

# Statistical Analysis of Forensic Garment Comparison

Calculate statistical estimates of match likelihood between seized garments and surveillance footage.

Solid, statistical backing to support qualitative expert forensic analysis.

Two free, streamlined software tools with step-by-step guidance.

## Quantifying matches between evidence and surveillance

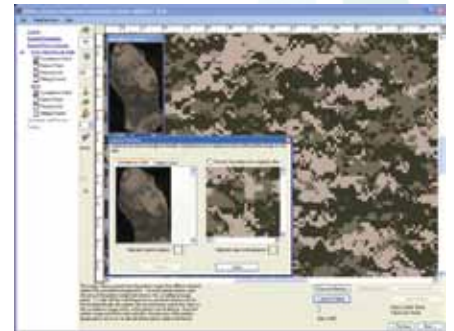
Demand for empirical evidence in garment matching analysis is an increasing challenge in forensics. To address the problem, Quantum Signal developed methods based on pattern alignment for quantitatively measuring evidence for matches between surveillance images and recovered garments.

## Military Uniform Uniqueness Statistical Evaluator (M.U.U.S.E.)

sponsored by: Technical Support Working Group

For **camouflage garments**, manufacturing facilities are characterized in terms of parameters that affect pattern alignment distributions. These are used in a comprehensive statistical model to determine the worst case probability of an accidental match between two distinct camouflage garments.

M.U.U.S.E. is a software system for cases involving U.S. Army camouflage garments. The tool characterizes the uniqueness of individual garments and provides investigators with a wealth of forensic information. It enables forensic experts to easily and accurately perform quantitative analysis and generate reports suitable for use in investigations and legal proceedings.



## Garment Match Likelihood Ratio (LR) Calculator

sponsored by: Department of Homeland Security Science and Technology Directorate

For **other patterned garments**, it is often impractical to characterize manufacturing facilities directly, as they are typically overseas. To overcome this challenge, manufacturing parameters can be estimated via seam measurements taken from multiple copies of the same garment.

This new software application allows investigators to determine the likelihood ratio (LR) for a match between a recovered garment and surveillance images by entering seam measurements taken from a small sample of garment copies. The tool enables examiners to easily and accurately perform statistical analyses and generate detailed reports. The software is available for free download at [www.qsforensics.com](http://www.qsforensics.com).



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