

# Computer scientists put a face on Internet communication with personalized icon software

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An alumnus and a professor from the University of Pittsburgh have chiseled away at the notorious impersonal nature of electronic communication by developing software that allows individuals to better express their emotions with icons that are actual pictures of themselves. The images can be altered to create different facial expressions.

The software program, called FaceAlive Icons, allows for more personal communication in e-mails, cellular text messages, and online forums, said Xin Li, who developed the program in 2004 and 2005 as a doctoral student at Pitt and now works for Google. With FaceAlive, a person's picture would replace the current emotional icon, or "emoticon," that features animated smiley faces or keyboard characters [such as :) for happiness] to convey feelings or moods. The concept and programming behind FaceAlive was detailed in a March article published online by the *Journal of Visual Languages and Computing*.

"FaceAlive is a new approach that could change how people express their feelings online," said Li, who earned his Ph.D. and master's degrees in computer science in Pitt's School of Arts and Sciences in 2006 and 2003, respectively. "It's more personalized and much better in terms of expressing one's self. It could significantly improve electronic communication when networking with other people."

The basic idea for FaceAlive originated with Li's doctoral advisor, Shi-

Kuo Chang, a professor in Pitt's computer science department whose work includes having pioneered the development of Chinese-language computers. Under Chang's guidance, Li developed FaceAlive with the help of Chieh-Chih Chang at the Industrial Technology Research Institute in Taiwan.

Pitt's Chang conceived of FaceAlive in an attempt to help personalize the Virtual Classroom, an online teaching forum he, Li, and other graduate students developed to improve distance learning. Chang currently teaches with a version where students are represented by a smiley face. The face is yellow when students are present and gray when they are not. Students also use the faces and other images to convey mood as well as agreement or disagreement, Chang said.

Nonetheless, the students cannot see one another's faces and have often never met, Chang said. The estrangement can inhibit student involvement and interaction.

"Students can feel alone in a virtual classroom because they don't know their fellow students," Chang said. "Sometimes they have never met the person. With the FaceAlive Icons, it's a way of seeing another person's face and getting to know him or her."

FaceAlive also is more accessible than current image technology. People can show their faces online with Web cameras and other devices, but those are cumbersome on sluggish computers or Internet connections, Chang and Li said. FaceAlive works with relics from the computer Stone Age as well as cellular phones and personal digital assistants (PDAs).

The program only requires users to send an expressionless, or neutral, photo, such as one taken on a cellular phone, Li said. The image is then sliced into pieces. A programmer alters the slices to create separate images of the six basic facial expressions recognized by psychologists:

happiness, sadness, anger, surprise, disgust, and fear. The photos are then sent back to the user in a single condensed file that is minimally taxing to machines and Internet connections.

To test the program's effectiveness, Li showed FaceAlive images to more than 50 people, he said. The subjects correctly identified the emotions in the icons 80 percent of the time.

Chang expects to include FaceAlive in the next version of his Virtual Classroom software. He also plans on improving the program's image quality and expanding on the available expressions, he said.

Source: University of Pittsburgh

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