H71 Identification of the Living From Video Tape and Photographs: The Dynamic Orientation Technique

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The goal of this presentation is to introduce the Dynamic Orientation Technique (DOT), an image capturing and analytical improvement for the identification of the living from video tape and photographs. This new technique is an enhancement of the conventional image comparison and superimposition methods that the authors previously employed in identification cases involving the living. The DOT has a variety of applications, including images of the face, parts of faces, the hands, and other body parts.

This presentation will impact the forensic community and/or humanity by providing a useful identification tool for a variety of forensic cases, including: crimes recorded on surveillance video tape; internet crimes depicted on digital photographs (such as criminal sexual conduct involving children); and the publication of photographic images without the subject's permission. Case examples will be used to demonstrate the utility of the technique.

Photographic image analysis and superimposition have been used for human identification for many decades. Dating back to the famous 1930s Van Ess/Ruxton case, forensic scientists have been comparing antemortem photographs with skulls for the purpose of positive identification and exclusion. A number of improvements have been added to the process, such as the employment of a dual camera and mixer system to facilitate orientation and the addition of landmark indicators to facilitate alignment. Possibly because of the relative lack of antemortem X-rays, skull/photo, and photo/photo superimposition is more advanced in some countries in Asia and Europe. For example, Yoshino and colleagues have developed a "3-D physiognomic range finder" and computer assisted identification system.

At the Michigan State University Forensic Anthropology Lab, the authors have recently consulted on a variety of identification of the living cases in which the Dynamic Orientation Technique has been employed. These cases have included the identification of perpetrators in bank and store robberies, ATM violations, internet crimes (criminal sexual conduct involving children), and the publication of images without a subject's permission. In addition, it is believed that the Dynamic Orientation Technique can enhance the ability to identify perpetrators of terrorist activities in public places, such as mass transit systems, where images have been captured on surveillance video tape.

One of the most significant problems with identification from video tape or photographs involves orientation. The known and unknown images must be sufficiently similar in orientation that the investigator is confident that an exclusion (or failure to identify) is due to actual proportional differences, not because images were not oriented properly. In the past, the authors' method for increasing the likelihood of proper orientation was to take multiple photographs of a suspect (or known individual) in hopes of capturing images that sufficiently match the image of the unknown individual. The method is cumbersome, time consuming and necessarily "hit and miss." On several occasions the authors have asked investigators to take multiple images of a suspect only to have to ask for more when none have lined up properly with the unknown images. The authors now call that the "get lucky" method.

In response to this problem, the authors have recently developed, and routinely incorporate, the Dynamic Orientation Technique to capture images of suspects, or other known individuals, for comparison. The process involves the use of a high definition digital video camera, a suitable playback machine, a mixer, and a quality monitor. A digital video camera is essential in this process because each image is complete and clear and there is no possibility of an image being caught between frames. Ideally, all of this equipment, and studio lights if needed, must be portable so that images may be captured in a prison or other security facility. The technique is relatively quick (rarely more than an hour with a suspect is needed), the equipment is readily available, and the likelihood of success is much higher than the still image method.

With the equipment set up, either in or away from a lab, the following steps are taken:

1. A selected unknown still image is projected and held on a video monitor.
2. The suspect, or known individual, is seated and positioned in such a way that the face (or other body part) is oriented similarly to the held image.
3. Using a digital video camera and mixer, a live image is received through the camera and superimposed onto the held image on the monitor. Careful attention is paid to orienting the live image exactly onto the held image. By moving the camera up and down, side to side, and in circular patterns, the likelihood of capturing images with matching orientation in increased. From the video footage produced during this Dynamic Orientation Technique, the best images are selected in the lab.
4. Carry out side-by-side comparison and superimposition analysis. A short 3-5 minute video will be played to illustrate the process and

the expected results to the audience.

Facial Identification, Video Image Analysis, Photographic Comparison

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