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## CULTURE

ثقافة

### Mona Lisa 83% happy, study says

Saturday 17 December 2005, 13:25 Makka Time, 10:25 GMT

**The mysterious half-smile that has intrigued viewers of the Mona Lisa for centuries is not really that difficult to interpret, according to Dutch researchers.**

She was smiling because she was happy - 83% happy, to be exact, according to scientists from the University of Amsterdam.

In what they viewed as a fun demonstration of technology rather than a serious experiment, the researchers scanned a reproduction of the painting and subjected it to cutting-edge "emotion recognition" software, developed in collaboration with the University of Illinois.

The result showed that the subject of Leonardo da Vinci's famous painting was 83% happy, 9% disgusted, 6% fearful and 2% angry.

She was less than 1% neutral, and not at all surprised.

Leonardo began work on the painting in 1503, and it now hangs in the Louvre in Paris.

The work, also known as La Gioconda, is usually believed to have portrayed the wife of Francesco del Giocondo.

The title is a play on her husband's name, and also means "the jolly lady" in Italian.

Harro Stokman said the researchers knew the results would be unscientific - the software is not designed to register subtle emotions.

So it could not detect the hint of sexual suggestion or disdain many have read into Mona Lisa's eyes.

#### Emotionless state

In addition, the technology is designed for use with modern digital films and images, and subjects first need to be scanned in a neutral emotionless state to accurately detect their current emotion.

But Professor Stokman said that, with a reading of 83%, it is clear that happiness was the woman's main emotion.

Nicu Sebe, the lead researcher, took the challenge as seriously as he could, obtaining a base image by using a composition of faces from 10 women of Mediterranean ancestry.



The Mona Lisa was subjected to emotion recognition software

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#### Breaking down the smile

- Happy - 83%
- Disgusted - 9%
- Fearful - 6%
- Angry - 2%
- Neutral - Less than 1%
- Surprised - 0%



The question remains as to why she was happy

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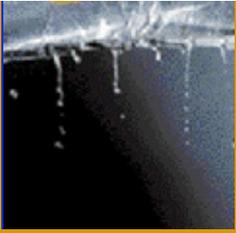
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composition or races from 10 women of Mediterranean ancestry.

"Basically, it's like casting a spider web over the face to break it down into tiny segments," Stokman said.

"Then you look for minute differences in the flare of the nostril or depth of the wrinkles around the eyes."

### Technology in its infancy

Biometrics experts not involved with the experiment said the results were interesting even if they were not the last word on the Mona Lisa.

Larry Hornak, director of the Centre for Identification Technology Research at West Virginia University, said: "Facial recognition technology is advancing rapidly, but emotional recognition is really still in its infancy."

"It sounds like they did try to use a data set, even if it was small, and that's typical of work in an area like this that's relatively new. It's an interesting result."

Stokman said he knew that the University of Amsterdam effort would not prove or disprove controversial theories about the painting. One is that it was actually a self-portrait of Leonardo as a woman.

"But who knows, in 30, 40, 50 years, maybe they'll be able to tell what was on her mind," Stokman said.

Hornak agreed that the idea was entertaining. "It's always fun to apply technology to areas of public interest, and sometimes you can come up with results that are very illuminating," he said.

**"It's always fun to apply technology to areas of public interest, and sometimes you can come up with results that are very illuminating"**

Larry Hornak,  
Centre for Identification Technology  
Research, West Virginia University

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