

VIS 2020

ClaimViz: Visual Analytics for Identifying and Verifying Factual Claims

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Facts First ✓

CNN holds elected officials and candidates accountable by pointing out what's true and what's not.

Here's a look at our recent fact checks.



Fact check: Trump campaign, Pence take Biden's policing comments out of context

Debunking 12 lies and falsehoods from the White House statement on Roger Stone's commutation

Fact check: No, more testing isn't the reason US coronavirus case numbers are getting worse

Fact-checking Trump's threat to cut off education funding if schools don't reopen



Mike Pence

stated on July 9, 2020 in a speech

"And I heard that just yesterday, Joe Biden said that well-armed police in his words 'become the enemy' and he said that he would 'absolutely cut funding for law enforcement.'"

By Louis Jacobson • July 10, 2020



Dan Forest

stated on July 4, 2020 in an interview:

Multiple studies "all said for decades, masks do not work with viruses."



A PROJECT OF THE ANNENBERG PUBLIC POLICY CENTER

Trump's False Claim on Coronavirus Harm



July 6, 2020

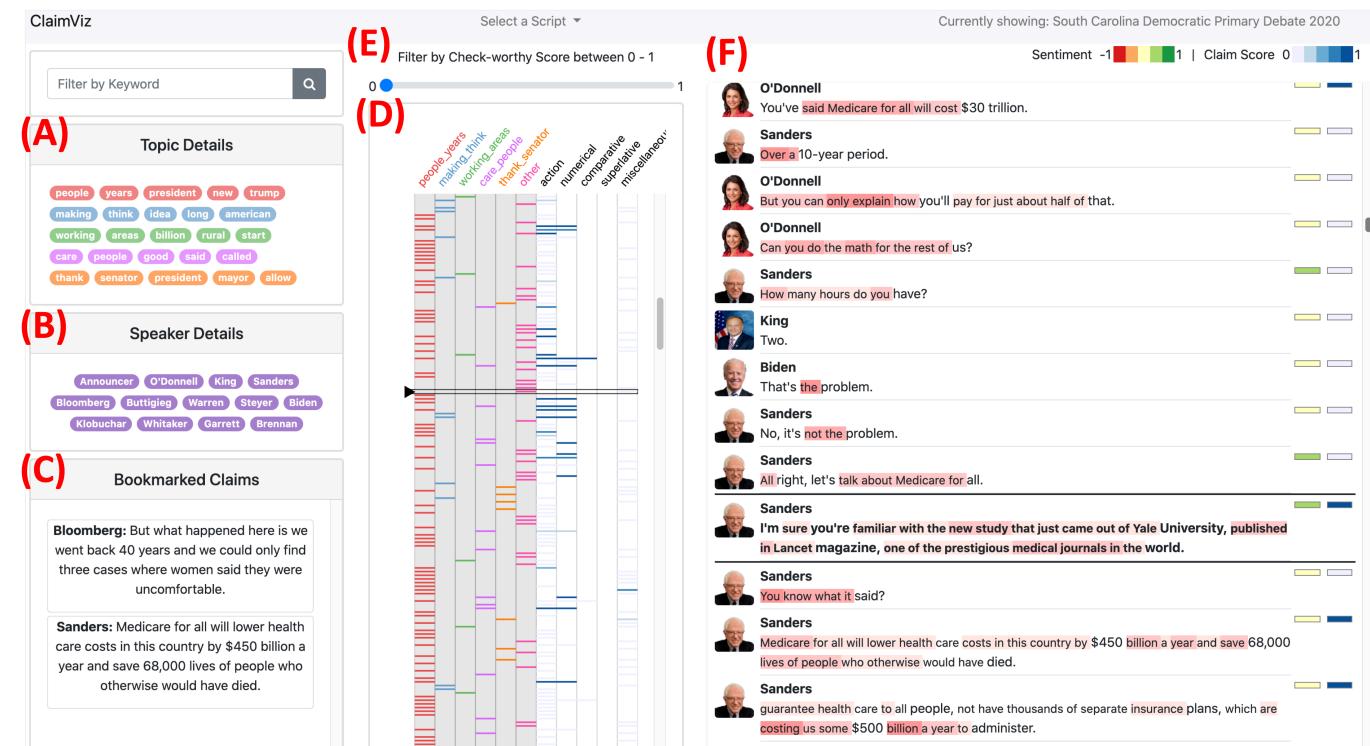
The Centers for Disease Control and Prevention reported that through May 30, 14% of confirmed coronavirus cases led to hospitalizations — including 2% in intensive care units. But President Donald Trump falsely claimed "99%" of cases "are totally harmless."

Our Goals

- To reduce the knowledge gap of effective design for the users
- To support fact-checkers in finding and verifying factual claims in a large document
- To combine visualization techniques with computational methods

Our Contributions

- Identified the challenges and requirements of the fact-checkers
- Designed a visual analytics tool, ***ClaimViz***
 - To explore and evaluate the potentially check-worthy claims in a large transcript
 - Integrated natural language processing and interactive visualization techniques



- Evaluated the tool with professional fact-checkers

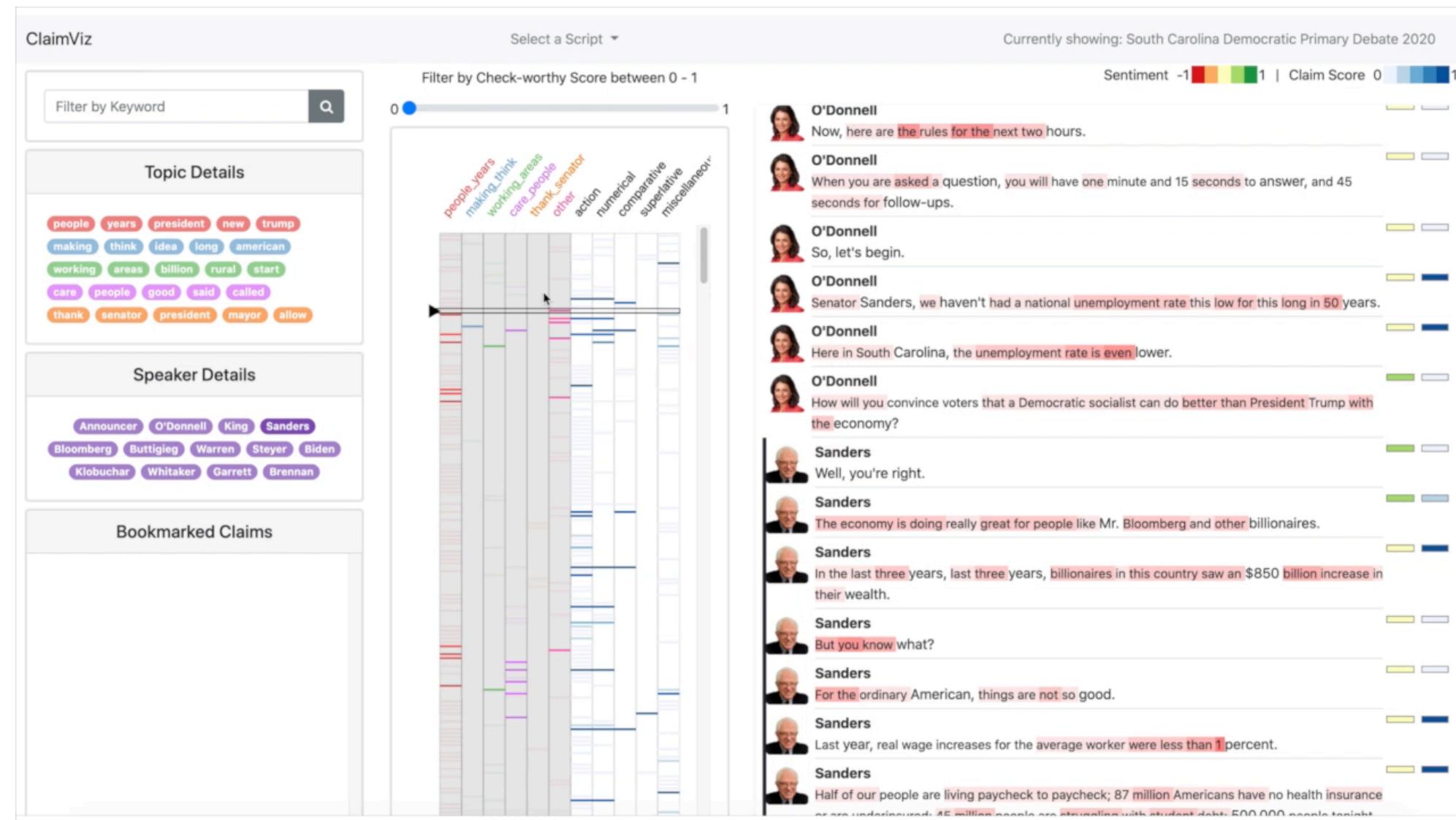
Requirement Gathering

- Interviewed **three** professional fact-checkers from *Politifact.com* and *Duke Reporters Lab.*
 - Open ended interview in a focus group setting
 - Gathered feedback on the early mockup and further requirements
- Got important insights of the current work practices and challenges
 - Lack of ability for human to provide input
 - Absence of context information
- Identified several important needs including:
 - Spotting interesting claims quickly from a transcript with proper context
 - Finding all claims made by a specific speaker of interest
 - Finding relevant evidence for a given claim

Text Analytics

- Claim check-worthiness prediction
 - Built a deep learning based model to predict check-worthiness of a sentence
 - Also identified most contributing words to check-worthiness in a sentence
- Claim type classification
 - Identified **4** prominent claim types: Action, Numerical, Comparison, Superlative
 - Devised a rule-based classification to predict the claim type
- Topics and sentiment Mining
- Evidence Mining

ClaimViz Demo



Expert Case Studies

- Study Goals
 - Does *ClaimViz* help target users in finding and verifying claims effectively?
 - Which visualization features worked and did not work?
 - What can we learn from their feedback to improve the system?
- Participants: **four** domain experts with extensive experience
- Study conducted **two** debate transcripts
- Two Type of tasks:
 - Four tasks to find check-worthy claims about specific topics or speakers or both
 - An exploratory task to find five most check-worthy claims

Expert Case Studies (Results)

- All participants found *ClaimViz* to be effective in identifying check-worthy claims

“...Amazing! Even a small fact-checking task could be painful as I need to go through a huge volume of content. But using this tool I will take much less this time for finding the claims” -- P3

- Most participants liked the interactive features of faceted exploration
- Some found the interface complex at first glance
- Two participants found word highlighting feature not much helpful

“While fact-checking I read the whole sentence anyway, so highlighting words in transcripts was not that helpful to me” -- P3

- One participant suggested to add sentiment distribution for speaker

Limitations & Future Works

- Current system supports only conversational scripts
 - Want to extend the system for supporting other corpora (e.g. social media text)
- Marks similar sentences from evidence documents for verifying
 - Enrich the verification component with further linguistic analysis such as stance detection and argument mining.

Search Results of the Claim

In the last three years, last three years, billionaires in this country saw an \$850 billion increase in their wealth. -- Sanders

Sanders says billionaires saw wealth skyrocket compared to average Americans. Is he right?

"We have enormous problems facing this country, and we cannot continue seeing a situation where in the last three years, billionaires in this country saw an \$850 billion increase in their wealth.

Congratulations, Mr. Bloomberg.

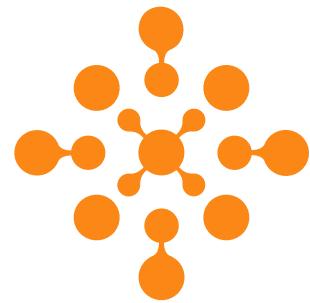
But the average American last year saw less than a 1 percent increase in his or her income.

That's wrong.

"This is mostly true.

Bloomberg's Billionaire Index reported in December that 172 American billionaires included in its ranking added \$500 billion to their wealth in 2019.

In 2018, Bloomberg reported that the country's 173 biggest billionaires lost 5.9 percent of their total wealth, leaving them with \$1.9 trillion at the end of the year.



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The system is available at: <http://claimviz.umd.edu/>

Any Question?

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