of law enforcement

Actionability

Methodology

Interdisciplinary model of research, combining **data-focused methods** (such as Natural Language Processing) with robust **contextual research** to analyze tweets, collect online data, create interactive data visualizations, and provide valuable insights.



sources

INSIGHT 1

Protest Life Cycle

The Life Cycle of the BLM 2020 Movement May 25, 2020 to June 25, 2020

⑦ Google Trend Index on 'Black Lives Matter'



Learn More: <u>blmalways.org/methodology</u>



[®]Black Lives Matter Engagement Trends

Learn More: <u>blmalways.org/methodology</u>

INSIGHT 2

Sentiment Analysis

Sentiments around Black Lives Matter



Learn More: blmalways.org/methodology

INSIGHT 3

Topic Analysis



Learn More: <u>blmalways.org/methodology</u>

Conclusion



THANK YOU

blmalways.org blmalways.team@gmail.com



The impact of diversity in education

Who we are







Timo Budiono

Kettering University, Computer Science and Industrial Engineering



Chelsie Lui

California Polytechnic State University, Communications Studies



Amy Oh

UC Berkeley, Business Administration and Political Economy

UC Berkeley,

Juliana Albertini

Data Science

UC Davis, Microbiology

Muaz Aznan

Affirmative Action

Its Place in the World

Chelsie Lui, Timo Budiono, Muaz Aznan, Amy Oh, Juliana Albertini

Terms to Remember

Affirmative Action

Policies to offset historical discrimination against minorities in various institutions

Race-Based

an approach in which race and ethnicity is a significant factor used to determine eligibility

Race-Neutral

an approach in which race and ethnicity are **not** looked at to determine eligibility As a team comprised of university students and graduates, the potential repeal of a ban on college-level Affirmative Action intrigued us.

Does Affirmative Action achieve what it intends or is it a case of "good intentions gone awry"?

What's better for society, race-neutral or race-based?

We wanted to find out for ourselves.

Current Context

Prop 209

Enacted in 1996, prohibited government institutions from **giving preferential treatment to individuals based on race** or sex, effectively banning racial preferences in college admissions.

<u>ACA 5</u>

On the ballot for November, would effectively repeal Prop 209 and reinstate affirmative action policy in the state.

Students Enrolled - By Race and Year



The most under-represented groups saw a <u>decline</u> in enrollment from 1996-2006.

+2.0%

% of Minorities enrolled in STEM majors has remained **virtually static**.

Future Action Steps

- Study Affirmative Action effects over several generations
- Further research and analysis into minority students "major-occupation STEM retention"
- Earnings and employment data for Affirmative Action admits

Thank you for listening!

Check us out at <u>https://www.diverse.education/</u> Read about our work on <u>Medium @chelsie.lui22</u>



Environmental effects from the textile industry

Who we are



Naa Lamptey-Mills

George Washington University, Public Health



Steven Tran Lu

San Francisco State University, Information Systems



Hervin Sagnep

San Francisco State University, Business Administration

The Environmental Effects of the Textile Industry

Hervin Sagnep, Steven Lu, Naa Lamptey-Mills

What is our project?

Discovering the impact of the fast-fashion and textile industry on our local economy from a economic and public health point of view.



Madderson, London

What is the goal of this research?

- For consumers to be more informed of where their clothing products come from
- For leaders to find alternative solutions to industry practices
- Inform people of the environmental consequences of the textile industry



Additional Statistics.
Quick Statistics

Water Use in Textile Processing

Processing Subcategory	Water Use Minimum, gal/lb of production	Water Use Median, gal/lb of production	Water Use Maximum, gal/ Ib of production		
Wool	13.3	34.1	78.9		
Woven	0.6	13.6	60.9		
Knit	2.4	10.0	45.2		
Carpet	1.0	5.6	19.5		
Stock/Yarn	0.4	12.0	66.9		
Nonwoven	0.3	4.8	9.9		
Felted Fabrics	4.0	25.5	111.8		

Imports of textiles into the United States



Preview of Our Data Sets:

We used a total of four different data sets from kaggle, gemstats, and worldbank.

State Name	District Name	Block Name	Panchayat Name	Village Name	Habitation Name	Quality Parameter	Year
ANDHRA PRADESH	EAST GODAVARI(04)	PRATHIPADU(10)	GOKAVARAM(04)	VANTHADA(014)	VANTHADA(0404410014010400)	Salinity	1/4/09
ANDHRA PRADESH	EAST GODAVARI(04)	PRATHIPADU(10)	GOKAVARAM(04)	PANDAVULAPALEM(022)	PANDAVULAPALEM(0404410022010400)	Fluoride	1/4/09
ANDHRA PRADESH	EAST GODAVARI(04)	PRATHIPADU(10)	GAJJANAPUDI(06)	G. KOTHURU(023)	G. KOTHURU(0404410023010600)	Salinity	1/4/09
ANDHRA PRADESH	EAST GODAVARI(04)	PRATHIPADU(10)	GAJJANAPUDI(06)	GAJJANAPUDI(029)	GAJJANAPUDI (0404410029010600)	Salinity	1/4/09
ANDHRA PRADESH	EAST GODAVARI(04)	PRATHIPADU(10)	CHINTALURU(10)	CHINTALURU(028)	CHINTALURU(0404410028011000)	Salinity	1/4/09
ANDHRA PRADESH	EAST GODAVARI(04)	PRATHIPADU(10)	ELURU(16)	P. JAGANNADHAPURAM (035)	P. JAGANNADHAPURAM(0404410035011600)	Fluoride	1/4/09

Number of Observations: 550243 Number of Variables: 8

STATION CODE	LOCATIONS	STATE	Temp	D.O. (mg/l)	PH	CONDUCTIVITY (µmhos/cm)	B.O.D. (mg/l)	NITRATENAN N+ NITRITENANN (mg/l)	FECAL COLIFORM (MPN/100ml)	TOTAL COLIFORM (MPN/100ml)Mean	Year
1393	DAMANGANGA AT D/S OF MADHUBAN, DAMAN	DAMAN & DIU	30.6	6.7	7.5	203	NAN	0.1	11	27	2014
1399	ZUARI AT D/S OF PT. WHERE KUMBARJRIA CANAL JOINS, GOA	GOA	29.8	5.7	7.2	189	2	0.2	4953	8391	2014
1475	ZUARI AT PANCHAWADI	GOA	29.5	6.3	6.9	179	1.7	0.1	3243	5330	2014
3181	RIVER ZUARI AT BORIM BRIDGE	GOA	29.7	5.8	6.9	64	3.8	0.5	5382	8443	2014
3182	RIVER ZUARI AT MARCAIM JETTY	GOA	29.5	5.8	7.3	83	1.9	0.4	3428	5500	2014

Number of Observations: 1992 Number of Variables: 12

What information did we look at?



Image captured by New York Times Article, express concerns of the fast fashion industries and its environmental impact.

- Most Common Chemicals in each State.
- Public Health Cost of these effects?
- Impact of textile industry on water quality.
- Average water temperature each year.

We'll be talking about the process of our analysis, the technical work we did, and why it's important to consider the environment.



We'll then conclude the segment with our own individual experiences and what we learned from this entire project.

Closing Off Statistics: Unethical Sweatshops



300,000 VND/8hrs ~ \$13 USD/8hrs 1 worker ~ 200 + Garments/hr



Redlining & Burdens of Air Pollution

Who we are



Hadrien Picq

Johnathan Padilla

Concordia University, Environmental Assessment MEnv

San Jose State University, Physics B.S.



Air Pollution is a global threat to public health

 $\bullet \bullet \bullet$

with local characteristics



estimated global death toll due to ambient air pollution worldwide



7.9%

Asthma prevalence in the U.S. population (2017)

Spotlight on Fine Particulate Matter



[3]

Community-based participatory research in Air Monitoring





What does <u>redlining</u> have to do with air pollution?

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Spotlight on Seattle, WA









(Nardone, Thakur & Balmes, 2019)



"Best": 6%

"
This area is one of the most popular residential districts in Seattle. The

residents are of the professional class, having an annual income of \$4000 to \$10,000 per year. There is very choice view property in this area. The homes, generally, are less than to years old-- in the \$6500 to \$15,000 price class; and well maintained. During 1935 there were some new residential structures placed under construction in this area. The property is protected by building and racial restrictions."









"<u>This is the Negro area of Seattle."</u>



41%

'Definitely

Declining'

22%

[10]

Is there a legacy from <u>Redlining</u> on indicators of burdens of air pollution?



Percentage of POC in each Level of District Zoning

Zone Grades





Zone Grades (D is redlined)



What is the proximity of minority populations to Purple Air sensors?

Location of active Purple Air sensors as of August 2020



Minority Populations within 1,000 m coverage of a Purple Air sensor



Minority Populations between 1,000 to 3,000 m coverage of a Purple Air sensor



Minority Populations between 3,000 to 6,000 m coverage of a Purple Air sensor





Proportion of Minorities (%) within 1,000 m of a Purple Air sensor



Identifying neighborhoods to expand local air monitoring coverage










Mapping "Residential Security" in 1936 Seattle

[The Home Owners' Loan Corporation (HOLC), a federal agency responsible for X and known today as Y, was responsible for ...]

Grade A: "Best"

- 💹 Grade B: "Still Desirable"
- Grade C: "Definitely Declining"
- Grade D: "Hazardous"



Citations & Images

[1] World Health Organization (WHO). (2016). *Ambient air pollution: A global assessment of exposure and burden of disease*. <u>https://www.who.int/phe/publications/air-pollution-global-assessment/en/</u>

[2] Brown, P., Mayer, B., Zavestoski, S., Luebke, T., Mandelbaum, J., McCormick, S., & Mercedes, L. (2011). The Health Politics of Asthma: Environmental Justice and Collective Illness Experience. In P. Brown, R. Morello-Frosch & S. Zavestoski (Eds.), *Contested illnesses: citizens, science, and health social movements* (pp.108-122). London, England: Univ of California Press.

[3] U.S. Environmental Protection Agency (EPA). (2020). *Particulate Matter (PM) Basics*.

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[4] Maschke, Alena. (July 12th, 2018). *State issues \$500,000 grant to expand air monitoring program near Salton Sea.* Desert Sun. <u>https://tinyurl.com/y5wukyny</u>

[5] Stewart, Leslie. (February 2019). *ALL PARTICULATE IS LOCAL: NEW TECH HELPS MAP COMMUNITY AIR QUALITY.* Bay Area Monitor. <u>https://tinyurl.com/y6yovf7s</u> [6] Chandler, Ashlie. (February 4th, 2019). *New study shows how exposure to air pollution early in life may lead to autism*. Washington University School of Public Health. <u>https://tinyurl.com/y32ee555</u>

[7] National Community Reinvestment Coalition (NCRC). (March 20, 2018). *HOLC "Redlining" Maps: The Persistent Structure Of Segregation And Economic Inequality.* https://ncrc.org/holc/

[8] University of Richmond's Digital Scholarship Lab. (2019). *Mapping Inequality: Redlining in New Deal America.* <u>https://dsl.richmond.edu/panorama/redlining</u>

[9] Nardone, A., Thakur, N., & Balmes, J. R. (2019). *Historic Redlining and Asthma Exacerbations across Eight Cities of California: A Foray into How Historic Maps Are Associated with Asthma Risk.* In D96. ENVIRONMENTAL ASTHMA EPIDEMIOLOGY (pp. A7054-A7054). American Thoracic Society. <u>https://tinyurl.com/y32fagmc</u>

[10] Silva, Catherine. (2008). *Racial Restrictive Covenants History: Enforcing Neighborhood Segregation in Seattle*. The Seattle Civil Rights & Labor History Project. <u>https://depts.washington.edu/civilr/covenants_report.htm</u>

*Selected images, in order of appearance

From the Seattle Municipal Archives Digital Collections

http://archives.seattle.gov/digital-collections/index.php/Detail/objects/28080

http://archives.seattle.gov/digital-collections/index.php/Detail/objects/32923

http://archives.seattle.gov/digital-collections/index.php/Detail/objects/89536

Learn More About Community Air Monitoring

<u>A Tale of Two Neighborhoods: New</u> <u>Interactive Story Map Visualizes</u> <u>Environmental Injustice in the Historic West</u> <u>End</u>

Mapping Inequality

PSCAA's Air Sensor Lending Program

Publication by Priyanka deSouza

IVAN Community Air Monitoring Network

California Assembly Bill 617









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Police funding in America

Who we are





University at Buffalo, Management of Information Systems



Timo Budiono

Kettering University, Computer Science



Mohammad Kanawati Jin Huang

UC Irvine, Data Science University of Chicago, Political Science

UC Davis, Microbiology

Muaz Aznan



Juliana Albertini

UC Berkeley, Data Science

More Money, More Problems A Story of Police Funding in America

Timo Budiono, Muaz Aznan, Juliana Albertini, Mohammad Kanawati, Suakshay Bahal, Jin Huang

Project Vision

- Tell the "data story" of Defund The Police
 - Increased attention after murder of George Floyd.
 - Against "bloated" police budgets.
 - Believes in funding of social services.

Questions to Answer

- 1. Does more money for cops mean less crime in the streets?
- Is there a correlation between police funding and certain pop. demographics?

"More Cops = Less Crime" is False

- Higher police spending correlates with higher crime metrics until 2009/2010.
- Police spending increases despite drop in crime.



More White = Less \$ for Police

Higher state pop. of whites correlates to lower funding for police.

<u>No other ethnic group</u> <u>experiences that trend.</u>



Why do you think that is?

Future Research Steps

- 1. Will increased funding for social services actually make for safer communities?
- 2. Will decreasing police budgets make them less effective for violent crimes?
- 3. Does higher median income in communities lead to lower % of police funding, *regardless* of demographic makeup?

Thank you for listening!

Next up: Methodology Presentations

- Choose two 30-minute sessions
- Talks and Q&A with teams

Links to your next Zoom rooms are at: parsonstko.com/dsm