TECHNOLOGY

Component Forensics of Visual Sensors and Devices

OVERVIEW

Visual sensors have experienced tremendous growth in recent decades. The resolution and quality has been steadily increasing and digital devices are becoming ubiquitous. Digital imaging has been used in a number of applications, from military to reconnaissance to medical diagnosis and consumer photography. Consequently, a series of new forensic issues arise amidst such rapid advancement and widespread adoption of imaging technologies. For example, hardware and software components inside the devices, type and brand of imaging sensors, type of processing etc.

Researchers at University of Maryland have developed an innovative forensic methodology called non-intrusive component forensics, which aims to identify the components inside the visual devices solely from its output data inferring what algorithms/processing are employed and estimating their parameter settings. Inventors have used the digital camera to illustrate the widespread applicability of the proposed technique, identifying internal components, exact nature of algorithms (and its parameter) using sample output images taken from the camera under diverse training conditions. Through simulations and data-sets captured from 16 different camera models inventors described that the invention is general and can be used to study similarities and differences among several camera models, also through the forensic evidences determining potential technology infringements and protection of intellectual property rights could be accomplished. Other applications include identifying acquisition device, detecting content tampering, performing universal steganalysis, and studying technology development and evolution.

For additional information please contact the Office of Technology Commercialization, University of Maryland. Phone: 301-405-2555

APPLICATIONS

intellectual property protection, camera sourcing, video forensics, digital rights management

ADVANTAGES

allows for unique identification of several camera models
nonintrusive techniques

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CATEGORIES

- Information Technology

EXTERNAL RESOURCES

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