

Your own desktop crime lab

Drag-and-drop 'forensic droplets' make catching image fraud easy

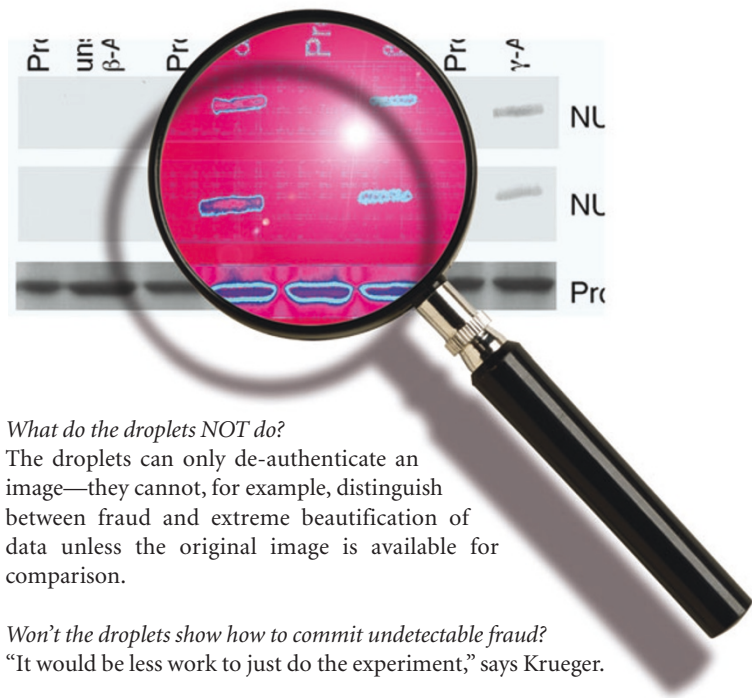
Think you know of an image that's been doctored? You might be able to detect it with a few simple steps. Experts at the US Office of Research Integrity (ORI) have developed software droplets that can detect how an image has been manipulated. "I hope the droplets will reintroduce the idea of scientific observation," says John Krueger, the ORI scientist who developed them.

What can the droplets do?

The five droplets reveal differences the human eye would not ordinarily catch. Using an online browser and Adobe Photoshop, they can reveal erasures or disruptions in the background, pinpoint edges and details of two similar features, and color-code two overlaid images.

Who has used the droplets?

Although ORI does not formally track the use of the droplets, at least one large research university and one academic journal has used them successfully in investigations. Using the droplets in his research integrity class, Julio Turrens, associate dean and biochemist at University of South Alabama, has caught three instances of image fraud in papers or grants under his review.



What do the droplets NOT do?

The droplets can only de-authenticate an image—they cannot, for example, distinguish between fraud and extreme beautification of data unless the original image is available for comparison.

Won't the droplets show how to commit undetectable fraud?

"It would be less work to just do the experiment," says Krueger.

The droplets and instructions are available at <http://ori.dhhs.gov/tools/droplets.shtml>

Kendall Powell, Denver

WOO-SUK HWANG



THE ALLEGATION: In May 2005, a news story in *Nature* suggested that cloning star Woo-Suk Hwang had coerced female lab members into donating eggs for his groundbreaking stem cell research.

THEN: As journalists and young Korean researchers uncovered evidence of ethical misdeeds and outright fraud, Hwang confessed in November 2005 that he had used eggs from paid donors and lab

members. A Seoul National University investigation during December found that Hwang's two papers on therapeutic cloning were both based on faked data, but Hwang continued to maintain that he was the victim of his collaborators' lies.

Now: In March 2006, Hwang lost his post at the university. South Korean prosecutors are continuing a criminal investigation into whether Hwang misused or embezzled millions of dollars in state funds. Those results were expected in April.

JOHN DARSEE

THE ALLEGATION: In 1981, two of John Darsee's colleagues at Harvard University caught the then-postdoc faking data in a study on canine cardiology.

THEN: University and federal investigators found Darsee guilty of scientific misconduct and cut him off from federal funds for ten years. Two years later in 1983, the researcher publicly apologized for fabricating data in more than 100 published research papers over 14 years. "I want to continue to contribute to the medical system," he wrote then.

Now: Darsee reportedly left research to pursue a fellowship in critical-care medicine at Ellis Hospital in Schenectady, New York. But where he went from there is unclear. Says Robert Kloner, who was director of the

Harvard lab when Darsee was exposed, "I haven't seen Darsee, haven't corresponded with him and haven't talked to him—and don't really want to."

WILLIAM SUMMERLIN

THE ALLEGATION: In 1974, William Summerlin used a black felt-tip pen to darken patches of fur on a white mouse—to serve as proof of his astonishing claim that he could transplant skin grafts between unrelated individuals without immune rejection.

THEN: Summerlin's claims dissolved when a dab of rubbing alcohol washed the so-called transplants away. Summerlin quickly confessed and blamed the "pressure cooker" atmosphere at the Memorial Sloan-Kettering Cancer Center. An institute committee attributed Summerlin's actions to a "serious emotional disturbance" and put him on sick leave with a year of pay.

Now: Summerlin never returned to the center, but reportedly moved to rural Louisiana to work in obscurity as a doctor. "This was so bizarre because [misconduct] cases are usually so much more complicated," says colleague John Leavitt, now a biotech consultant. "But this was simply a guy with a Magic Marker."

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