

# Decoding Political Advertising

Inferring Messages and Predicting Impacts

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UCLA



# Advertising

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

# Advertising

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



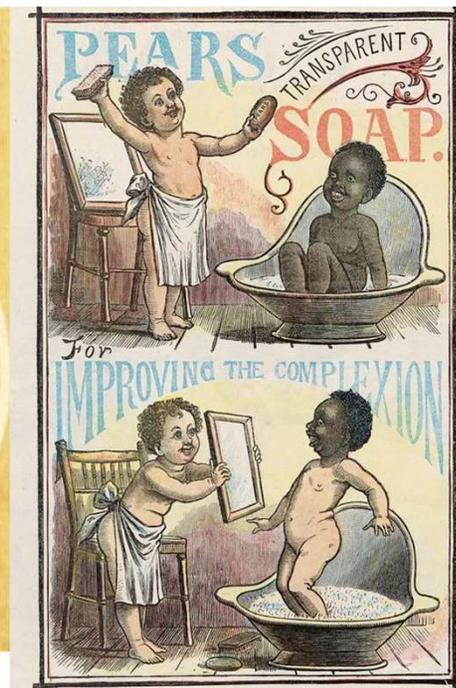
**FASTERPIECE.**  
DESIGNED FOR DRIVING PLEASURE.



# 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.

@HayTheMoo



# Inferring Semantic Meaning

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- 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

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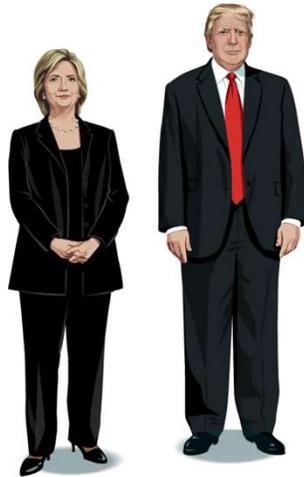
- Promote politicians, parties, political agenda.



Election 2016  
MONEY RAISED AS OF DEC. 31

**\$1.4 B**

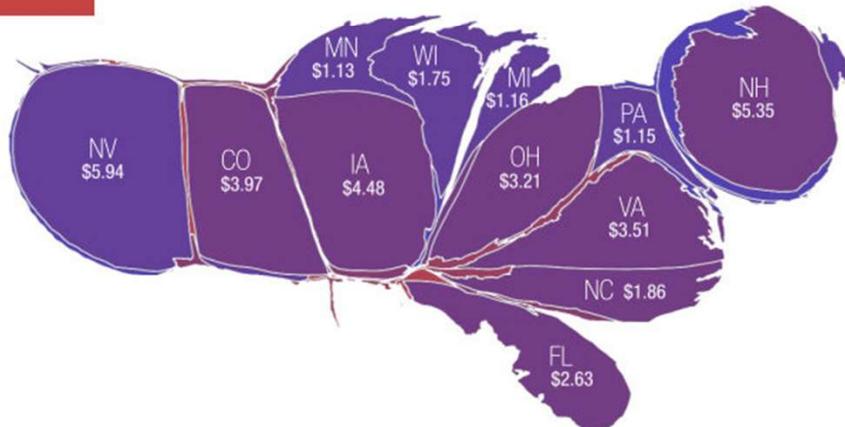
- \$623.1 million** ■ Hillary Clinton campaign
- \$598.2 million** ■ Party and joint fundraising committees
- \$204.4 million** ■ Super PACs



**\$957.6 M**

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

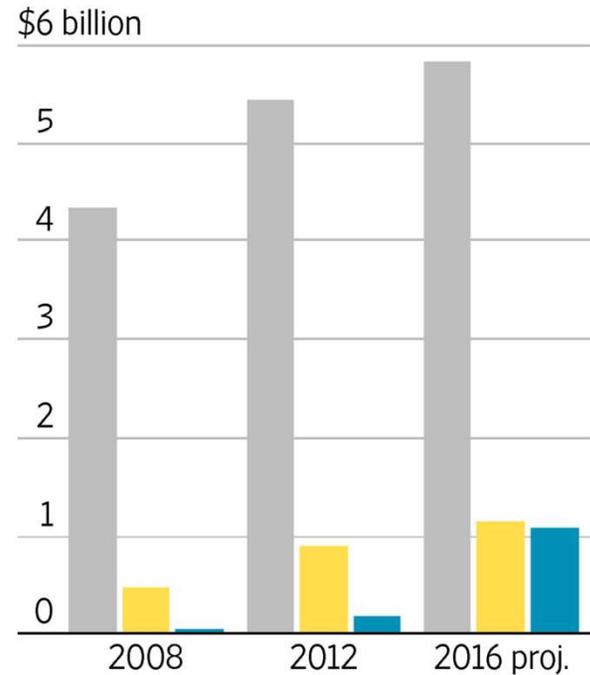
Ad Spending Per Voter In Dollars



## Spending Shift

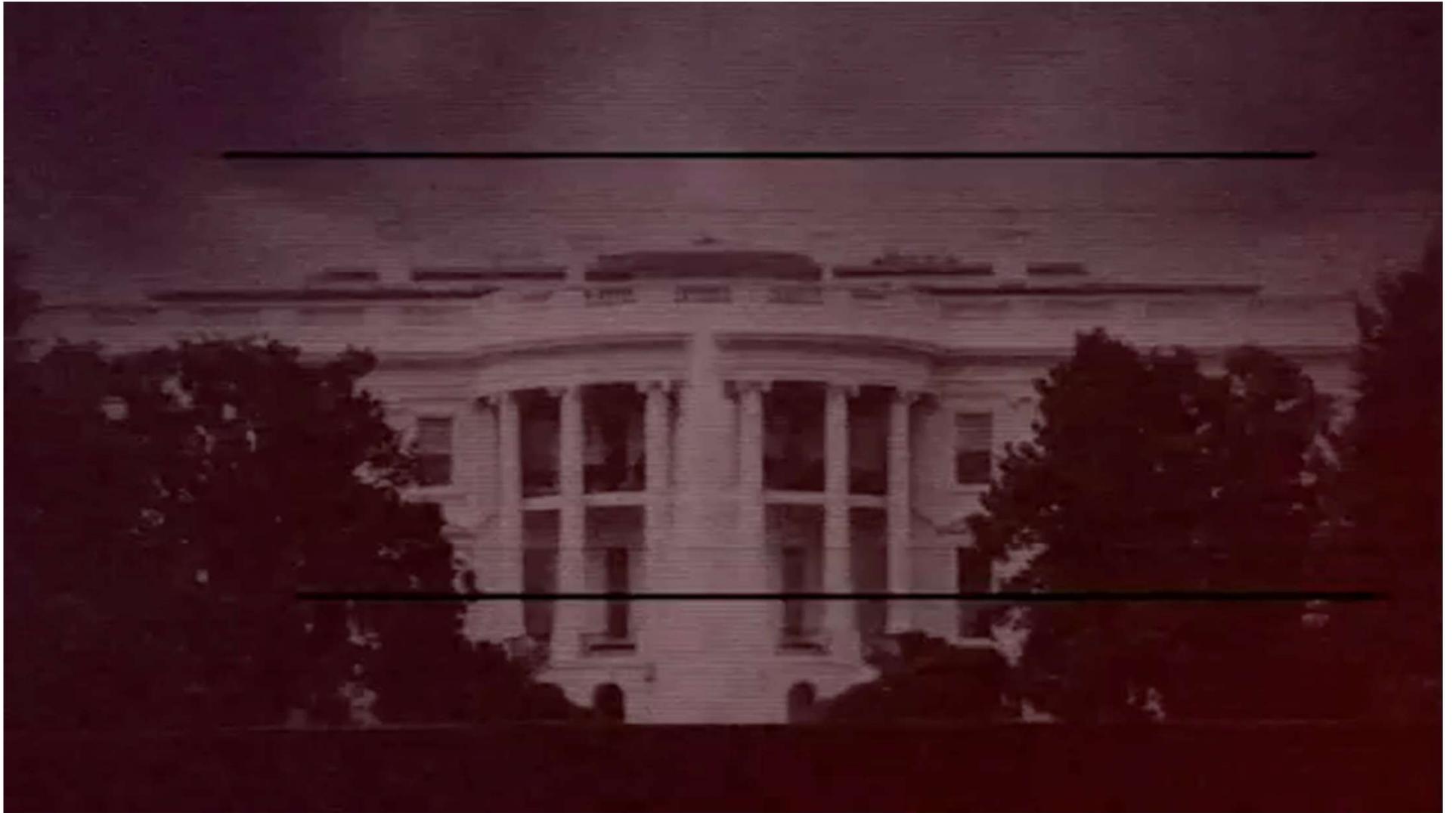
Total political ad dollars in each election year

■ Broadcast TV ■ Cable ■ Digital



Source: Borrell Associates

THE WALL STREET JOURNAL.









# Research Questions

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

# SpotCheck

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- Randomized experiment in 2016 election
  - o Vavreck & Geer

AD ONE

Unfit



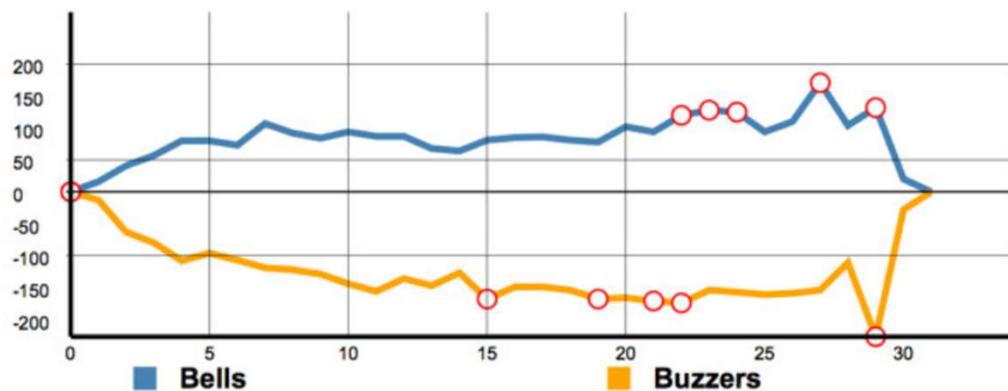
AD TWO

Daughters



# SpotCheck

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## View Republican Party:

Favorable



Unfavorable



## View Democratic Party:

Favorable



Unfavorable



# Challenges

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- 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

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

# UCLA NewsScape TV News Archive

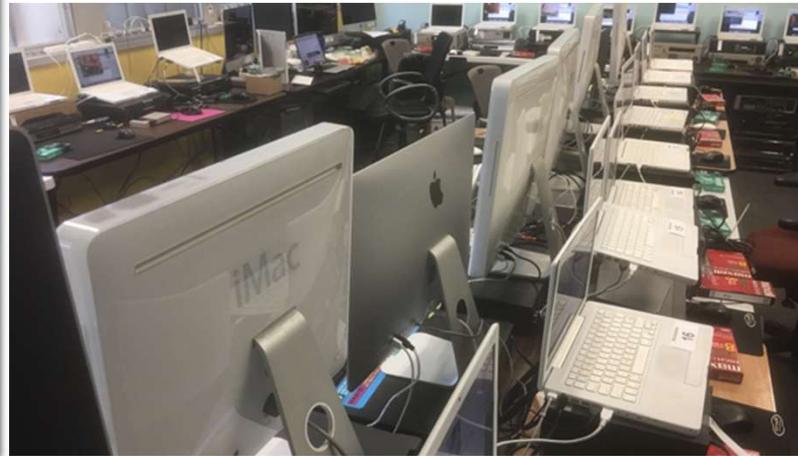
The screenshot displays the UCLA NewsScape website interface. At the top, it says "The UCLA Library Broadcast NewsScape" with a search bar and "Advanced Search" link. Below the search bar, there are several video thumbnails. The main content area shows search results for "debate", with "Results 1 - 10 of 109741 for debate". The first result is "CNN Early Start" from Monday, October 3, 2016, at 1:00 am PDT. The video player shows a news anchor with a "37 DAYS UNTIL ELECTION DAY" banner. To the right, there are two charts: "Tweets Mention" and "Tweets Count Percentage". The "Tweets Mention" chart is a line graph showing the number of tweets mentioning candidates from August 2015 to February 2016. The "Tweets Count Percentage" chart is a stacked area chart showing the percentage of tweets for each candidate over the same period.

- 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

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- US TV news and commercials from 60s

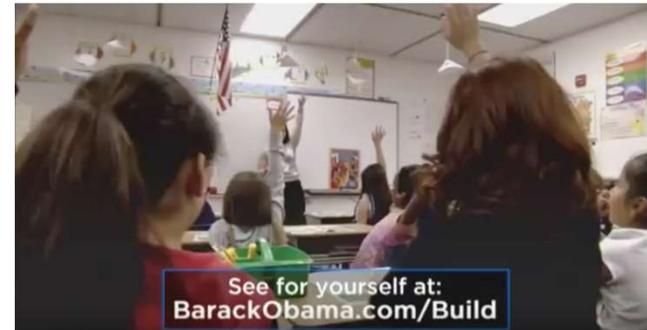


# Developing Ontology of Political Communication

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## - Topic

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



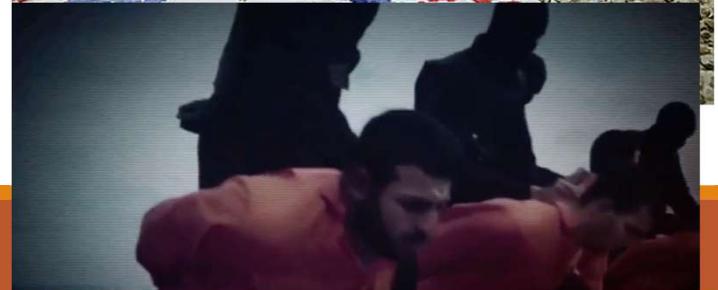
## - People

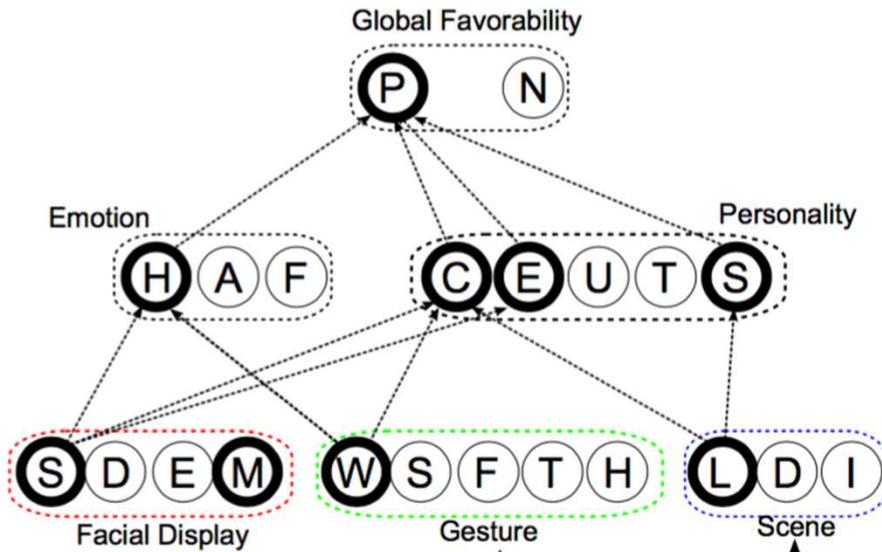
- Expressions
- Demographics



## - Sentiments & invoked emotions

# Visual Framing of Topics



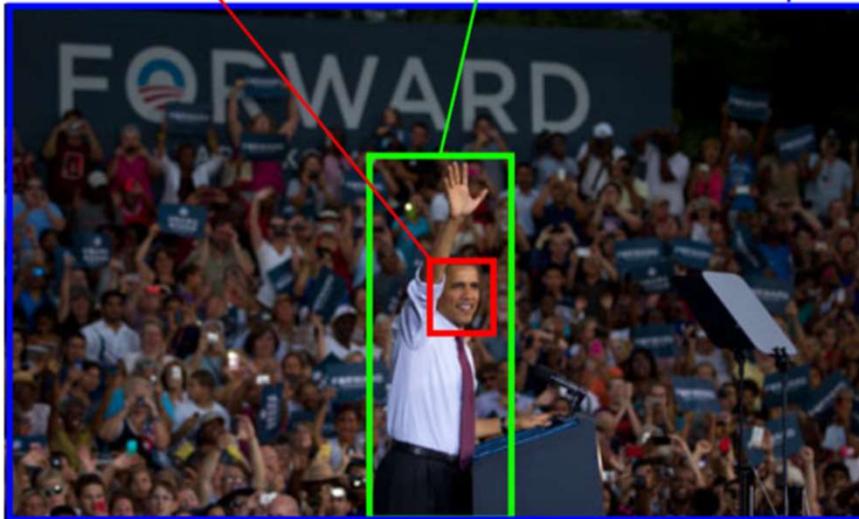


## (b) Persuasive Intent

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

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## - Protest

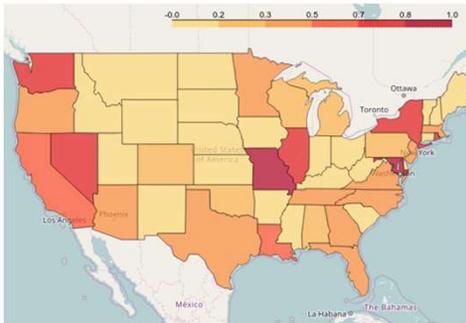
- Another form of political communication against state, person, event, issues or social beliefs.
- Publicized in mass/social media, gain support from the public



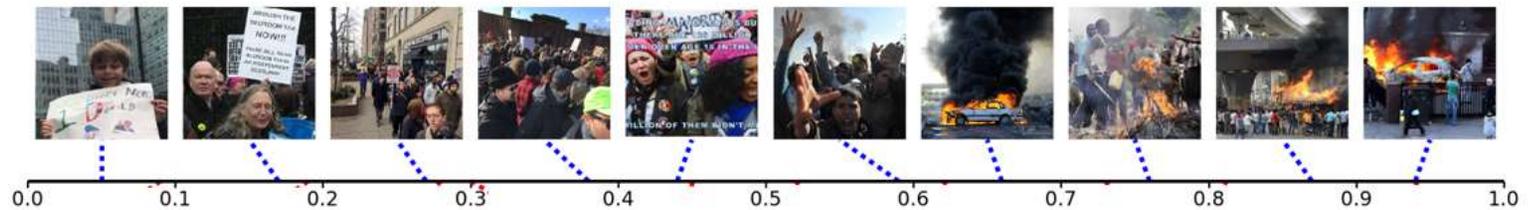
# Measuring Protest with Images

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

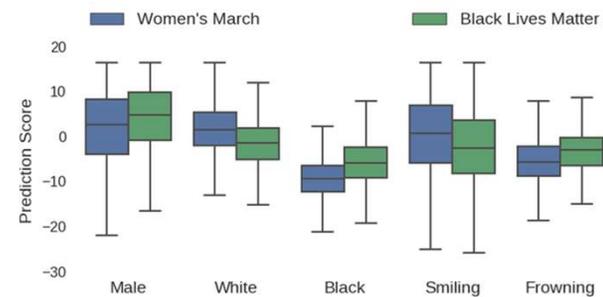
- Track protest activities:  
location, time, size of protest



- Peaceful vs. Violent protest



- Protester Demographics

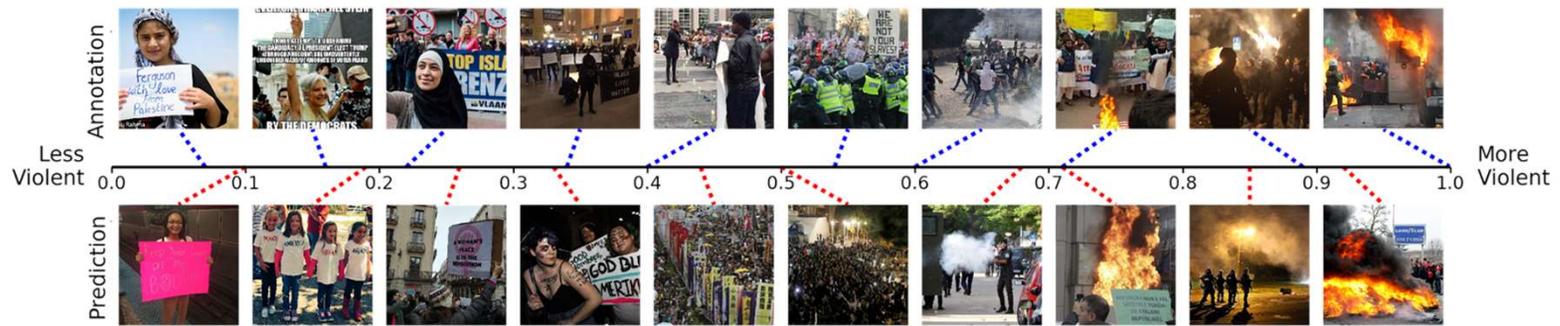
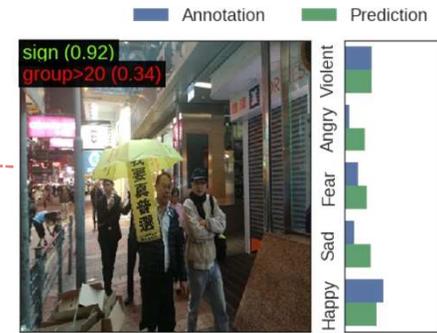
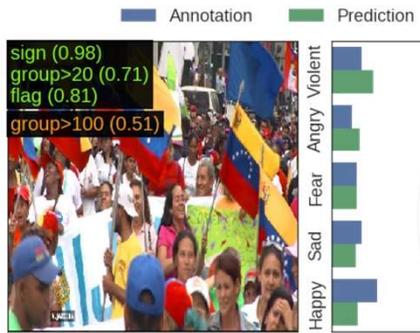
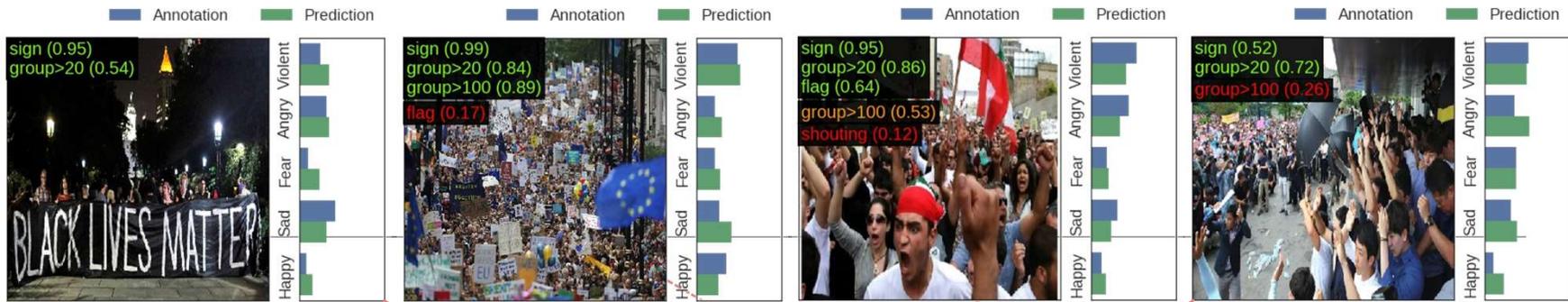


# UCLA Protest Image Dataset

- 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)



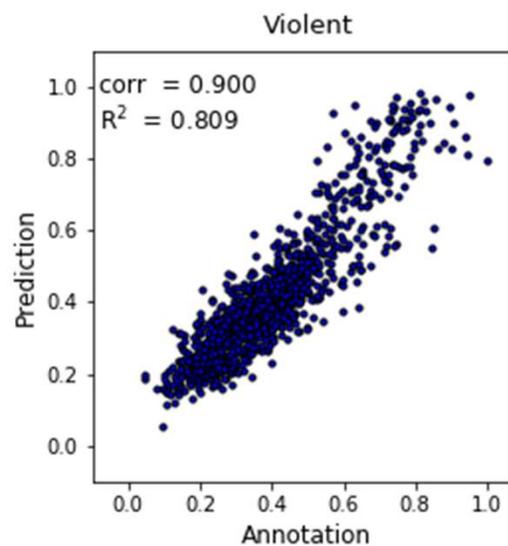
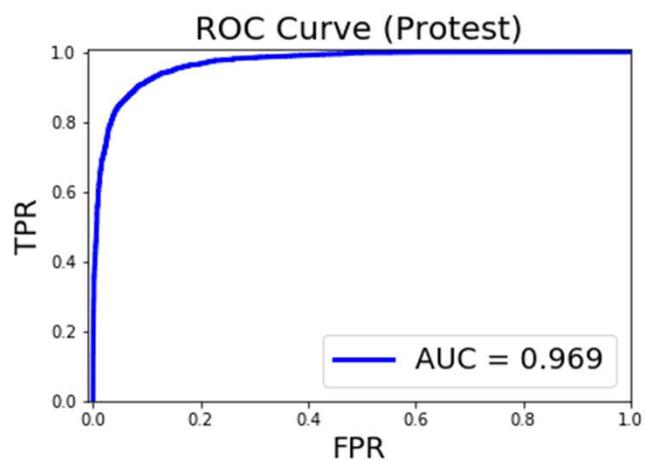
# Model

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- 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

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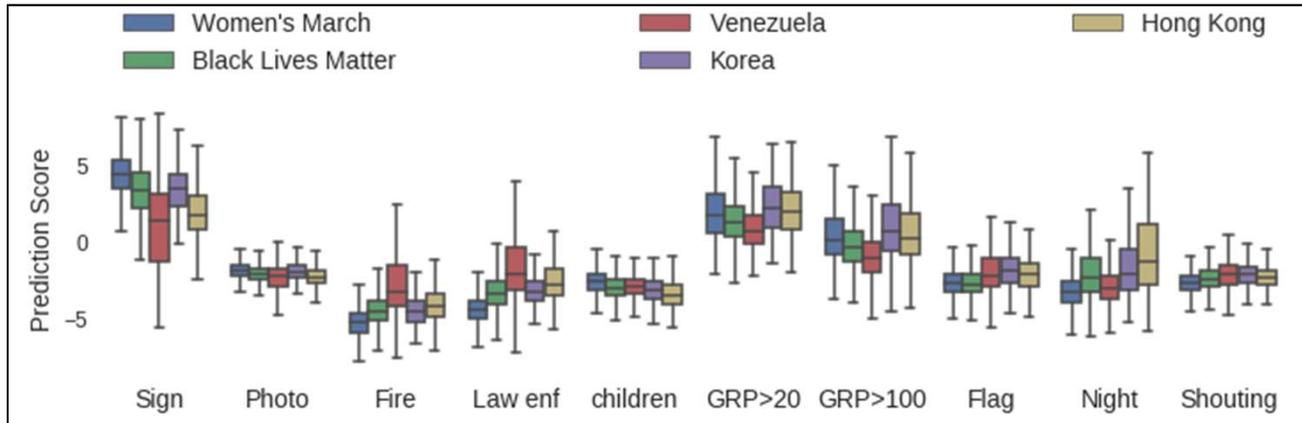
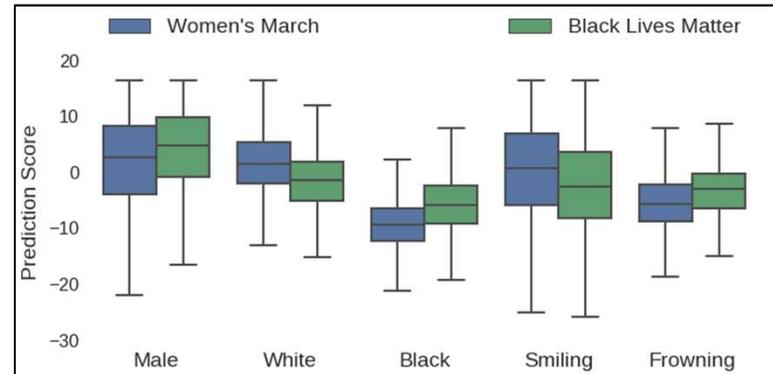
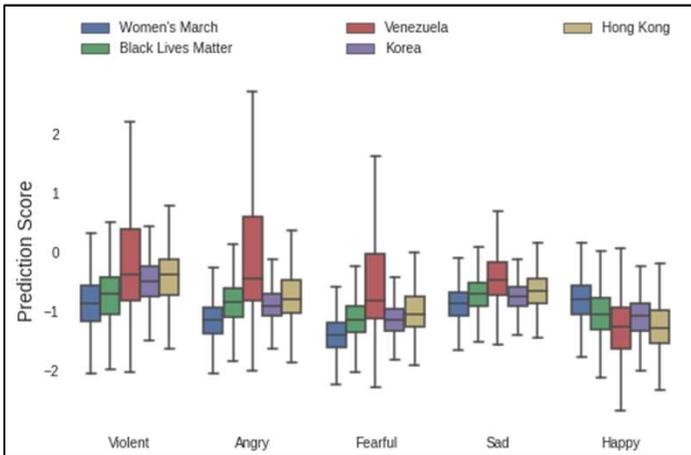
	Sign	Photo	Fire	Law enf.	Grp> 100	Night	Shout	Male	White	Black	Smile	Frown
Violent	-0.479	-0.047	0.567	0.367	0.152	0.206		0.12	-0.166	0.189	-0.151	0.181
Angry	-0.549		0.578	0.417	-0.166	0.183	0.106	0.146	-0.172	0.193	-0.196	0.223
Fearful	-0.495		0.504	0.399	-0.279	0.143		0.145	-0.171	0.194	-0.186	0.21
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

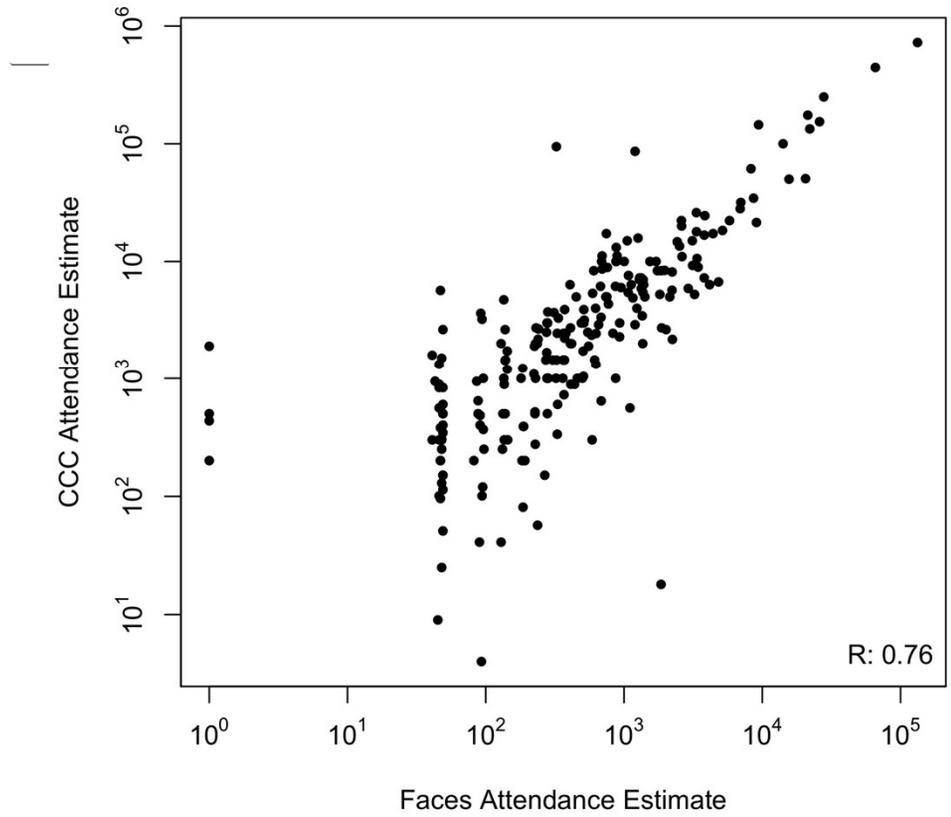
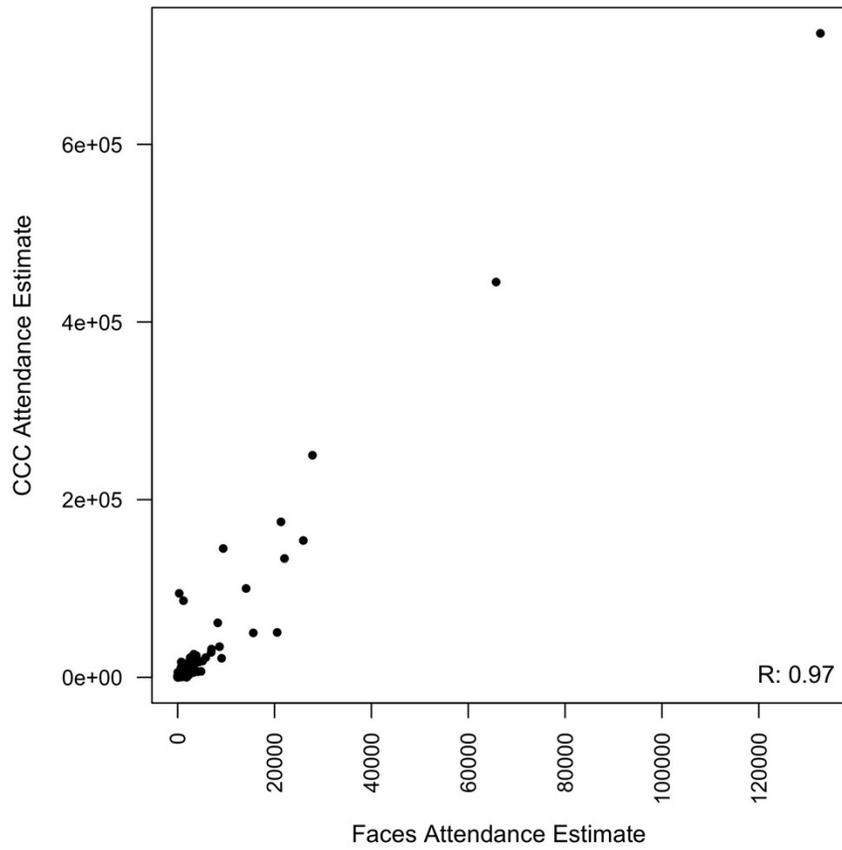
# Data

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- 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

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- What are the impacts of visuals in protest?



# Future Work

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- Decoding symbols of protest



# Conclusions

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- 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

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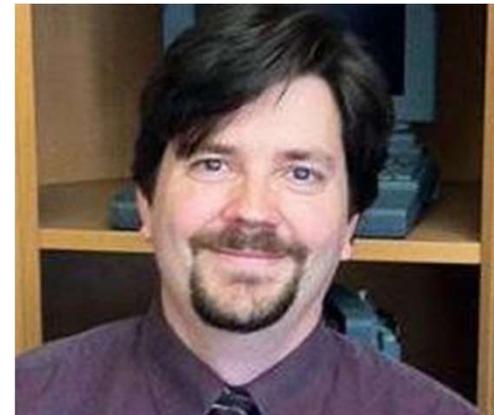
Donghyeon  
Won



Zachary  
Steinert-Threlkeld



Francis  
Steen



Tim  
Groeling



THANKS!

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