# Giving emotions to virtual characters

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Researchers at the Autonomous University of the State of Mexico

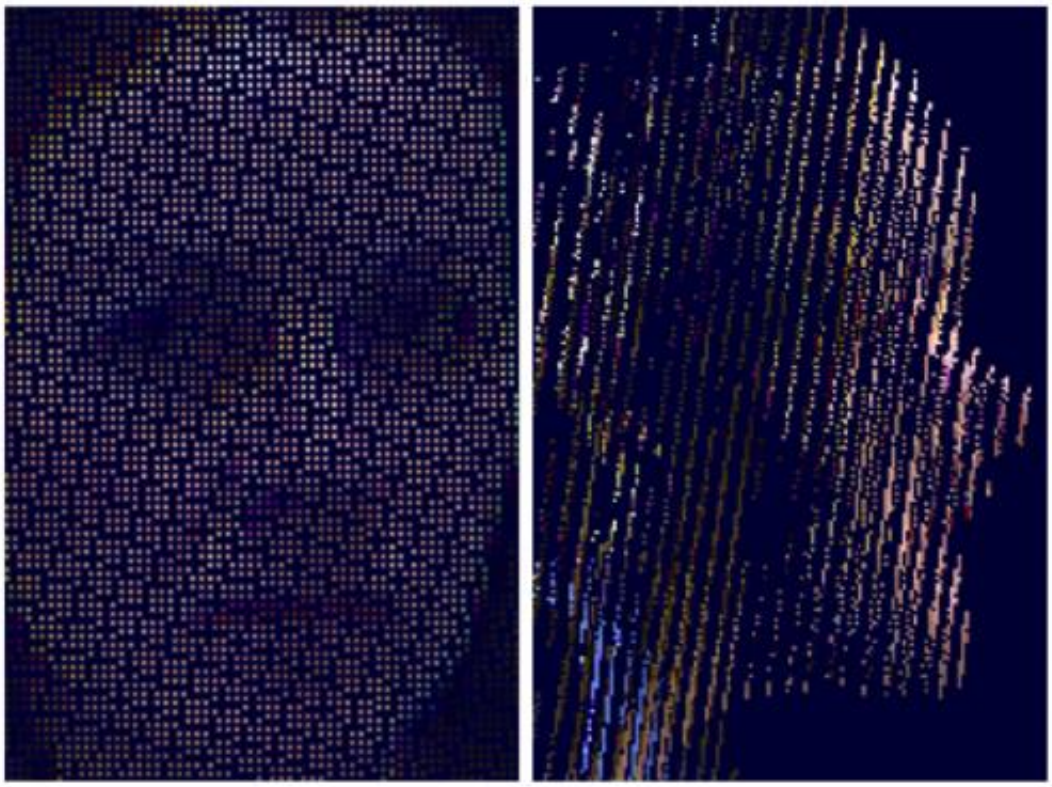
(UAEM) were able to simulate human facial expressions in virtual characters and use them in order to create better environments within a virtual communication.

So far, the so-called virtual agents also mimic human behavior through programmed commands or scripts, but this results in a very "robotic" reaction, which is not interesting for the user, said Marco Antonio Ramos Corchado, engineer at the Department of Computational Science at UAEM.

The main objective of the research is to generate expressions and emotions based on real people, taking as reference the 43 muscles involved in facial behavior depending on the psychological environment.

To achieve this in human models, tactile sensors were placed that release tiny electrical pulses to provoke different gestures with which a 3D camera captures the personality traits.

With the data collected, multiple virtual characters were included in project called "serious game" which, unlike video games consoles or computers, does not seek to entertain, but to run different educational, scientific or civil strategies, detailed the UAEM engineer.



Human behavior is strongly influenced by emotions, intentions, attitudes and moods that vary depending on the social context. Once these factors are captured by the 3D camera, they are translated into numerical data and then entered into the kinesic model designed by the UAEM, to sort and generate the animation of the expressions and gestures of the virtual characters in situations of happiness, sadness, surprise, fear, anger and disgust.

In order to achieve better results, the UAEM teamed with CINVESTAV GDL and the University of Guadalajara (UdeG) where students served as models to obtain the physical and psychological characteristics, which the application requires for a psychological profile and temperament. From the numerical measurement of emotions and sensations different

facial expressions are generated.

The aim of the project is to foster attitudes of self-improvement, use dynamics of context to enhance the learning process, promote collaborative environments and communication to solve problems and riddles.

In this case, the "serious game" created by the UAEM, Cinvestav Unit Guadalajara and the University of Guadalajara, is intended to predict the behavior of people in different risk situations such as natural disasters. For this project an earthquake will be simulated in Guadalajara, Mexico explained Ramos Corchado.

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