

Decoding Political Advertising

Inferring Messages and Predicting Impacts

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Advertising

- Promote products, brands, ideas.
- Core function of mass media
 - Reduce cost for users.
 - Advertisers buy the public attention from media.

Advertising

- Communicative activity
 - o Fundamental goal is persuasion.
 - o Argumentation.



FASTERPIECE.
DESIGNED FOR DRIVING PLEASURE.



Advertising

- Rhetorical techniques

- metaphor, framing, exaggeration, distortion



before after

Visibly more beautiful skin from the most unexpected of places – your shower.

Introducing Dove VisibleCare, our new revolutionary line of body washes that actually improves the look of your skin. With our highest concentration of NutriumMoisture™, you'll see visibly more beautiful skin in just one week. NEW DOVE VISIBLECARE CRÈME BODY WASH.

@HayTheMom



Inferring Semantic Meaning

- Learning and inferring association between symbols (signs, words, visual objects, etc) and their meanings.

- Requires deeper understanding of context, physics, causality, culture, social customs, etc



(Ye & Kovashka 2017)

Political Advertising

- Promote politicians, parties, political agenda.



Election 2016
MONEY RAISED AS OF DEC. 31

\$1.4 B

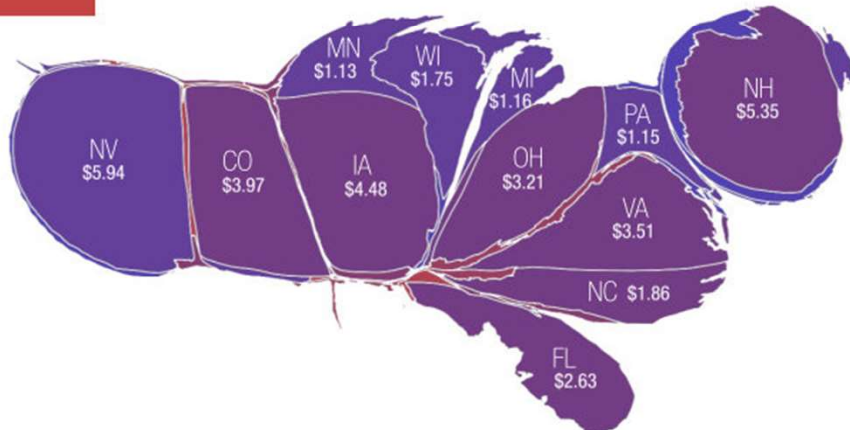
- \$623.1 million ■ Hillary Clinton campaign
- \$598.2 million ■ Party and joint fundraising committees
- \$204.4 million ■ Super PACs



\$957.6 M

- \$334.8 million ■ Donald Trump campaign
- \$543.4 million ■ Party and joint fundraising committees
- \$79.3 million ■ Super PACs

Ad Spending Per Voter In Dollars

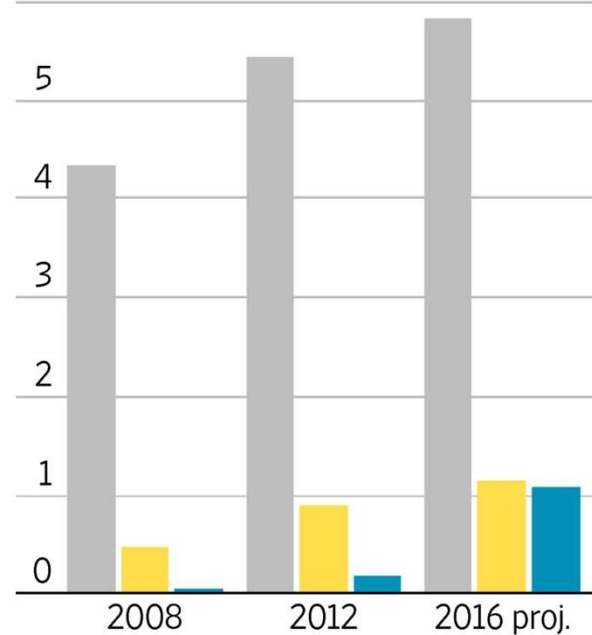


Spending Shift

Total political ad dollars in each election year

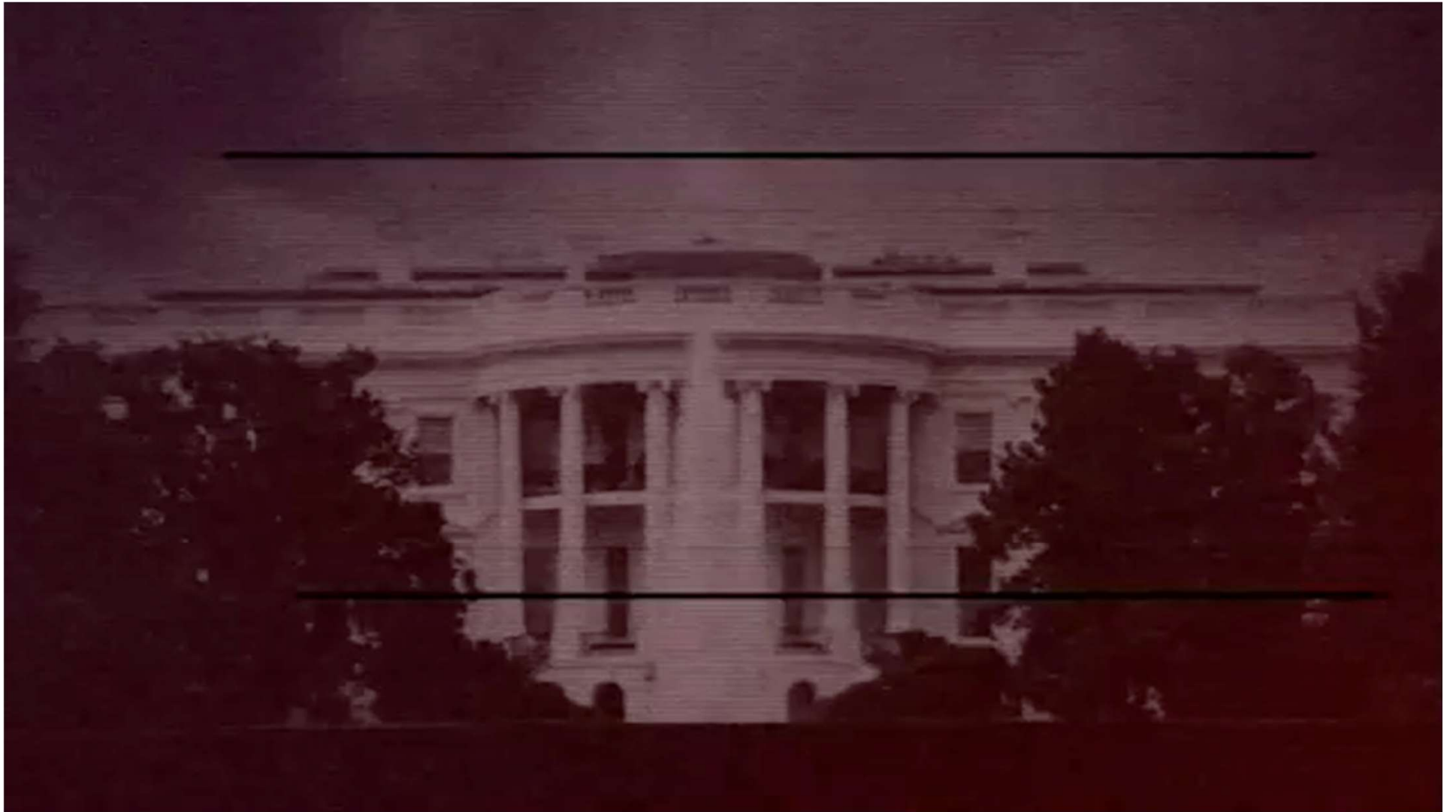
■ Broadcast TV ■ Cable ■ Digital

\$6 billion



Source: Borrell Associates

THE WALL STREET JOURNAL.









Research Questions

- How do we infer the main argument from a political ad?
- What are the impacts of visual persuasion to the viewers—voters?

SpotCheck

- Randomized experiment in 2016 election
 - o Vavreck & Geer

AD ONE

Unfit

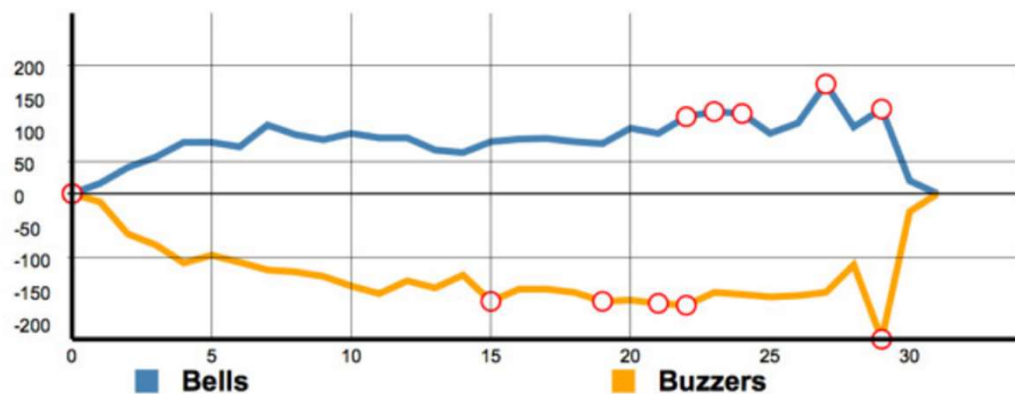


AD TWO

Daughters

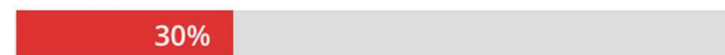


SpotCheck



View Republican Party:

Favorable



Unfavorable



View Democratic Party:

Favorable



Unfavorable



Challenges

- Difficult to construct a general knowledge base
- Difficult to reason latent context dependent meanings of scene elements using the knowledge base
- Difficult to detect surface features from videos

Data Collection

- Historic collection of political campaign ads
 - UCLA NewsScape TV News Archive
 - Youtube
 - Social media

UCLA NewsScape TV News Archive

The UCLA Library Broadcast NewsScape

debate Search [Advanced Search](#)

Results 1 - 10 of 109741 for debate

CNN Early Start [video](#) [text](#) [montage](#) [metadata](#) [permalink](#)
Monday October 3, 2016 at 1:00 am PDT (2016-10-03 08:00 UTC)
debate matched 3 times
FLYING BACK HOME. TODAY, SHE TRAVELS TO TOLEDO AND AKRON, OHIO. >> JOE JONAS, THANK YOU, WE ARE ONE DAY AWAY FROM THE NEXT PRESIDENTIAL POLITICAL EVENT, THE VICE PRESIDENTIAL POLITICAL DEBATE. TIM KAISER AND MIKE PENCE FACEOFF IN VIRGINIA. >>> HURRICANE MATTHEW IS BEARING DOWN. THIS IS A SERIOUS STORM IN THE CARIBBEAN. A LOT OF AMERICANS BEING EVACUATED. WE HAVE REPLY
NOW IT IS JUST ON THE FRONT PAGE OF THE NEW YORK TIMES. IT IS PART OF POP CULTURE. WHAT DO I HEAR? SATURDAY ADOPT LIVE! STARTED WITH THE HOOK DEBATE AND THE ISSUES TAKES CARE OF WATCH. >> HE HADN'T RELEASED HIS TAX RETURNS WHICH MEANS HE IS NOT THAT RICH. >> WRONG. >> OR HE NEVER PAID TAXES IN HIS LIFE. >>> WARMER.

KMEX Noticias Univision Fin de Semana [video](#) [text](#) [montage](#) [metadata](#) [permalink](#)
Sunday October 2, 2016 at 11:30 pm PDT (2016-10-03 06:30 UTC)
debate matched 3 times
ESTE CONTADOR OCE QUE SE APROVECHO DE LAS OPORTUNIDADES DEL CÓDIGO DE RENTAS INTERNAS. >> ESTAS RENDIDAS SON LAS QUE LES HACEN, LES AYUDAN A NO PAGAR IMPUESTOS; REPORTERA: EN EL DEBATE PRESIDENCIAL NO REGO LAS ACUSACIONES, SO ME HACE INTELIGENTE, NO DESHERITO Y ODO QUE CONOZCA LAS LETRAS MEJOR QUE NINGUNA OTRA PERSONA Y ES EL ÚNICO QUE PUEDE CORRESPONERLAS. ES

KABC Eyewitness News 11PM [video](#) [text](#) [montage](#) [metadata](#) [permalink](#)
Sunday October 2, 2016 at 11:00 pm PDT (2016-10-03 06:00 UTC)
debate matched 4 times
IN HER CAMPAIGN FOR PRESIDENT, HILLARY CLINTON HAS RECEIVED \$10 MILLION IN CONTRIBUTIONS FROM WALL STREET AND HEDGE FUNDS. JOVANA: DONALD TRUMP WAS REPORTEDLY PREPARING FOR NEXT SUNDAY'S TOWN HALL DEBATE WITH CLINTON. THIS TUESDAY IT IS A VICE PRESIDENTIAL DEBATE BETWEEN TIM KAISER AND MIKE PENCE. YOU CAN WATCH THE DEBATE HERE ON ABC 7. ON TUESDAY, LOOK FOR COMPLETE
MILLION IN CONTRIBUTIONS FROM WALL STREET AND HEDGE FUNDS. JOVANA: DONALD TRUMP WAS REPORTEDLY PREPARING FOR NEXT SUNDAY'S TOWN HALL DEBATE WITH CLINTON. THIS TUESDAY IT IS A VICE PRESIDENTIAL DEBATE BETWEEN TIM KAISER AND MIKE PENCE. YOU CAN WATCH THE DEBATE HERE ON ABC 7. ON TUESDAY, LOOK FOR COMPLETE COVERAGE ON EYEWITNESS NEWS BEBRADING AT 11:00 FOLLOWED BY

2016-10-03 08:00 US CNN Early Start
2016-10-03 01:00

37 DAYS UNTIL ELECTION DAY



Tweets Mention
We crawl tweets for all candidates from Twitter API and calculate the number of tweets referred to each of them each day.

Tweets Count
Donald Trump, Hillary Clinton, Bernie Sanders, Ted Cruz, Ben Carson



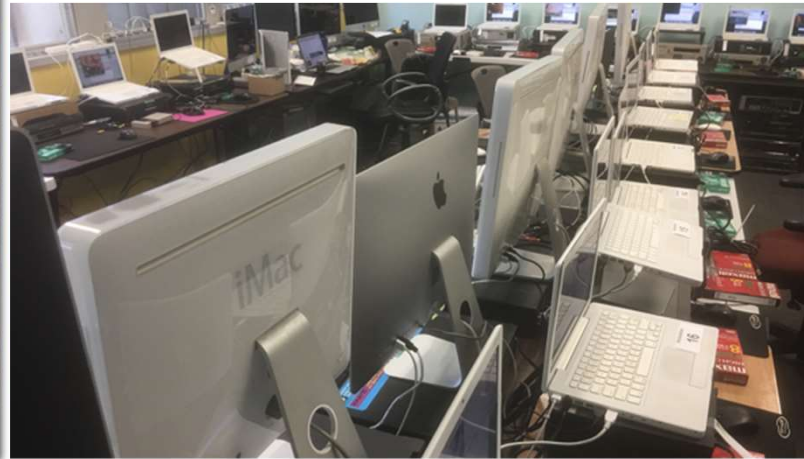
Tweets Count Percentage
Donald Trump, Hillary Clinton, Bernie Sanders, Ted Cruz, Ben Carson



- International TV news videos from 20+ countries
 - o From 2005, 250,000+ hours
 - o US, Spain, Russia, China, UK, ...
 - o Videos and captions
 - o Li, Joo, Steen, Zhu (2017); Joo, Steen, Turner (2018); Steen et al. (2018)

Digitization of Analog Collection

- US TV news and commercials from 60s



Developing Ontology of Political Communication

- Topic

- Economy
- Security & defense
- Education
- Technology
- Issues and policies



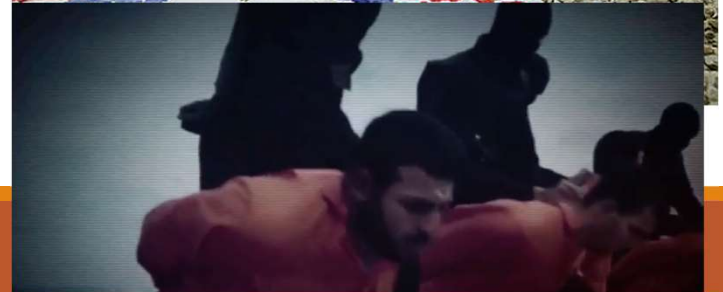
- People

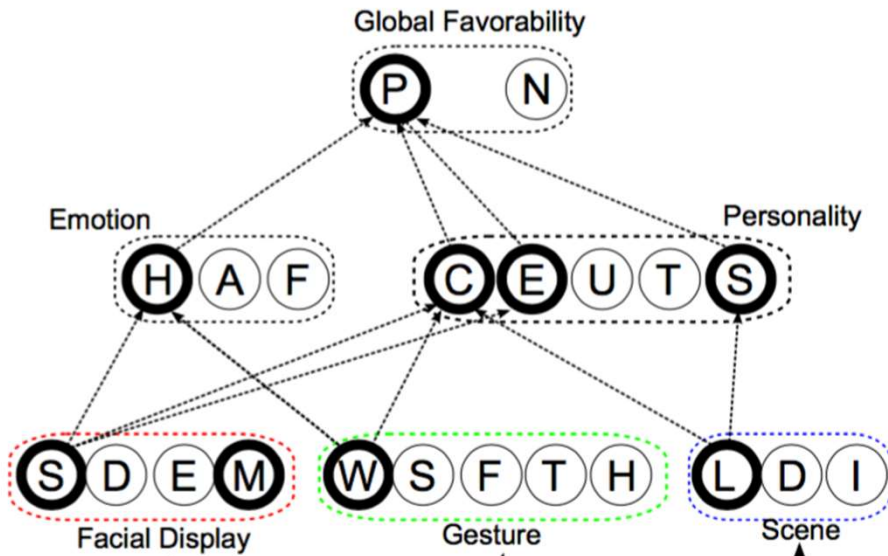
- Expressions
- Demographics



- Sentiments & invoked emotions

Visual Framing of Topics



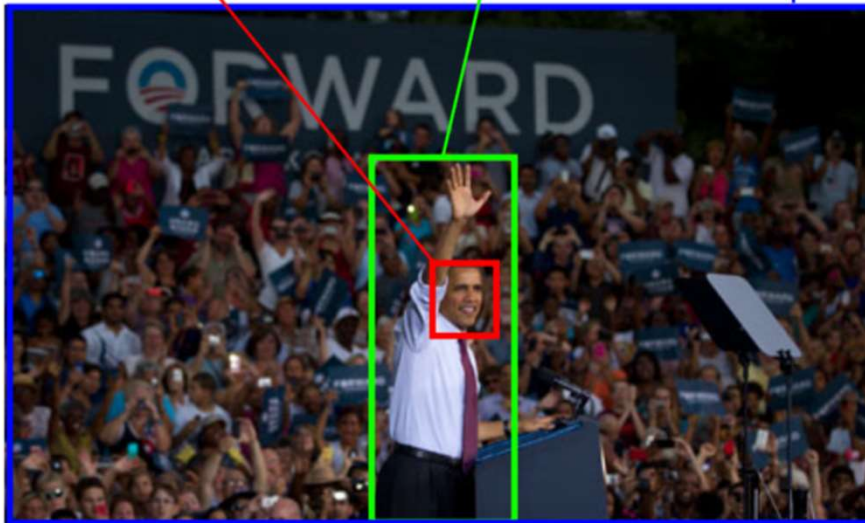


(b) Persuasive Intent

Emotion	Personality	Global
Happy Angry Fearful	Competent Energetic Understanding Trustworthy Social Power	Favorability (Pos vs. Neg)

(a) Syntactical Attributes

Facial Display	Gesture	Scene Context
Smile Look Down Eye Open Mouth Open	Hand-Wave Hand-Shake Finger-Point Touch-Head Hug	Large Crowd Dark-Background Indoor



(Joo, Li, Steen & Zhu, 2014)

Measuring Protest with Images

- Protest

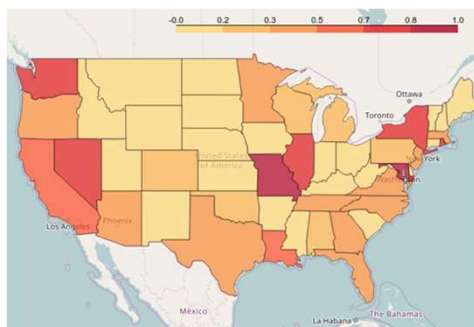
- Another form of political communication against state, person, event, issues or social beliefs.
- Publicized in mass/social media, gain support from the public



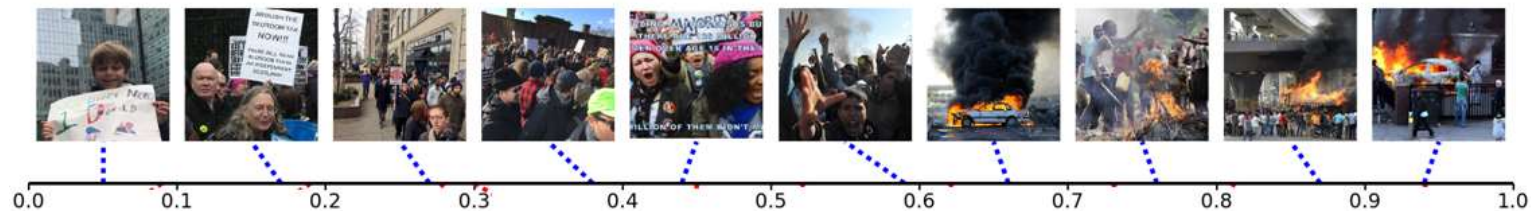
Measuring Protest with Images

- What can we tell about protests from **images**?

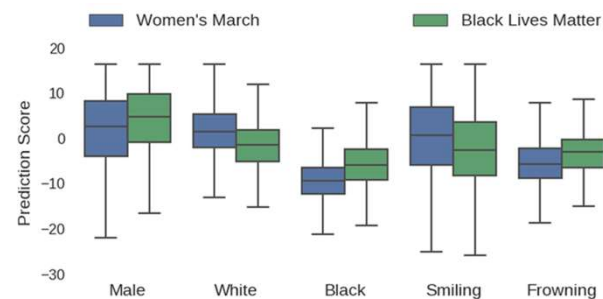
- Track protest activities:
location, time, size of protest



- Peaceful vs. Violent protest



- Protester Demographics

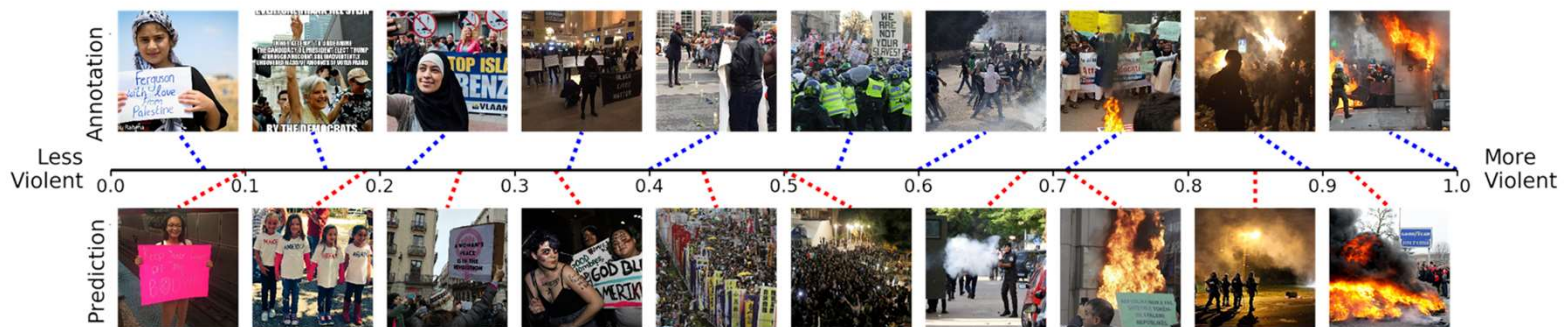
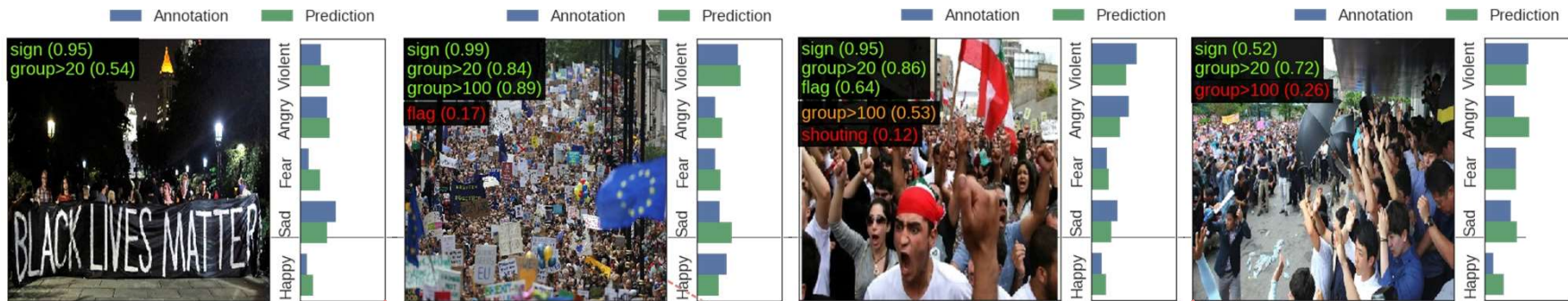


UCLA Protest Image Dataset

- 40k images of protest events
- Annotations of scene attributes and perceived violence



“Protest Activity Detection and Perceived Violence Estimation from Social Media Images.”
Won, Steinert-Threlkeld, Joo (2017)

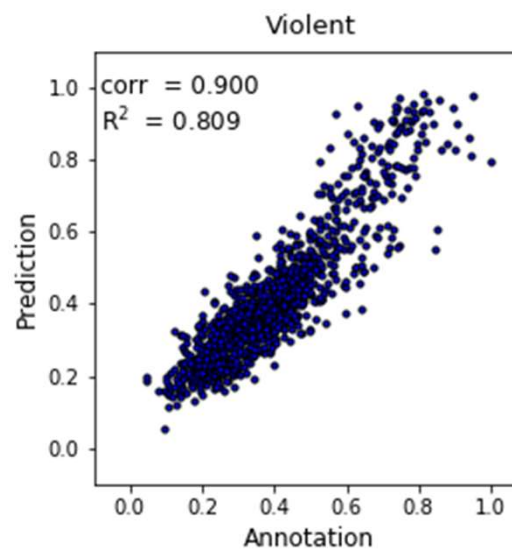
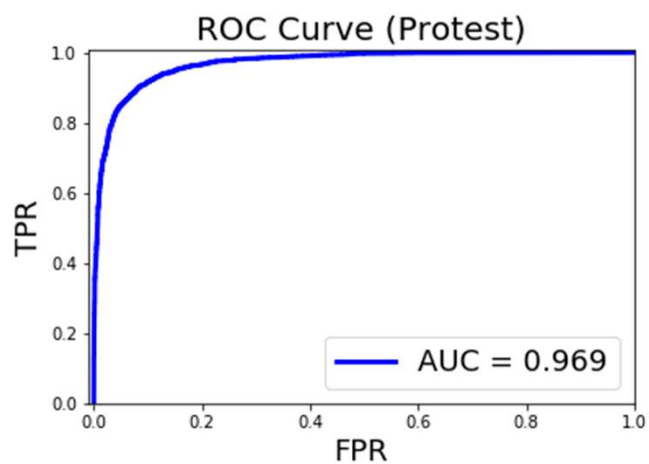


Model

- ResNet-50
- Multitask learning for attribute classification and violence estimate
- Trained with 40k labeled images
- The model and data are publicly available.
 - <https://github.com/wondonghyeon/protest-detection-violence-estimation>

Model

Fields	Protest	Sign	Photo	Fire	Law enf	Children
Pos. rate	.286	.829	.036	.057	.067	.030
AUC	.969	.919	.738	.984	.921	.813
	-	Grp>20	Grp>100	Flag	Night	Shout
Pos. rate	-	.730	.252	.083	.084	.047
AUC	-	.795	.837	.854	.928	.852



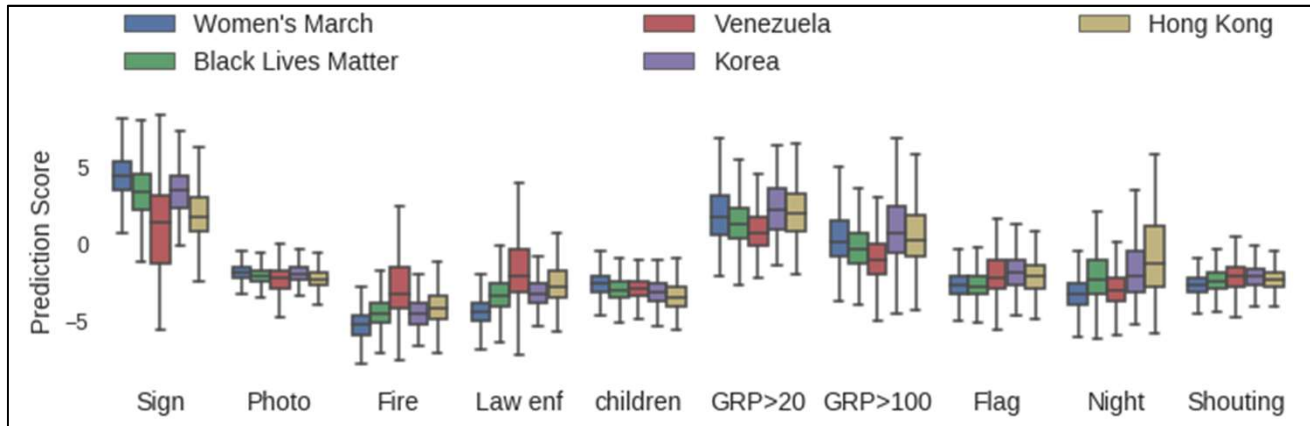
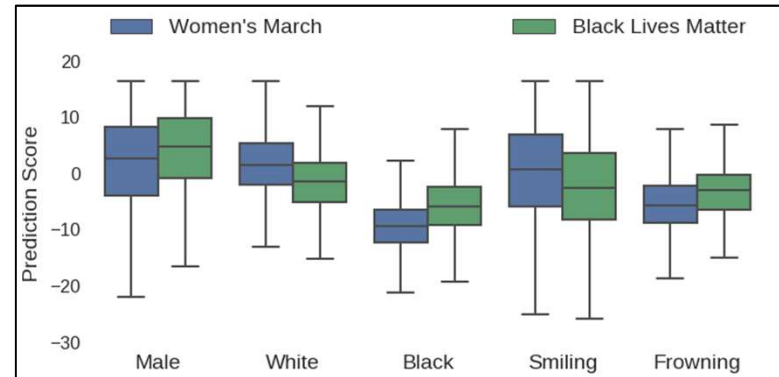
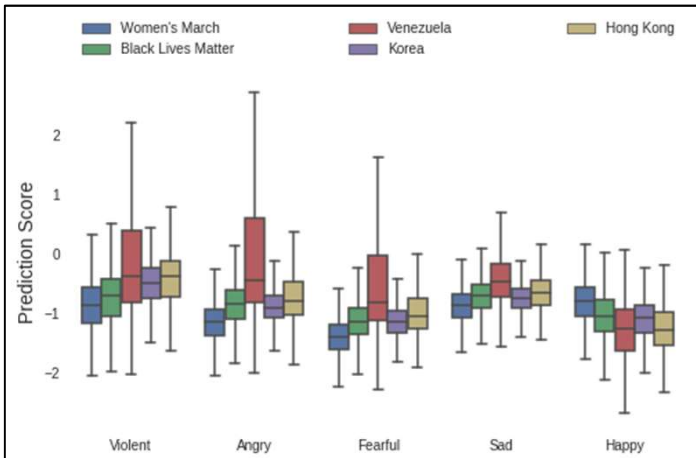
Mapping between Attributes and Emotions

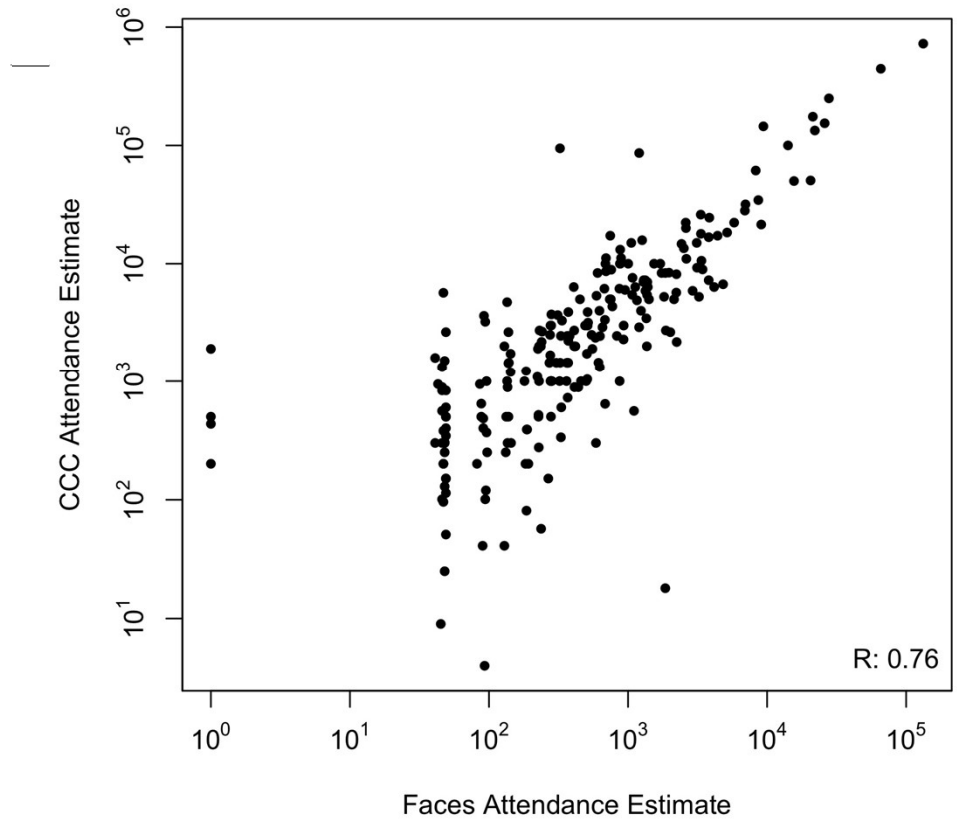
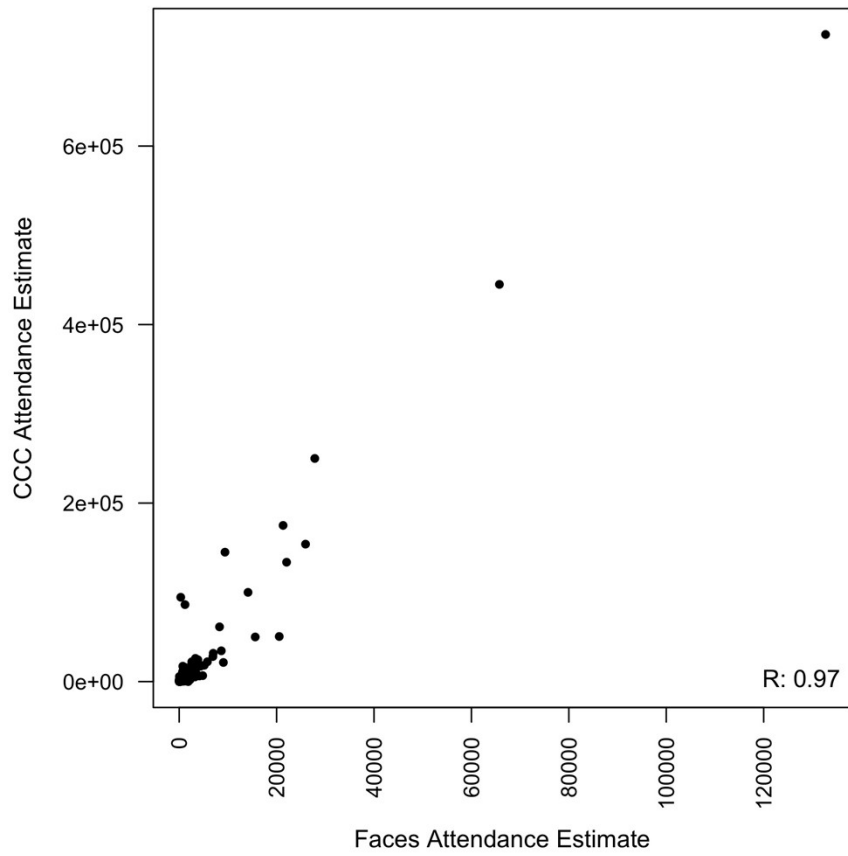
	Sign	Photo	Fire	Law enf.	Grp> 100	Night	Shout	Male	White	Black	Smile	Frown
Violent	-0.479	-0.047	0.567	0.367	0.152	0.206		0.12	-0.166	0.189	-0.151	0.181
Angry	-0.549		0.578	0.417	-0.166	0.183	0.106	0.146	-0.172	0.193	-0.196	0.223
Fearful	-0.495		0.504	0.399	-0.279	0.143		0.145	-0.171	0.194	-0.186	0.21
Sad	-0.288		0.297	0.239	-0.147	0.086		0.137	-0.16	0.18	-0.145	0.175
Happy	0.255		-0.184	-0.186		-0.129	-0.087	-0.151	0.158	-0.143	0.229	-0.237

Data

- Geolocated tweets from Twitter streaming API
 - Find all images from 14 protest waves since 08.26.2013.
 - Find all protest images from these 14.
 - Classify attributes and measure perceived violence
 - Aggregate to country-day.

Event Analysis





Future Work

- What are the impacts of visuals in protest?



Future Work

- Decoding symbols of protest



Conclusions

- Media affect public opinion and policy
- Computer vision as a tool to understand the impacts of political communication
- RQ in AI/CV/ML : Reasoning high level meaning construction and learning from social knowledge

Collaborators



Donghyeon
Won



Zachary
Steinert-Threlkeld



Francis
Steen



Tim
Groeling



THANKS!

