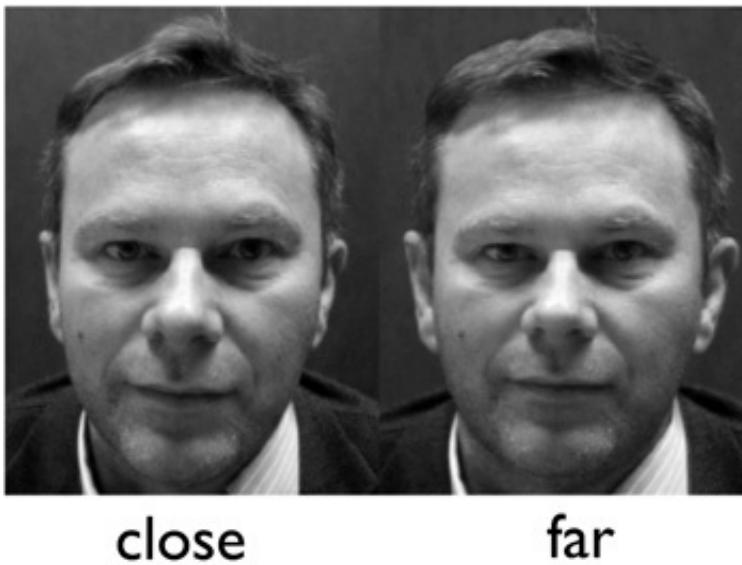


# Study shows that the distance at which facial photos are taken influences perception

September 26 2012, by Katie Neith

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(Medical Xpress)—As the saying goes, "A picture is worth a thousand words." For people in certain professions—acting, modeling, and even politics—this phrase rings particularly true. Previous studies have examined how our social judgments of pictures of people are influenced by factors such as whether the person is smiling or frowning, but until now one factor has never been investigated: the distance between the photographer and the subject. According to a new study by researchers at the California Institute of Technology (Caltech), this turns out to make a difference—close-up photo subjects, the study found, are judged

to look less trustworthy, less competent, and less attractive.

The new finding is described in this week's issue of the open-access journal [PLoS One](#).

Pietro Perona, the Allen E. Puckett Professor of Electrical Engineering at Caltech, came up with the initial idea for the study. Perona, an art history enthusiast, suspected that Renaissance portrait paintings often featured subtle geometric warping of faces to make the viewer feel closer or more distant to a subject. Perona wondered if the same sort of warping might affect photographic portraits—with a similar effect on their viewers—so he collaborated with Ralph Adolphs, Bren Professor of Psychology and [Neuroscience](#) and professor of biology, and CNS graduate student Ronnie Bryan (PhD '12) to gather opinions on 36 photographs representing two different images of 18 individuals. One of each pair of images was taken at close range and the second at a distance of about seven feet.

"It turns out that faces photographed quite close-up are geometrically warped, compared to photos taken at a larger distance," explains Bryan. "Of course, the close picture would also normally be larger, higher resolution and have different lighting—but we controlled for all of that in our study. What you're left with is a warping effect that is so subtle that nobody in our study actually noticed it. Nonetheless, it's a perceptual clue that influenced their judgments."

That subtle distance warping, however, had a big effect: close-up photos made people look less trustworthy, according to study participants. The close-up photo subjects were also judged to look less attractive and competent.

"This was a surprising, and surprisingly reliable, effect," says Adolphs. "We went through a bunch of experiments, some testing people in the

lab, and some even over the Internet; we asked participants to rate trustworthiness of faces, and in some experiments we asked them to invest real money in unfamiliar people whose faces they saw as a direct measure of how much they trusted them."

Across all of the studies, the researchers saw the same effect, Adolphs says: in photos taken from a distance of around two feet, a person looked untrustworthy, compared to photos taken seven feet away. These two distances were chosen by the researchers because one is within, and the other outside of, personal space—which on average is about three to four feet from the body.

In some of the studies, the researchers digitally warped images of faces taken at a distance to artificially manipulate how trustworthy they would appear. "Once you know the relation between the distance warp and the trustworthiness judgment, you could manipulate photos of faces and change the perceived trustworthiness," notes Perona.

He says that the group is now planning to build on these findings, using machine-vision techniques—technologies that can automatically analyze data in images. For example, one application would be for a computer program to have the ability to evaluate any face image in a magazine or on the Internet and to estimate the distance at which the photo was taken.

"The work might also allow us to estimate the perceived trustworthiness of a particular face image," says Perona. "You could imagine that many people would be interested in such applications—particularly in the political arena."

**More information:** Bryan R, Perona P, Adolphs R (2012) Perspective Distortion from Interpersonal Distance Is an Implicit Visual Cue for Social Judgments of Faces. PLoS ONE 7(9): e45301.

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