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The Camera Never Lies, But the Software Can

By KATIE HAFNER; Tim Gnatek contributed reporting for this article.

WHEN John Knoll created Photoshop in 1989, he knew he was designing an image-ec program that could be used in good ways and bad. But even Mr. Knoll, who wrote the with his brother, Tom, was unprepared for how outlandish photo manipulation would "When we worked on it, mostly we saw the possibilities, the cool things," said Mr. Kno how it would be abused."

The same tools that can be used to crop, retouch and otherwise edit digital images can as easily to distort, alter and fabricate them. With Photoshop and similar programs no available in inexpensive, easy-to-use consumer versions, just about anyone with rudin computer skills can cut, paste, erase, combine and retouch photographs. It doesn't tak to make the unreal seem real.

"Once this kind of technology was only available to people who could spend $1,000 or said Mr. Knoll, who now works for Industrial Light and Magic, the special effects com it's available to everyone, even those who want to use it for slander."

Playing with and circulating digital images has become something of a national pastir visual equivalent of e-mailed jokes. Family photos are frequent fodder, and the Web te sight gags and fakes: a shark attacking a British Navy diver as he escapes up a ladder helicopter; northeastern North America in complete darkness after the August blackou tornado" accompanying Hurricane Lili, which hit Louisiana in October 2002.

But not all digitally altered images are innocuous. A malicious one surfaced last montl photographs taken a year apart began circulating on the Web as one. The composite, v carried a false Associated Press credit, purported to show John Kerry and Jane Fonda, her stance against the Vietnam War, sharing a speaker's platform at a 1971 antiwar ra

Conservative groups circulated the manipulated photo for several days, and it appeare publications before it was revealed to be a fake, apparently stitched together by someo to Mr. Kerry's presidential run.

Faked photos are nothing new. Even with film and negatives, it was possible, with the

darkroom equipment and some skill and creativity, to remove people from images, for example, or to combine a jackrabbit and an antelope to create a gag "jackalope" postcard. Nor is photography for political purposes new. In 1840, Hippolyte Bayard, one of the earliest photographers, staged a picture of himself as a drowned man because he thought his work was not given proper recognition by the French government.

"But the scale of faking and manipulating is so much greater now in the environment of the pixel, which invites alteration," said Fred Ritchin, the author of "In Our Own Image: The Coming Revolution in Photography" (Aperture, 1999).

Adobe Systems, which makes Photoshop, says there are about 5 million registered users of the various professional and consumer versions of its software, including Photoshop Elements 2.0, which costs $99. Similar programs, like Paint Shop Pro and Microsoft Digital Image Suite, are widely available. And many computers, digital cameras, scanners and printers now include free image-editing software.

Many doctored photos are just funny, like the one of a man hoisting what appears to be a 90-pound cat. But David Mikkelson, who with his wife, Barbara, runs Snopes.com, an online repository and debunker of urban legends and hoaxes, including some composite photos, said that sometimes fake images strike a chord because they reflect a certain reality. "People are making caricatures based on existing conceptions," he said. "This helps them spread far and wide."

Such was the case with a manipulated photo that appeared on the Web in 2002 that showed President Bush holding a book upside down during a visit with children in Houston. The image was clearly meant to be funny ("Even if it were real, it would still be just a funny picture," the Mikkelsons wrote on their site). Although it was quickly revealed to be a fake, the photo served to reinforce an existing viewpoint, as did an altered photo of Senator Tom Daschle in which he salutes the flag with his left hand.

This point was apparently not lost on the creator of the Kerry-Fonda composite. Especially during the presidential primaries, with scrutiny being given to Mr. Kerry's antiwar activities in the early 1970's, images like the one showing him with Ms. Fonda can have a strong influence on the people who see them.

"What if that photo had floated around two days before the general election and there wasn't time to say it's not true?" said Ken Light, who took the original photograph of Mr. Kerry -- which did not include Ms. Fonda -- at an antiwar rally in 1971.

Mr. Light, 52, who teaches photojournalism and ethics at the University of California at Berkeley, said he was surprised by the swiftness with which the doctoring occurred. For 30 years, the original photo was buried in his files. He found it a month ago when he was going through old photos. In view of Mr. Kerry's presidential bid, Mr. Light thought the photo might be of general interest and sent it to Corbis, the online stock photo agency. A week later the composite surfaced.

"I was totally unprepared for what happened," he said.

Owen Franken, 57, a photographer in Paris who took the original photograph of Ms. Fonda in 1972, was so incensed by the fakery that he said he was "trying to figure out how to sue people about it." And officials at Corbis, which sells licenses for both of the originals, are investigating the possibility of copyright violations.

Kenneth Irby, a visual journalism group leader at the Poynter Institute, a journalism school in St. Petersburg, Fla., said he saw danger in the speed with which the Kerry-Fonda composite circulated on the Internet. "It speaks to the level of sophistication that average citizens can have, placing something like that in the mainstream of legitimate reportage and information," he said.

Ted Sampley, who runs an anti-Kerry Web site, said he had been searching for months for a picture of Mr. Kerry with Ms. Fonda. He said that after he posted an authentic one, which showed Mr. Kerry sitting several rows behind Ms. Fonda at a peace rally, he received an e-mail from a stranger containing the photo of the two side by side.

Mr. Sampley said he was skeptical not because the photo looked inauthentic, but because his own dogged search had not already unearthed it. That is, it seemed too good to be true. "I wanted badly to put it up, but I wouldn't do it," he said.

So Mr. Sampley sent the photo to a handful of friends, soliciting their opinions on its authenticity. This helped propel the image around the Web. "I inadvertently became a distributor," he said.

The doctoring of photos in political settings is a practice of long standing. "Basically what Mao Zedong did, eliminating people from photos, this is no different," Mr. Franken said.

Images can also create their own version of reality. David King, author of "The Commissar Vanishes: The Falsification of Photographs and Art in Stalin's Russia" (Henry Holt & Company, 1997), said that point was brought home to him years ago by a well-known 1920 photograph of Lenin with the writer Maxim Gorky. "It's just the two of them standing there together," he said. In 1972, Mr. King found the original print of the photo in an antiquarian bookshop in Amsterdam and saw that it contained more than 20 other people. "They were all wiped out," he said.

When Mr. King showed the original photo to Russian friends, they looked at him quizzically. "They thought I had put people into the picture," he said "It had become such an imprint on the Soviet mind."

Mr. Mikkelson said he believed that over the years people have grown more skeptical of the images they see. "It's a lot harder to fool people," he said. "The tools are improving, but the skills to convincingly doctor photos are scarcer than people think."

While it is relatively easy to cut a portion out of one photo and paste it into another, doing it in a seamless way is more difficult. Often it is easy to spot differences in lighting, perspective or

contrast between different areas of an image, or to detect background that has been duplicated to fill in part of an image that has been removed.

When Mr. Franken saw the Kerry-Fonda composite, he said, "I saw Fonda and knew it was mine, and knew Kerry wasn't there." Nonetheless, he said, the composite image was cleverly rendered. He said he was angered not just by what he believed to be the theft of his photograph of Ms. Fonda, but also by what was done with it, making "an issue out of a nonissue."

"The damage is not going to be undone later by saying it was a doctored picture," he said.

Barbara Mikkelson of Snopes.com agreed. "No correction will have the same impact as the original," she said.

Indeed, a manipulated image, which is often more powerful than the sum of its parts, can affect not just visual perception but opinions as well. While declining to discuss the Kerry-Fonda composite specifically because the incident is under investigation, David Green, senior corporate counsel at Corbis, said that the company vigorously pursues all copyright violations.

To that end, the company, which is owned by Microsoft's chairman, Bill Gates, places not only a visible watermark on the 3.5 million images available at its Web site, but also a digital watermark.

The digital watermark, developed by Digimarc, a company in Tualatin, Ore., encodes information about the owner of the image within the pixels of the photograph. The digital watermark, imperceptible to the eye, can be tracked on the Web even if the picture has been modified.

"It's a little like LoJack," said Mr. Green, referring to a method for tracking stolen cars. "When it's stolen it shows us, here's the Web address, and here are the specific images."

By contrast, efforts to prevent the manipulation of photos are decidedly low-tech. Customers who license Corbis images, for example, must agree not to modify or alter them, "unless specifically agreed in writing by Corbis."

As the Kerry-Fonda composite demonstrates, no amount of legal language or sophisticated tracking can deter someone who is determined to distort an image.

"There will always be the equivalent of the tabloid," said Scott Carr, the president of the watermarking division of Digimarc. "We can't look solely to technology. We have to rely on trusted sources, education and technology to get credibility in images."

Photos: 1971 -- John Kerry preparing to speak at an antiwar rally in Mineola, N.Y. (Photo by Ken Light/Corbis); 1972 -- Jane Fonda at a Vietnam War protest in Miami Beach. (Photo by Owen Franken/Corbis); 2004 -- A composite Kerry-Fonda photograph in a fake newspaper clipping circulated widely on the Internet.; DARKNESS FALLS -- A doctored satellite photo of the blackout in the Northeast last August exaggerated its effect.; WRONG WAY -- An Associated Press photograph of President Bush, near left, was altered to show the book upside down. (pg. G7)

(Illustration by Andy Chen)(pg. G1)

a principle. the camera never. lies. a basic. principle. enable so. to do. digital. image. computer. software. to acknowledge. sth. is true. You might also like Religious Language: Falsification Principle. 10 terms. katherine_whybrow. The camera never lies. Arthur Conan Doyle, creator of the Sherlock Holmes stories, (O) . himself to be a rational man, a scientist even. But in 1920, when he saw photographs of fairies taken in a garden (1) setting , he thought he was seeing scientific proof that these tiny creatures really existed. Today, we are used to computer software (7) enabling us to rework our digital images and it is a (8) myth that photography ever had a true age of innocence. From the moment cameras began capturing reality, that reality was being altered. Even if we opt (12) for a random group of letters such as 'fpqzy', there is now software available which can make a thousand guesses per second, enabling a hacker to get to your password in just under four hours.