Raising the Bar on 3D Forensics
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The challenges and demands facing law enforcement and crime scene investigators today are greater than what has traditionally been done with simple mapping tools. The types of data sources and technologies currently available have changed the paradigm in terms of capture speed, evidence interpretation and visualization. Today, laser scanners, photogrammetry, structured light scanners and the like are providing digital evidence of greater quality and resolution with possible sources from airborne, terrestrial, handheld and waterborne platforms. Combining these data sources of varying scales allows for new types of analysis which could not be possible with one technology alone. The adoption of 3D technologies to solving many forensic problems has already shown much benefit due to objective approaches and statistically sound methods. These improvements span across areas from very large crime scenes to objects as small as tool marks on bullet cartridge casings. Validation and research is a key component to providing acceptance within the scientific community and hence, within our legal system. The visual nature of 3D evidence means that judges and jurors can better understand the evidence since it can be presented in a realistic manner without abstraction. In addition, visualization and how 3D evidence is presented in the courtroom is changing with technologies such as 3d printers and virtual reality “glasses”.

As greater demands are being placed on forensic practitioners to multi-task and learn new technologies, training and certification are vital components for efficient and focused problem solving. However, training and education for “3D forensics” is often scarce or limited in nature. Organizations such as the International Association of Forensic & Security Metrology play a role in the sharing of techniques and establishing guidelines across multiple forensic disciplines to bring greater awareness and acceptance to utilizing 3D technologies as part of an investigation.