

# Computers will be able to tell social traits from the face

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Researchers have developed new computational tools that help computers determine whether faces fall into categories like attractive or threatening, according to a recent paper published in the journal *PLoS ONE*. Mario Rojas and other researchers at the Computer Vision Center in the Autonomous University of Barcelona in Spain, in cooperation with researchers from the Department of Psychology of Princeton University, developed software that is able to predict those traits in some cases with accuracies beyond 90%.

Facial characteristics play a central role in our everyday assessments of other people. "The perception of dominance has been shown to be an important part of social roles at different stages of life, and to play a role in mate selection," said Mr. Rojas. If the information on which the evaluation of faces is based could be automatically learned, it could be modeled and used as a tool for designing better interactive systems.

The team studied to what extent this information is learnable from the point of view of computer science. Specifically, the task was formulated with the intention of predicting 9 facial trait judgments (attractive, competent, trustworthy, dominant, mean, frightening, extroverted, threatening, and likable) using Machine learning techniques (a branch of [artificial intelligence](#) that uses examples to teach a program how to work).

The team trained and tested their algorithm on a set of synthetic [facial images](#) generated in a previous study. In that work, people were asked to

describe and rate a set of facial images, and these results were used to generate synthetic facial images, each associated with specific traits, such as [trustworthiness](#) or dominance.

In the current study, the researchers used a subset of these images, together with their labels, to "teach" the computer how to read a face, and tested the prediction accuracy using the rest of the images. Three traits, dominant, threatening and mean, were found to be predictable with accuracies between 91% and 96%. Additionally the study aimed to find what information is computationally useful for the prediction task. For example, they found that the area around the eyes contains more information about attractiveness, while the area around the mouth is more informative about extroversion.

The researchers also challenged their program's predictive ability against the faces of a number of celebrities; they found that their results are highly consistent with our general ideas about these public figures.

**More information:** Rojas Q. M, Masip D, Todorov A, Vitria J (2011) Automatic Prediction of Facial Trait Judgments: Appearance vs. Structural Models. PLoS ONE 6(8): e23323.  
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