

Researchers analyze presidential candidates' body language

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(Phys.org)—New York University and the University of California, Berkeley have released a comprehensive computerized study of the body language of the major-party U.S. presidential candidates, using expertise of computer scientists and body language experts at both universities.

The team, whose work appears on its research site, GestureCloud.Org, matched the words with the gestures of President [Barack Obama](#) and [Republican nominee Mitt Romney](#) on a word-by-word basis to reveal how much weight or emphasis they put behind specific words. This study highlights what words each presidential candidate emphasized through digital motion-tracking of their [body language](#).

Their work bolsters what political analysts often focus on: what's trending on [Twitter](#) or how many times candidates mention specific words. Lost in these metrics is the conviction behind these terms. Do candidates truly reveal their dedication to addressing the federal deficit by mentioning it multiple times in a debate? Or are there other ways to gauge their sincerity?

"When you listen to politicians speaking, your response is based not only on what they say, but how they speak," explained NYU's Chris Bregler, a professor at NYU's Courant Institute of Mathematical Sciences and a developer of this analytical tool. "Physical motions of speakers determine how voters feel about them. How they move influences whether you believe they are standing behind what they are saying—or if you get the impression they are simply repeating a memorized list of

terms. A speaker's physical movements—arms, legs, shoulders, and facial expression—can undermine or even contradict the verbal message."

With this in mind, Chris Bregler's NYU team and his colleague Peggy Hackney, part of UC Berkeley's Theater Dance and Performance Studies program, analyzed all three presidential debates, examining over half a million high definition video frames, sounds, words, and gestures. They then assigned a "gesture weight" to each word the candidates uttered. "Gesture weight" is a calculation of how forcefully the speaker performs a particular gesture.

The study found both candidates had more gestures that involved the whole body during their acceptance speeches than in the presidential debates. The most full-body gesture movements, also called Posture-Gesture Mergers (PGMs), occurred when the candidates were stating their own beliefs and lauding their own accomplishments, with emphasis added in their beliefs by those body motions.

When it came to specific terms, Obama emphasized "jobs," "business," and "companies" more than Romney did, especially in the last debate. Romney emphasized "government" more than he did other terms, measured by how often he cited it using large gesture involvement. Obama mentioned "government" only twice in the last debate, but with much larger gesture involvement than did Romney.

Obama's gesture strength when he directly addressed Romney (i.e., "Governor Romney") increased from the first debate to the second debate, confirming what many pundits saw as a more aggressive performance by the president in the second match-up. Although Obama frequently used the words "Governor Romney" in the first debate, he did not reinforce these words with his body movements. The comprehensive computer tracked analysis of the [presidential debates](#) also confirmed that

Romney was pushing back more on Obama, with increased gesture emphasis when mentioning "president." Many of Romney's PGMs came when he pointed out something negative in his view of the Obama administration, rather than something about his own governing agenda.

Gesturecloud.org

The study can be viewed at gesturecloud.org. On the site, users can scroll over a term mentioned by both candidates, and see how much gesture weight or emphasis they put behind each word, as well as see the phrase in which the term was used. Gesture weight is shown by the size of the square that accompanies each word.

The work was conducted in NYU's Movement Laboratory. The laboratory's previous projects include an analysis of Olympic swimmer and gold-medalist Dana Vollmer, Olympic diver and silver medalist Abby Johnston, and diver/Olympic bronze medalist Nicholas McCrory. The team also examined baseball pitcher Mariano Rivera's delivery, and the gestures of the director of the New York Philharmonic, Alan Gilbert. In addition, the NYU Movement Lab has developed a method to identify and compare the body language of different speakers—also known as "body signatures." Titled "GreenDot," the project employs motion capture, pattern recognition, and "Intrinsic Biometrics" techniques. In 2008, the NYU Movement Lab's results showed that actress Tina Fey, who was widely praised for imitating Republican Vice-Presidential nominee Sarah Palin's voice and appearance, also effectively channeled the former Alaska governor's body language.

For more about the computer science technology behind the study, go to Manhattan Mocap LLC at manhattanmocap.com/ or visit NYU Movement Lab at movement.nyu.edu/.

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