



D18 Photographic Comparison of a U.S. Army Camouflage Uniform Cap/Uniform, Using the Manufacturing Process, a Sample Study to Include Statistics

Carl R. Kriigel, BS, U.S. Army Criminal Investigation Laboratory, 4553 North Second Street, Forest Park, GA 30297*

After attending this presentation, attendees will learn about the photographic identification of the Army Woodland Pattern Camouflage Uniform based on random patterns introduced in the manufacturing process. This presentation will impact the forensic community and/or humanity by sharing the process and data used to compare U.S. Army camouflage uniforms.

This presentation will provide quantitative, scientific, and statistical data that supports the photographic comparison of military uniforms to the scientific community. This study was the base line for Army camouflage uniform photographic comparisons at the U.S. Army Criminal Investigation Laboratory.

Many times civilian subjects wear military camouflage uniforms in the commission of a crime that are subsequently captured on still or video images. From these images, a comparison can be made to the suspects clothing.

The ability to identify individual U.S. Army Camouflage Woodland Pattern Battle Dress Uniform (BDU) caps/uniforms from bank surveillance videos is very valuable. The overall goal is to provide local, state, and federal law enforcement officials with information that supports the comparison process, identification and subsequent examiner testimony.

The case that prompted this study involved a photograph of a soldier in a camouflage uniform and hat taken by a bank security video camera. While the soldier's face was not totally visible, and as such was unidentifiable, the camouflage hat the soldier wore was identifiable. Based on research, it was determined that the hat in question had a distinguishable pattern. After comparison of the submitted Known Hat to the Questioned Hat on the videotape image, the hat was subsequently identified as belonging to the suspect soldier.

In the past, the assumption has been that camouflage uniforms/hats or photos/videos of uniforms/hats from crime scenes could not be used for comparison because the uniforms/hats were considered non-distinguishable or unique. This is due to the fact that military uniforms are manufactured to government specifications with a standard pattern. A study was launched to determine if it could be shown that uniforms/hats bore individual characteristics and were in fact unique.

The study entailed an examination of the uniform manufacturing process. It was observed that individual uniform/hat pieces are randomly cut from large bolts of cloth and randomly sewn together. Even though the pattern is made to military specifications and repeats itself throughout the bolts of cloth, the randomness of the cutting and sewing appeared to create unique points of information. The next step involved conducting a sample study of hats. A total of 57,630 comparisons were conducted from the 340 hats that were examined.

In the final phase, professional statistical assistance was obtained to quantify the results in a reliable manner. The hat was analyzed in four component parts. The results of the study determined that the probability of all four component parts of one hat matching the four component parts of another hat is almost non-existent. As a result, each cap is distinctively individual and unique with the likelihood of an exact duplicate being almost non-existent. This also applied to other items of BDU camouflage clothing such as shirts, pants, and jackets.

This presentation will review the techniques used that can assist examiners conducting clothing comparisons other than camouflage uniforms.

Photographic Comparison, Camouflage Uniform, Manufacturing Process